

Manual for KiloLink Server Pro

Bonding Service and Centralized Device

Management Platform


(kiloLink Server Pro V1.00.0014)

Draft

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1. System introduction

1.1. Introduction

KiloLink Server Pro is a centralized management software platform based on KiloLink technology, specifically designed for Kiloview devices. KiloLink Server Pro software is sold together with relevant devices. Currently, KiloLink Server Pro offers centralized device management and network bonding services with no limits on the number of devices or connections.

KiloLink Server Pro efficiently manages various new hardware encoder and decoder devices produced by Kiloview

KiloLink Server Pro provides network bonding, video preview, and streaming services for Kiloview's P series devices.

KiloLink Server Pro can also serve as an NDI encoder, outputting NDI HX streams.

KiloLink Server Pro can easily manage various devices integrated with the KiloLink SDK.

KiloLink Server Pro centralizes the management of device web UI, making complex streaming media management simple and efficient.

1.2. Features

1.2.1. Multi-link Bonding

KiloLink Server Pro, based on Kiloview's proprietary KiloLink technology, supports multi-link bonding for transmission. The KiloLink network bonding is highly flexible, allowing you to combine multiple 4G/5G SIM cards, Wi-Fi and Ethernet to achieve bonding transmission. This multi-link bonding technology enhances transmission bandwidth and improves reliability in complex and varying network environments.

Multi-link bonding is one of the standout features of Kiloview's proprietary KiloLink technology. It not only retains the advantages of traditional single-link network transmission but also demonstrates unique benefits across various network scenarios:

- **Increase the bandwidth of your device**

Multi-link bonding is not limited by the bandwidth of a single link. By simultaneously utilizing multiple links, it enhances the network transmission bandwidth of devices, supporting higher-resolution image and video transmission requirements

- **Enhanced jitter resistance**

In a multi-link bonding network, even if one link experiences fluctuations, the overall impact on audio and video transmission is minimal. This makes it suitable for scenarios with unstable network environments, such as outdoor live streaming.

These features give link bonding technology significant advantages in improving transmission efficiency and stability.

1.2.2. Multi-protocol Conversion

KiloLink Server Pro integrates high-performance streaming services. The streaming service will pack the audio and video data from P series wireless bonding encoders into various streaming protocols. Currently, it supports transmission protocols including SRT, NDI HX, RTMP, RTMPS, RTSP, RTP, HLS, and TS-UDP

1.2.3. Batch Management

The KiloLink Server Pro homepage provides a direct view of the current CPU usage, memory usage, and network status. It also displays the number of online and offline devices and includes a new alert section to help you easily identify any device anomalies, allowing for timely diagnostics.

KiloLink Server Pro supports batch firmware upgrades. After uploading the firmware, KiloLink Server Pro automatically categorizes it based on type. Users can select devices for batch firmware upgrades according to their needs. This centralized firmware upgrade process makes it easier for users and significantly saves time on updating devices. KiloLink Server Pro homepage can directly view the current CPU and the number of online and offline devices, which also adds an alarm information section, allowing you to easily discover abnormal status of the current device and make timely diagnosis.

KiloLink Server Pro Support batch firmware upgrade. After uploading the firmware of the codec device, KiloLink Server Pro automatically classifies it according to the firmware type.

Users can select devices for batch firmware upgrade according to their needs. Centralized firmware upgrade is convenient for users and greatly saves time in updating devices.

1.2.4. Low Resource Usage

KiloLink Server Pro has minimal hardware resource usage for CPU and memory, ensuring stable program performance. It can be easily deployed on ECS from major cloud service providers (such as Aliyun, AWS, etc.) as well as on your private servers.

2. Products Parameter

2.1. Main Function

Function options	KiloLink ServerPro
Real-time display of equipment status	Supported
Alarm information	Supported
Remote control of equipment	Supported
Number of devices managed	Unlimited
Streaming Services	Supported
Video Preview	Supported
User/Group Management	Supported
Permission settings	Supported
Firmware Upgrade	Supported
Organizational structure management	Supported
System log	Supported
Multi-language support	Chinese/English
Deployment	Public cloud, private cloud, and independent server deployment
Running Environment	Docker Virtualized Environment
Authorization and Use	Free forever

2.2. Support Notes

KiloLink Server Pro currently supports management of the following devices:

product type	Models which support KiloLink Server Pro		
Encoder	E1/E1-s/E2/E3	P1/P2/P3	M2
	E1 NDI/E2-NDI	G1/G1-s/G2	S2
	E1-S	N1/N2	U40
Codec integration[IO]	N3/N3-s/N4	N5/N6	N30/N40/N50/N60
decoder Media Gateway	D350/D260	MG300/MG300 v2	D300/DC230/DC220
Rack-mounted codec equipment	RD-230	RE-1/RE-2/RE-3	RD-350
	RD-300	REN-2	RD-260
	RE-1 v2 (new)	RE-100	RN-40
	REN-1	REN-100	RMG-300
	REN-1 v2(new)	RN-3 (new)	RMG-300 v2

product type	Models which support the KiloLink reset function	
Encoder	E1/E1-s/E2/E3	P1/P2/P3
	E1-S	N1/N2
Codec integration[IO]	N3/N3-s/N4	N30/N40/N50/N60
Decoder Media Gateway	D260	
Rack-mounted codec equipment	RD-230	RE-2
	RD-260	
	RE-1 v2 (new)	



Notice:

1. Due to the limited performance of P1/P2 hardware, using KiloLink SDK Bonding service will affect CPU utilization. Please refer to its user manual in detail before upgrading the P1/P2 device to fully understand the risks of P1/P2 device upgrade. The upgrade may cause instability in some services. For details, please refer to the user manuals of P1 and P2.

2. After jump from the KiloLink Server Pro backend to the independent management backend of the "device", if the browser and the device are not connected to the network, you will not be able to watch the video preview in the device backend, which is normal.

2.3. Hardware Configuration

Minimum configuration requirements without using bonding :

CPU	One core or above (X86/AMD64) CPU Recommended model: 1*Intel Xeon Platinum 8255C +
Hard disk	40G+ Recommended storage media type: SSD
Memory	2GB +
Bandwidth	2Mbps+ (One public IP needs to be configured)

Minimum configuration requirements for using the bonding:

CPU	Dual-core or above (X86/AMD64) CPU Recommended models: 2*Intel Xeon Platinum 8255C +
harddisk	100G + Recommended storage media type: SSD
Memory	4GB +
bandwidth	<p>Example:</p> <p>Assume 2 piece of P3 which select 8M/bps bit rate of concurrent video traffic,each unit output N channel of stream as an example:</p> <p>Symmetrical bandwidth calculation formula:</p> <p>(TIP: One public IP needs to be configured)</p> <p>INPUT: $2 * 8\text{Mbps} * 1.2$</p> <p>OUTPUT: $2 * N * 8\text{Mbps} * 1.2$</p> <p>TOTAL: $\text{Max} \{ 2 * 8\text{Mbps} * (1 + 0.2), 2 * (\text{RTMP RTP} \dots \text{Protocol Bit Rate}) * (1 + 0.2) \}$</p> <p>Note: Reserved 20% bandwidth is used as a sub-stream (for preview of streaming channel), Device management and Redundancy;</p>

2.4. System Parameters

system version	RHEL9+/debian9+/Ubuntu 20.04 LTS+
Linux Kernel	Linux kernel 5.4.0 versions above

2.5. Software Environment

Docker	Recommended Docker version 24.0.5
Firewall	Open the specified ports in Section 2.6
Security Group	<p>Open the specified ports in Section 2.6</p> <p>If the cloud server is on a cloud service provider such as AWS/Aliyun, you need to pay attention to the impact of security groups</p> <p>If the cloud server is in the company's intranet environment, pay attention to the impact of ACL security rules</p>
DNS	<p>DNS can be resolved normally</p> <p>Set it to the DNS of the local telecom provider or cloud service provider to ensure that the DNS resolution is normal</p>
Public IP address	<p>The server public IP can be pinged normally</p> <p>If the cloud server is in the company's intranet environment, DNAT configuration may be required to ping the server from the external network.</p> <p>If the cloud server is on a cloud service provider such as AWS/Aliyun, you need to configure a public network EIP or NAT external gateway</p>

2.6. Port Description

Static port range

Port Range[static]	protocol	effect
80:80 (default)	TCP	KiloLink ServerPro Web Access
50000:50001 (default)	UDP	Encode/Decode Deviceexternal access
5353:5353 (default)	UDP	mDNS (NDI Stream Discovery)

Dynamic port range

Port Range[dynamic]	protocol	effect
30000:30300	TCP	AV stream deliver
30000:30300	UDP	AV stream deliver
5960:6500	TCP	NDI stream Control
7960:10000	UDP/TCP	NDI stream deliver

Notice:



TIP1: The default service port of KiloLink Server Pro can be customized during installation. You need to remember it and allow access to the relevant ports in your security configuration. Otherwise, device connection and web access may go wrong.

TIP2: KiloLink Server Pro currently supports no limit on the maximum number of push channels. It is recommended that one device support up to 200 AV streams.

TIP3: The hardware configuration in Section 2.3 cannot support 200 AV streams. It depends on the specific situation. If the number of channels you want is not supported, please upgrade the configuration as appropriate.

3. Installation and Deployment

If you refer to "Products parameter" in the "Hardware Configuration" section and a server with Linux system has been prepared.

3.1. Container Installation

The general installation steps for the Docker container environment are as follows:

1. Install the Linux operating system environment;
2. Add Docker installation sources suitable for your country's network environment;
3. Install the Docker series of programs;

Taking Ubuntu system as an example, the installation process is as follows:

Enter the update source command: `apt update`

```
root@ubuntu:/home/hanr# apt update
命中:1 http://us.archive.ubuntu.com/ubuntu bionic InRelease
获取:2 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
获取:3 http://us.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
获取:4 http://security.ubuntu.com/ubuntu bionic-security/main i386 Packages [1,379 kB]
获取:5 http://us.archive.ubuntu.com/ubuntu bionic-backports InRelease [83.3 kB]
获取:6 http://us.archive.ubuntu.com/ubuntu bionic/main Translation-zh_CN [67.7 kB]
获取:7 http://us.archive.ubuntu.com/ubuntu bionic/restricted Translation-zh_CN [1,188 B]
获取:8 http://us.archive.ubuntu.com/ubuntu bionic/universe Translation-zh_CN [174 kB]
获取:9 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [2,717 kB]
获取:10 http://us.archive.ubuntu.com/ubuntu bionic/multiverse Translation-zh_CN [4,768 B]
```

Chart1

Enter the command to install Docker: `apt install docker.io -y`

```
root@ubuntu:/home/hanr# apt install docker.io -y
```

Chart2

After Docker is installed, start docker device and set docker startup automatically:

Enter Docker start command: `systemctl start docker`

Enter Docker automatic start command: `systemctl enable docker`

```
root@ubuntu:/home/hanr# systemctl start docker
root@ubuntu:/home/hanr# systemctl enable docker
root@ubuntu:/home/hanr# █
```

Chart3

Verify docker to check whether the installation is successful.

Run the command: `docker --version`

Other operating system installation docker environment can refer to docker official installation method:

[Install Docker Engine on Ubuntu | Docker Docs](https://docs.docker.com/engine/install/ubuntu/#install-from-a-package)
<https://docs.docker.com/engine/install/ubuntu/#install-from-a-package>

3.2. Software Deployment

After deploying the Docker environment

Start deploy KiloLink Server Pro, execute the installation script:

Install Method 1:

REPO: the repository address where the image is deployed, the default is docker hub;

VER: Version information of the deployment image, the default is latest;

```
REPO=kiloview/klnk-pro VER=latest /bin/bash <( curl -fsSL https://www.kiloview.com/downloads/klnk-pro/install.sh)
```

Install Method 2:

```
/bin/bash <( curl -fsSL https://github.com/Kiloview/klnk-server/raw/main/install.sh )
```

The above command will download `install.sh` script and execute it locally, follow the prompts to complete KiloLink Server Pro deployment process, after installation is completed, KiloLink Server Pro can be successfully run.

For specific steps, please refer to the installation script prompts:

Notice:



TIP1: Use terminal software on the local computer to log into the server through the SSH protocol. It is recommended to use Xshell or PuTTY.

TIP2: The login user who installs KiloLink Server Pro must have root user privileges. It is recommended to use the root user directly.

TIP3: Pay attention to the format issues of the copy command in the DOC document. It is recommended to copy and paste it into a txt notepad first to remove the format issues.

The interactive process of installing the script is as follows:

```
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c. Unless otherwise stated in the KLS, no software, installation programs, scripts, Docker images, or any files within the Specific KLS may be distributed.
```

Chart4

Installation script prompts KiloLink Server Pro license agreement, Press Q to proceed to the next step, and the following prompt will pop up:

"You must type [y/Y] to agree, type [n/N] to disagree."

```
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1. Definitions
You must Type [y/Y] to agree, Type [n/N] to disagree: y
```

Chart5

Press Y to agree and proceed to the next step;

Press Y "Agree" to automatically download KiloLink Server Pro image from the cloud;

```
0d349fa6ec1d: Already exists
a31576bf378b: Already exists
cb7cd1acd91c: Already exists
b93f24981bb2: Already exists
527daadf3fd8: Already exists
9d58969c968c: Already exists
40be363e2825: Already exists
3ec24d231635: Already exists
6be775985f56: Already exists
892e2270b886: Already exists
0aa0965005de: Downloading [=====>] 8.943MB/23.91MB
71218faa6ff9: Download complete
a27196b1a7ca: Download complete
0056f6bbf110: Download complete
0aeb7dcb544a: Download complete
7dcf3dd54243: Download complete
ff73c2a50b7d: Download complete
```

Chart6

Please wait for a moment until you enter the next step:

```
You can input your install path below, or just press ENTER to install into default location [/root/kilolink-server]
[/root/kilolink-server] >
```

Chart7

If you choose to create a new directory for installation,

Please create the new directory in advance: `mkdir -p /dir_path/file_name`

If you choose the default directory(~/kilolink-server) for installation, press Enter .

```
[/root/kilolink-server] >
-----
#3. Checking your old configurations
-----
Checking the old software versions (docker containers) ...
[WARNING] Found these old version contain(s):
(KLNKSVR-pro)
It requires to remove all of them, but this may affect your existing business, so before REMOVING, please carefully confirm to avoid causing losses!
Are you sure to REMOVE them? [y/N]
```

Chart8

Press **Y** Click the button to agree to proceed to the next step:

```
Again, are you sure to delete these containers? [y/N]y
Deleteing containers: kilolinkserver ...
kilolinkserver
-----
#4. Configure your installation
-----
Web port is for your Web/HTTP accessing Kilolink Server management console.
Web port:[80] >
Link port is for devices connection for aggregation/management purpose.
(NOTE: the link port must be an EVEN NUMBER, and when creating a Kilolink service, it will occupy both the [link_port] and [link_port+1] ports.)
Link port:[50000] >
```

Chart9

If the default port 80 or 50000 is not occupied, just press Enter to the next step;

If the default port 80 or 50000 is occupied or you want to specify port, please enter the port you specify. After confirming the port, proceed to the next step.

The interface prompts you to enter the Internet public IP for external access.

```
Link port is for devices connection for aggregation/management purpose.
(NOTE: the link port must be an EVEN NUMBER, and when creating a Kilolink service, it will occupy both the [link_port] and [link_port+1] ports.)
Link port:[50000] >
Public IP address provided by your system for external access
(I need to know the public IP address that your system provides for external access, and based on my automatic detection, the IP on the NICs is not trusted. Because in a Cloud system, the public IP you are accessing externally is not configured on your local NICs, so you need to manually fill in this IP address.)
>
```

Chart10

Please enter the Internet public IP address and press Enter to proceed to the next step.

```

-----
#5. Finally checking ...
-----

[WARNING!] It seems that your system does not have a Linux system service called 'avahi-daemon'.
This service is mainly used for automatic discovery of NDI. KiloLink Server can work without it.
loLink Server will not be discovered by the system and may not even function properly.
As this is a system service, you need to MANUALLY install it. Note that different Linux distributions
of which are as follows:

Ubuntu/Debian -
    sudo apt install avahi-daemon

CentOS/Fedora -
    sudo yum install avahi-daemon

Are you sure to continue without 'avahi-daemon' service? [y/N]Y
    
```

Chart11

Press **Y** to **agree to without install** 'avahi-daemon' and proceed to the next step.

Notice:


If you need KiloLink Server Pro to support automatic discovery of NDI output streams, you need to manually install the following application.

Ubuntu/Debian : `sudo apt install avahi-daemon`

CentOS/Fedora : `sudo yum install avahi-daemon`

```

* When you configure device to connects to the KiloLink Server, its IP is '192.168.230.141' and access port is 50000.
* Your docker container is named 'KLNKSVR-pro', you can use 'docker' commands to maintain it.

Since without 'avahi-daemon' service install on your system, NDI discovery features will be disabled.

In addition, you also need to pay attention to checking your FIREWARE configuration, and at least ensure that the following ports are configured
on the firewall to allow external access:

* UDP ports: 50000 50001
* TCP ports: 83

If you want to enable NDI|HX features:
(the following var N represents how many NDI|HX streams you wish to allow)

* UDP ports: 5353
* TCP ports: [5961, 5962, ...(keep at least N ports open)]
* TCP/UDP ports: 5960 [7960, 7961, ...(keep at least 4*N ports open)]

For other protocols such as RTSP,SRT,..., you also need to open the service port specified in the corresponding protocol.

ENJOY IT!
root@hanr:/home/hanr#
    
```

Chart12

The KiloLink Server Pro installation is now complete.

Kiloview officially launched KiloLink Server Pro Installation reference video:

1. English reference video:<https://youtu.be/BpTyNKjLEL4>
2. Chinese reference video:<https://www.bilibili.com/video/BV14T421a7Qq>

If you encounter other problems, please watch the reference video or send an email to Kiloview technical support.

Email address: support@kiloview.com

After receiving your email, Kiloview technicians will get back to you shortly.

4. Instructions for Use

4.1. Log in to KiloLink Server Pro

Step 1:

Open KiloLink Server Pro management system with your browser [http://SERVER_IP:\[PORT\]](http://SERVER_IP:[PORT])

Step 2:

Once successfully connected, you should see the login interface of KiloLink Server Pro

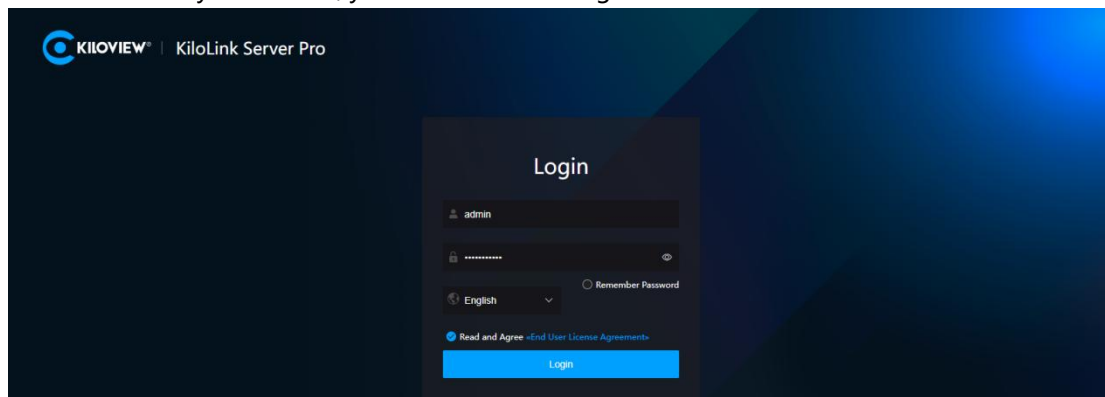


Chart13

Step 3:

Input the default username and password and click Login to jump to KiloLink Server Pro's management page.



Notice:

It is recommended to use popular browsers such as Chrome, Firefox, Edge, etc..

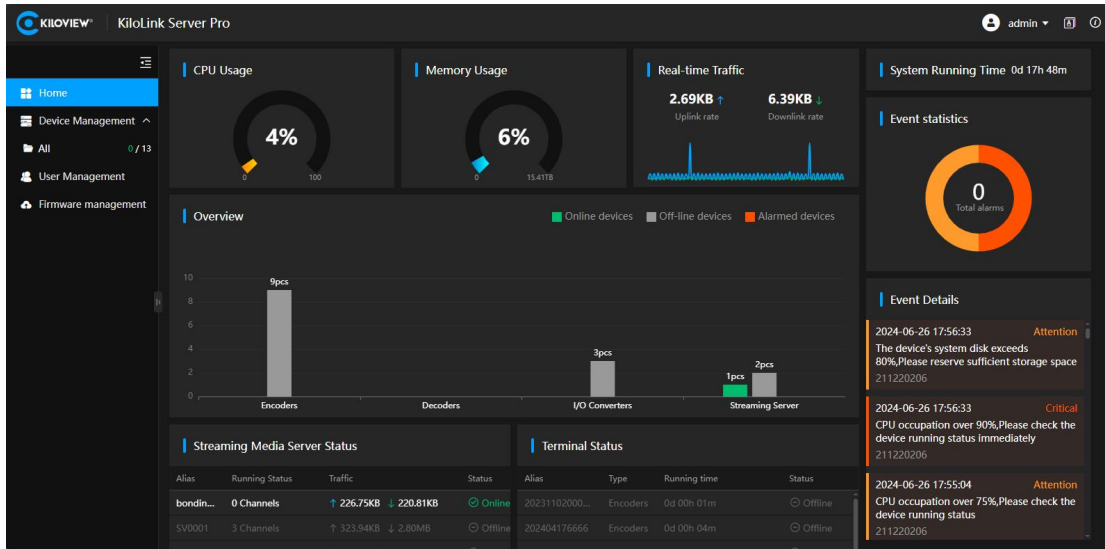
The KiloLink Server Pro access URL can be obtained from the standard output returned by the installation script.

The format is: [http://SERVER_IP:\[PORT\]](http://SERVER_IP:[PORT]), see the software deployment instructions in Chapter 3 for details.

Default administrator username: `admin`

Default administrator password: `Kiloview001`

4.2. KiloLink Server Pro HomePage



Picture1

On the platform homepage, you can view the following details:

System running time

Displays the length of time the system has been running continuously.

System alarm information

Provides statistics and details of system and device related event information.

CPU Usage

Display the current platform in real time CPU Resource utilization.

Memory usage

Displays the current memory resource utilization.

Overview of the equipment

Displays the number of connected devices of each type.

Streaming Media Service Status

Displays the current status and performance of the streaming service.

Terminal status

Provides information on the status of various terminals connected to the system.

The summary information on the homepage can help you monitor and manage platform devices efficiently and assist in diagnosing related problems.

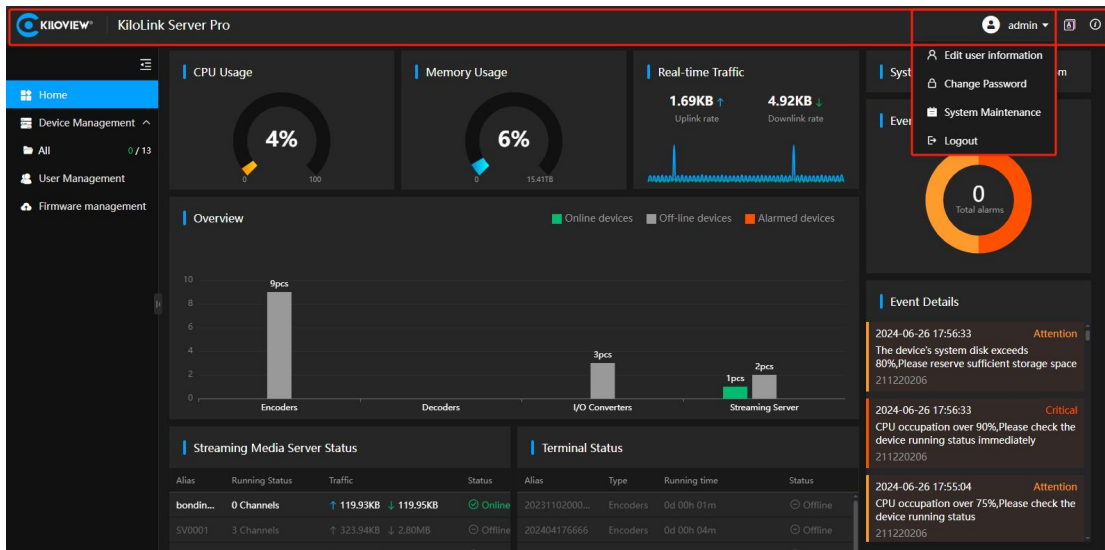
4.3. Top Navigation



Picture2

The navigation menu bar contains the following functions:

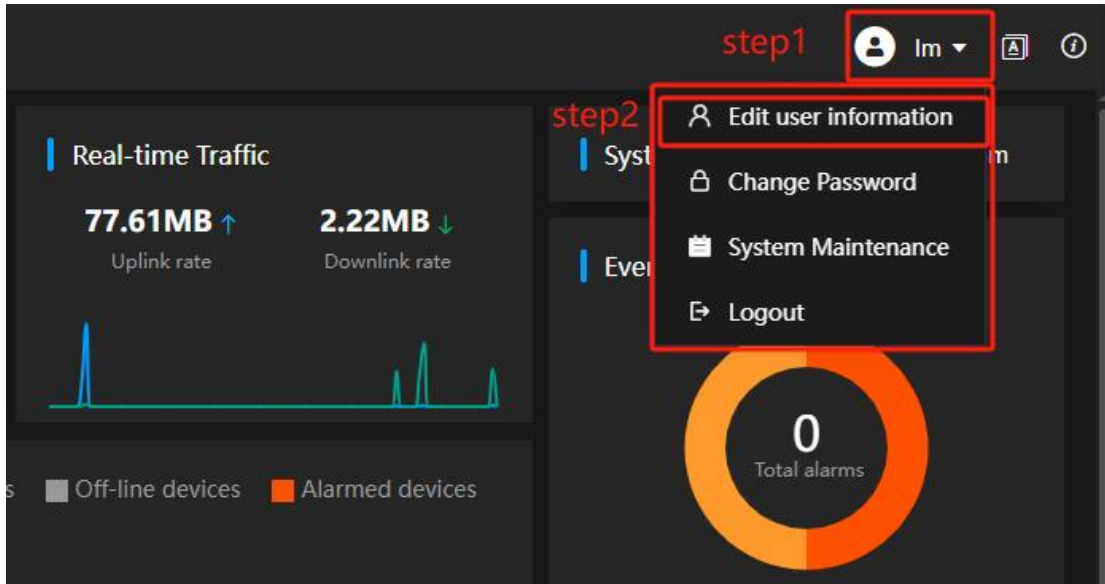
Modify user, modify password, system maintenance, log out of the system, switch between Chinese and English, version information.



Picture3

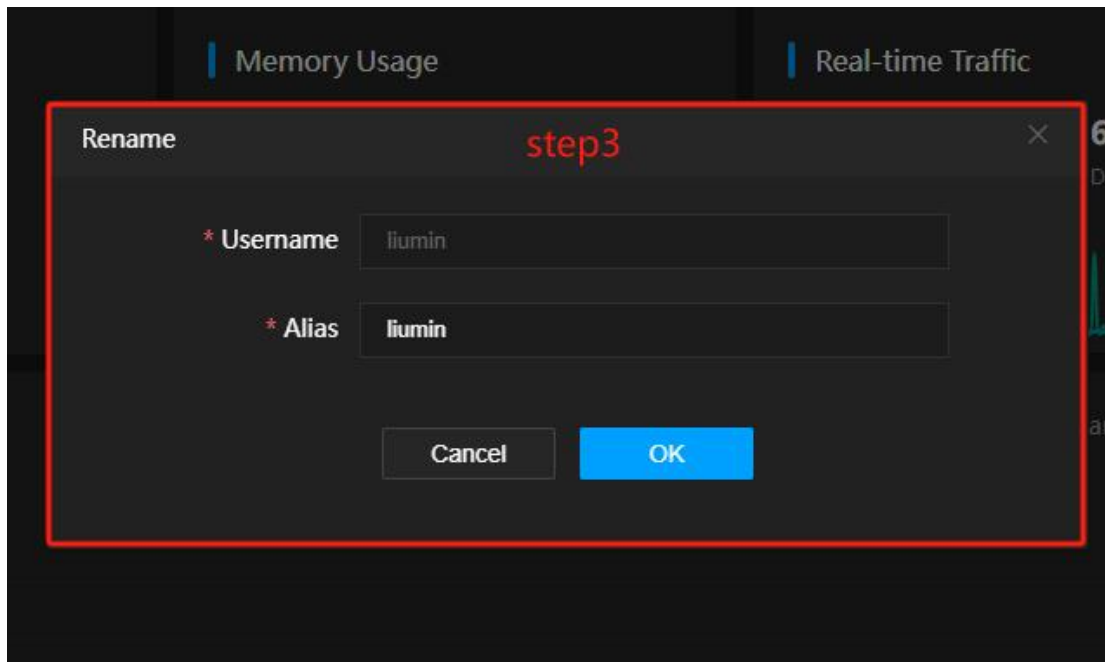
4.3.1. Alias Modification

You can edit your user information from the drop-down menu in the top navigation bar.



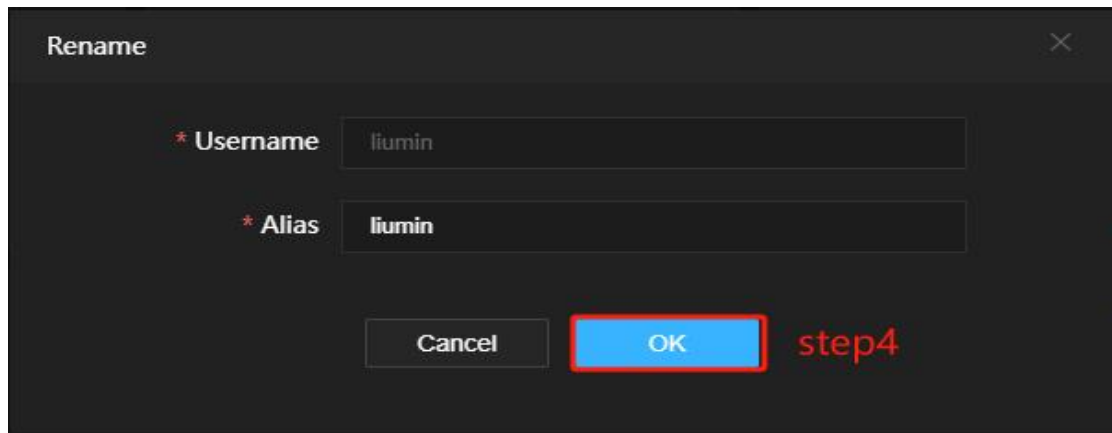
Picture4

Fill in the modification information.



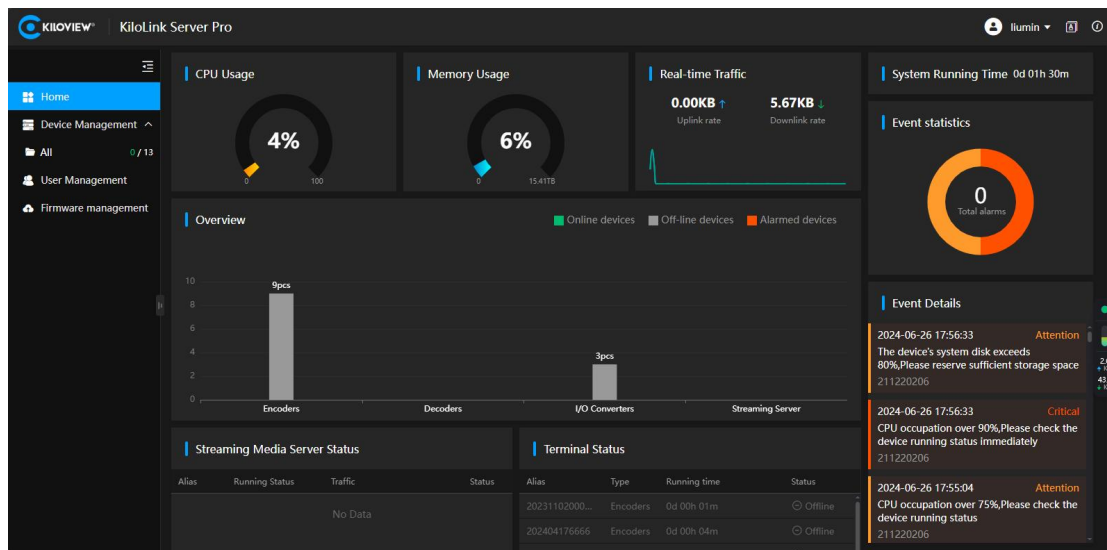
Picture5

Confirm the modified information.



Picture6

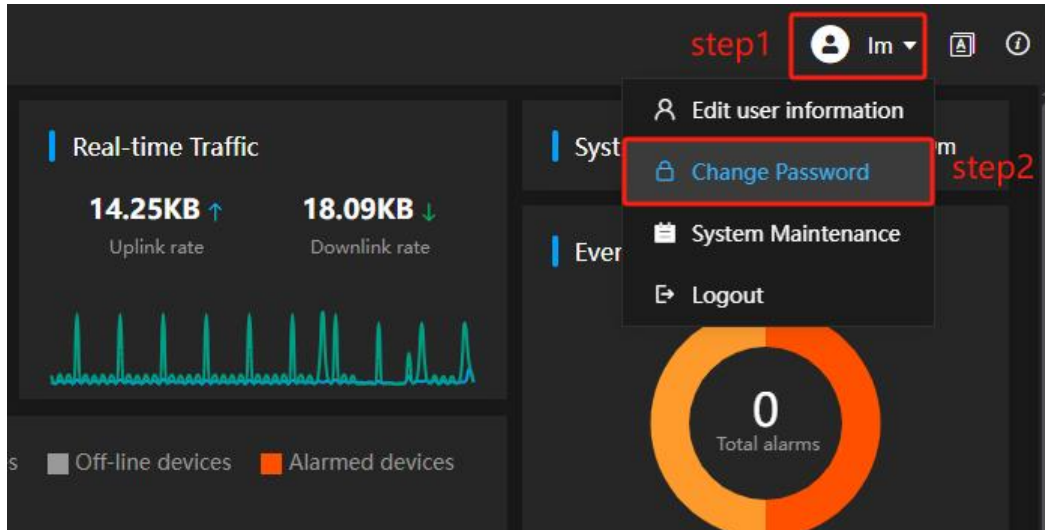
After the modification is completed, you need to log in again to display the modified user alias.



Picture7

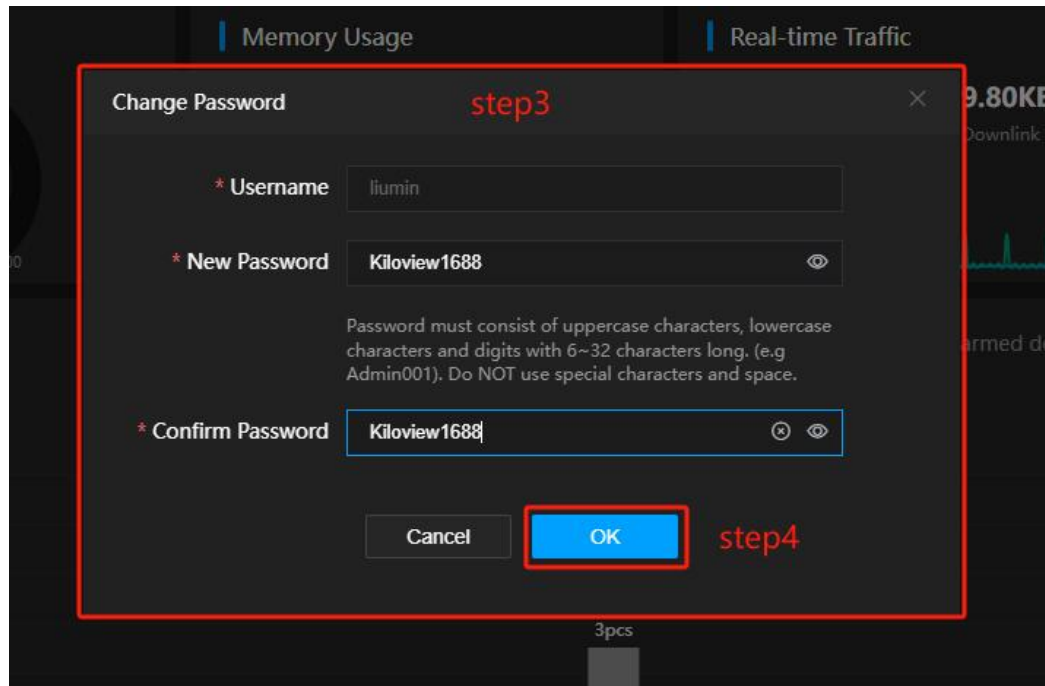
4.3.2. Change Password

The password can be changed in the drop-down menu on the top navigation bar.



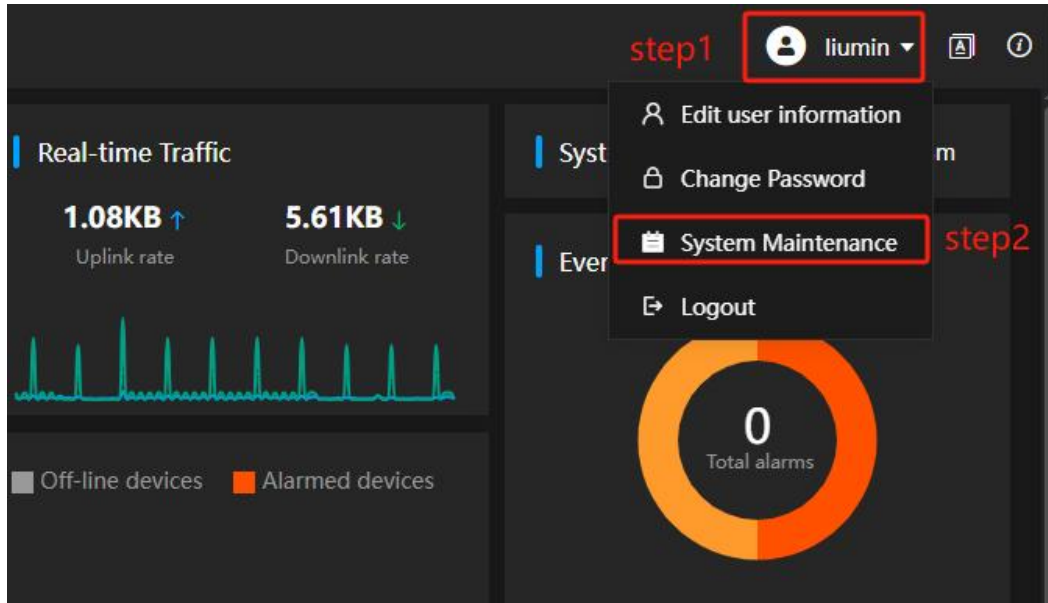
Picture8

You need to log in again after the modification is completed.



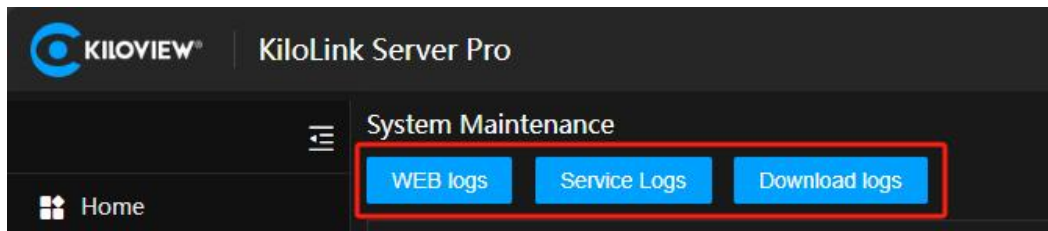
Picture 9

4.3.3. System Maintain



Picture10

System maintenance includes WEB Log, Service log, and Download log



Picture11

4.3.3.1. Check Web Log

The server web log records web server related request and response information. Web server logs can help monitor and analyze KiloLink Server Pro activities and locate related issues. Such as wrong request, unauthorized access, etc.

4.3.3.2. Check Service Logs

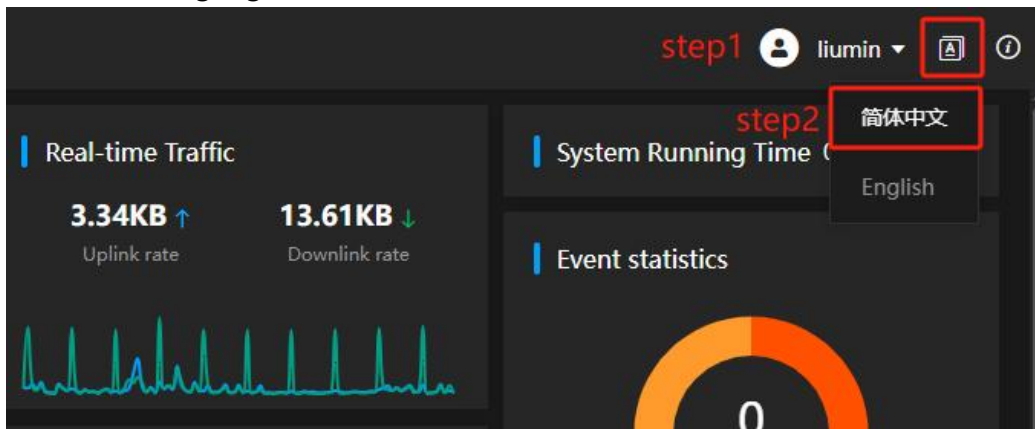
The KiloLink Server Pro log records the running status and operation records of the KiloLink Server Pro service.

4.3.3.3. Download logs

The admin administrator can download related log files.

4.3.4. Languages

KiloLink Server Pro provides "Simplified Chinese" and "English" Switch option between two languages.



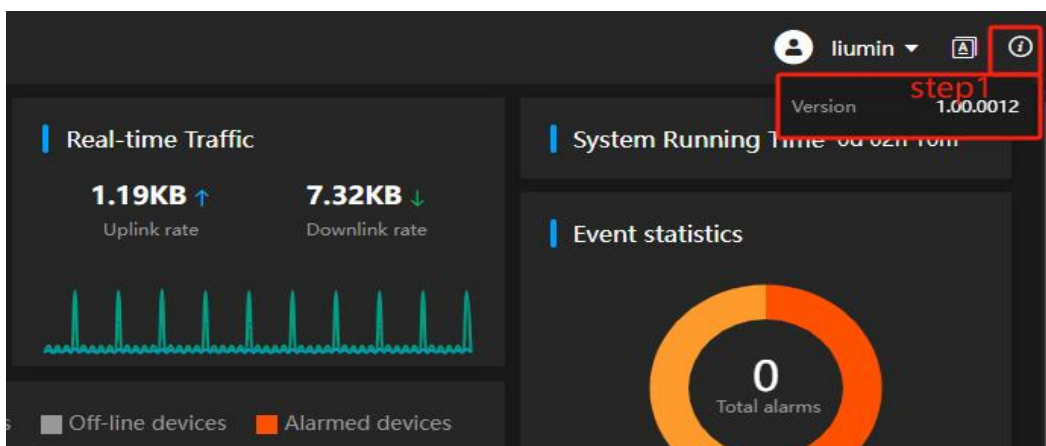
Picture12

Once the user selects a language, it will switch to the selected language immediately without having to refresh the page manually.

TIP: In case of special circumstances, please refresh the web page manually.

4.3.5. Version Information

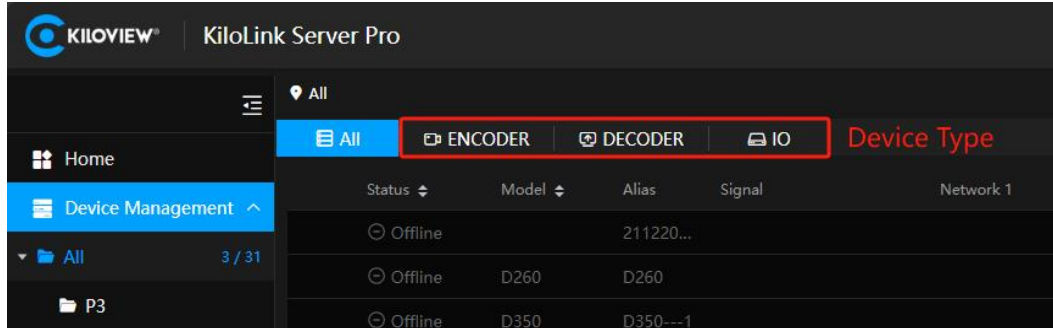
View the current version number of the KiloLink Server Pro .



Picture13

4.4. Device Management

4.4.1. Equipment Overview

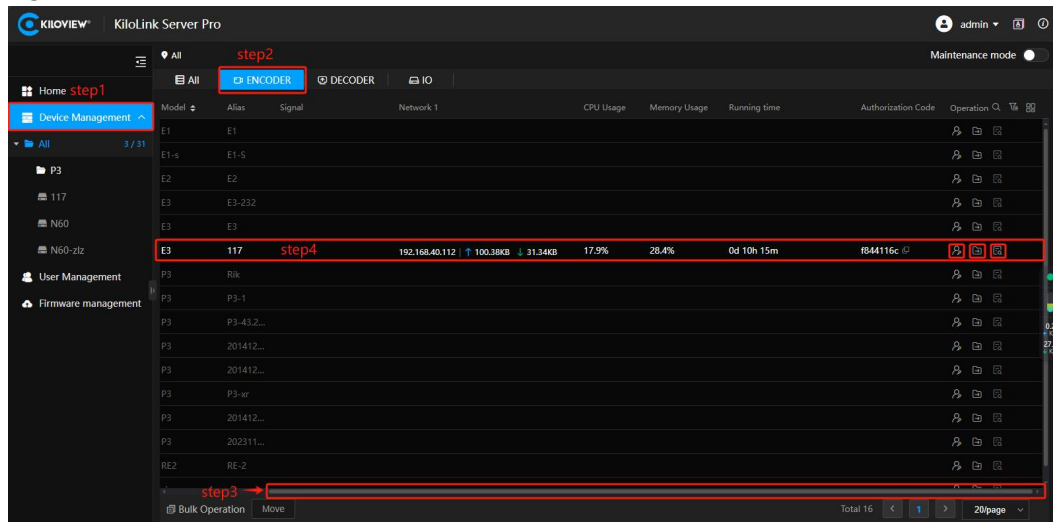


Picture14

TIP: There are four tabs under the device overview.

- ALL:** All types of Devices
- ENCODER:** Encoding devices
- DECODER:** Decoding devices
- IO :** Encoding and Decoding all-in-one devices

The device overview page allows you to view the device's status, model, name, signal, network, running time, and authorization code, and CPU usage, memory, usage and other information.



Picture15

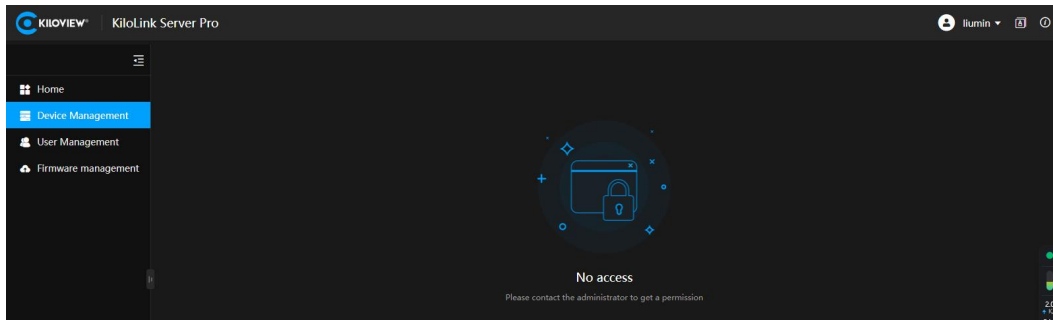
The relevant operation buttons on the far right of the page correspond to device access permissions, moving devices, and jump to web UI operations.

4.4.2. Device Permissions

TIP: Device permissions can only be authorized by the admin user.

When you create a user for the first time and assign device management permissions, you do not yet have permission to access specific devices. You need to first authorize in the device directory and then authorize a single device. The permissions of the two are cumulative.

Initially as state as "Picture16" as shown:

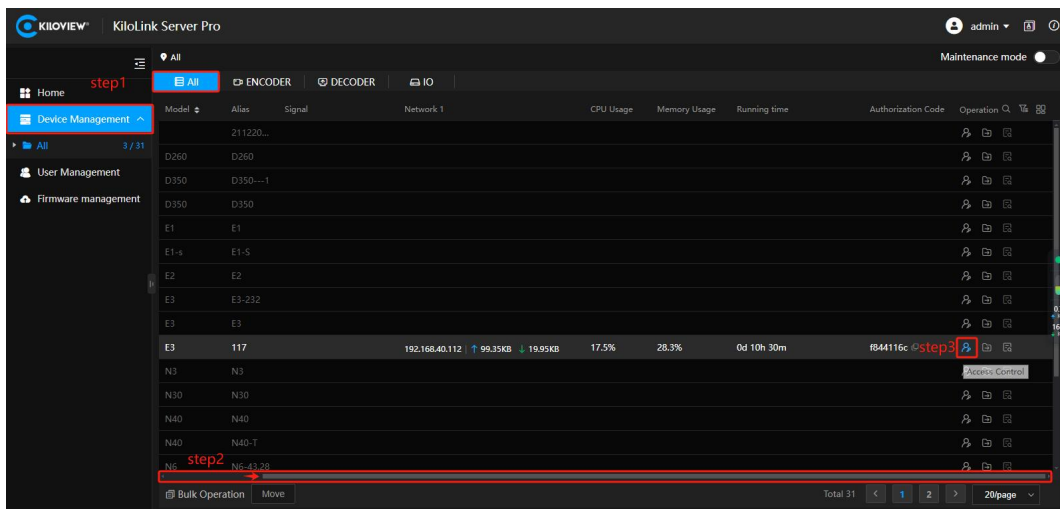


Picture16

For details on device catalog authorization, Refer to the "Catalog Management" section: "4.4.3.2. Access Control"

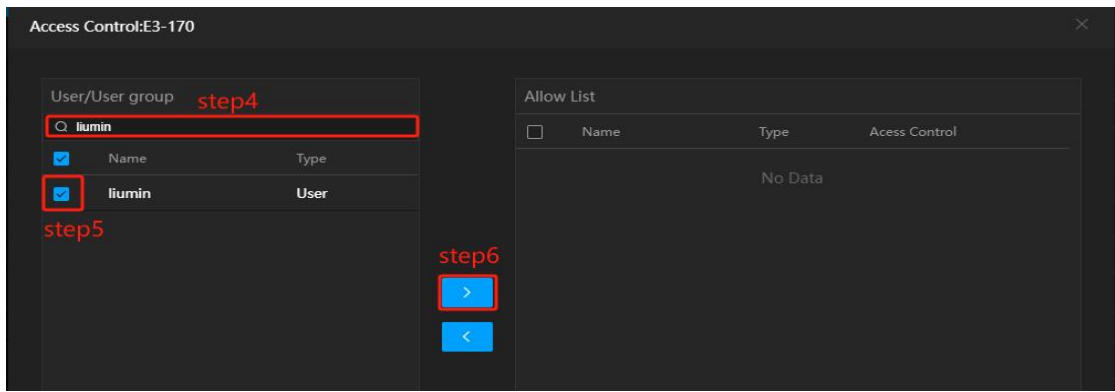
The authorization process for a single device is as follows: "Picture17" as shown:

TIP: The authorization operation of device directory access control can only be performed by the admin user



Picture17

Click the ALL (all devices) tab under Device Management;
 Move the slider to the far right in step 2 and start configuring access permissions for a single device in step 3.

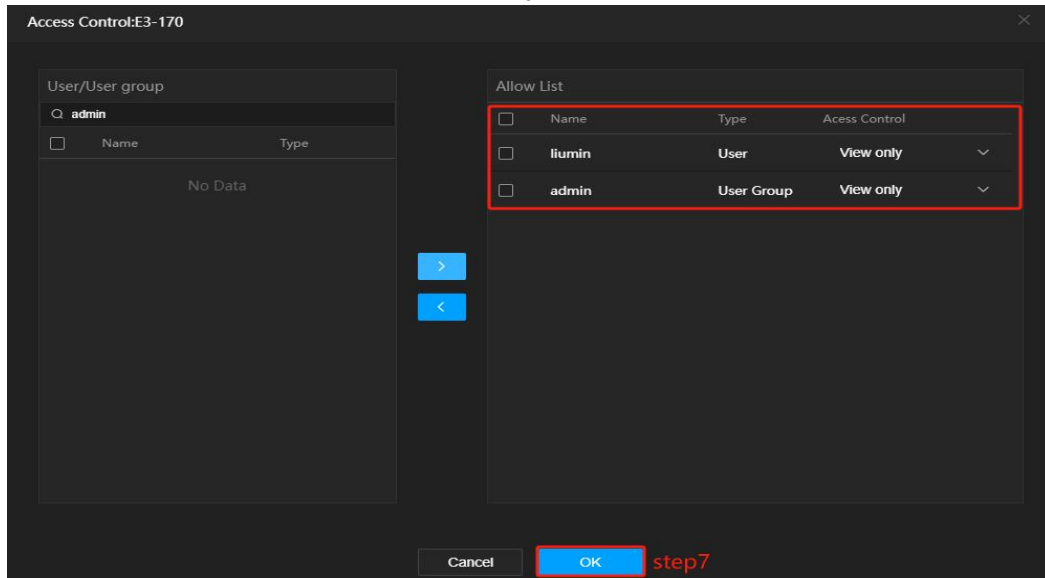


Picture18

Select the searched user or user group and add the selected item to the Allow List. Be careful to choose the right Access Control Permission type, it is recommended to select "View and edit".

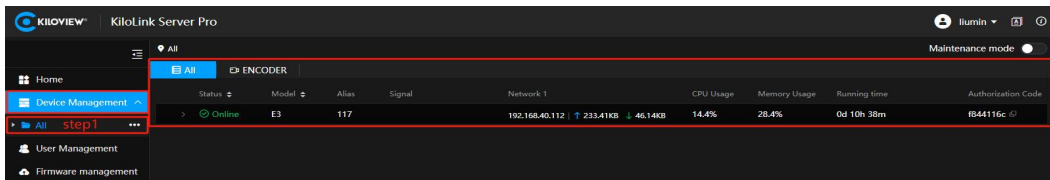
View : represents only the permission to view the device,

Edit : represents the permission to modify the device.



Picture19

After authorization is completed, log out of the system and log in again as the authorized user.



Picture20

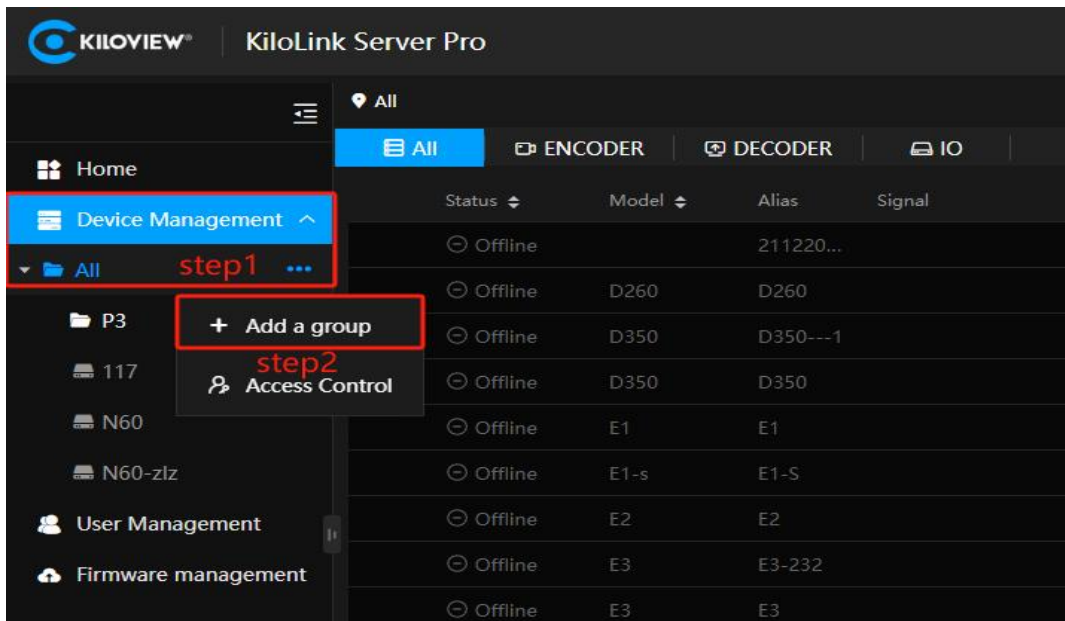
You can see that the individual device authorization has been completed.

4.4.3.Catalog Management

TIP: The authorization operation of device directory permissions can only be performed by the admin user

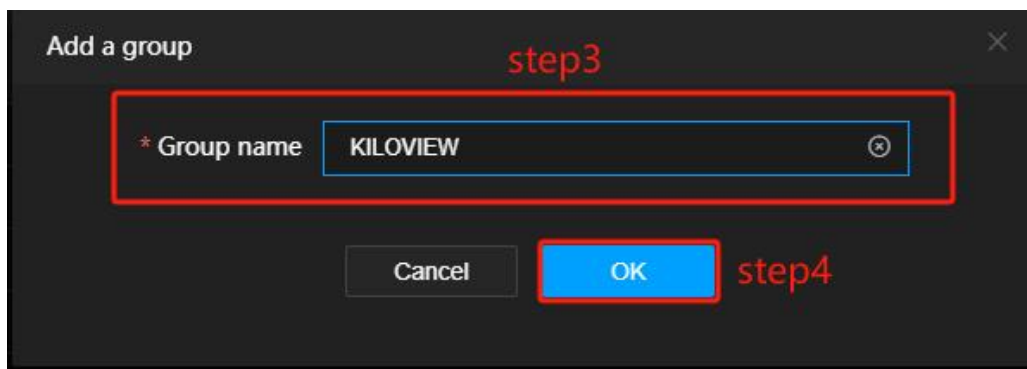
4.4.3.1. Create directory

Move the mouse to the directory you want to add in the left navigation bar...



Picture21

Right-click "Add a Group", enter the "Group Name", and click "OK" to add it.

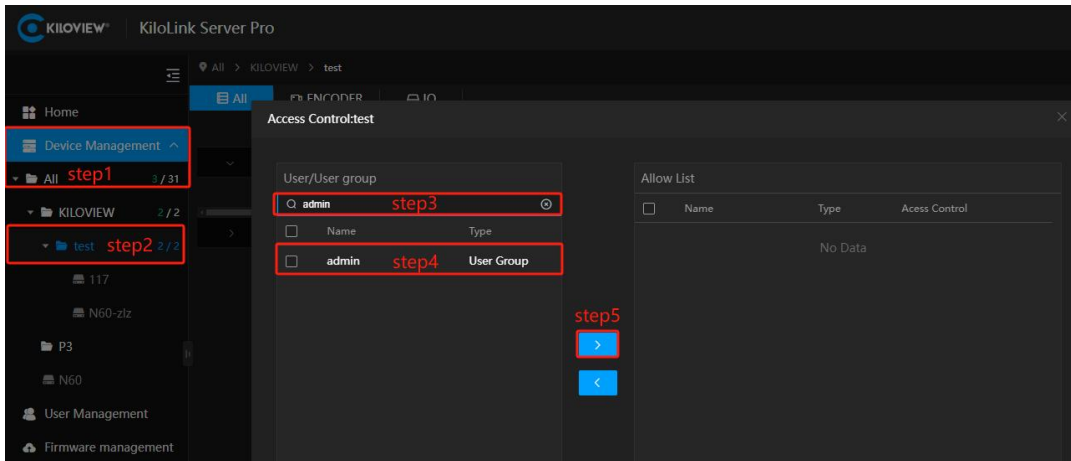


Picture22

4.4.3.2. Access control

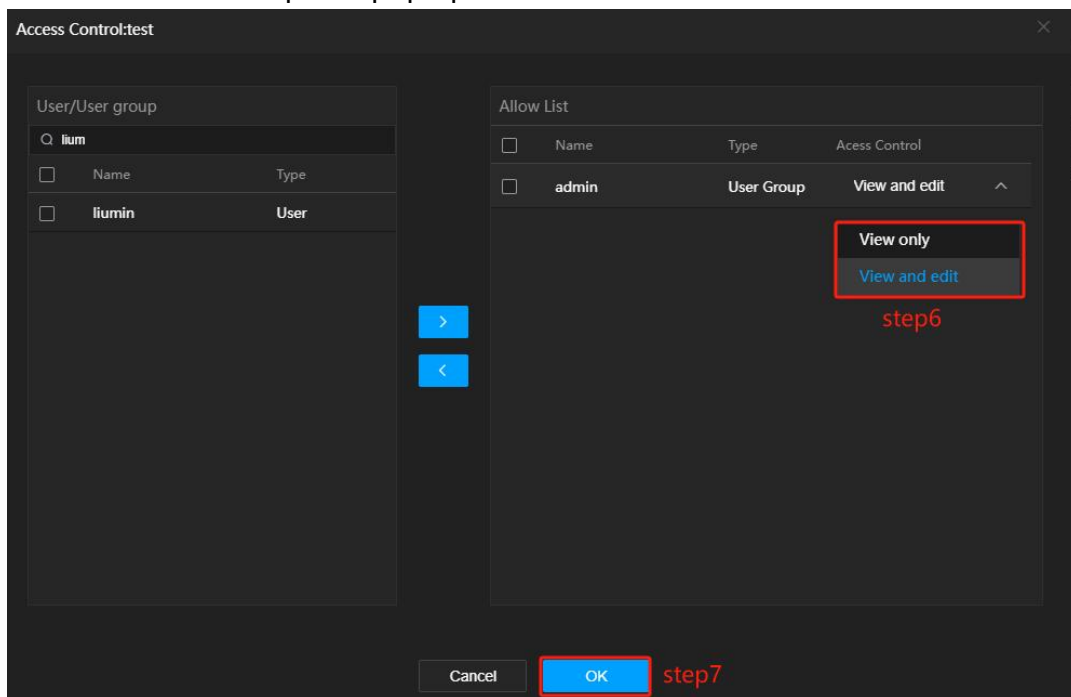
TIP: The authorization operation of device directory access control can only be performed by the admin user

For users/The user group is assigned access permissions to the device directory.



Picture 23

Move the mouse to the directory (test) to be added in the left navigation bar... Click Access Control option, pop up "Picture24" The window shown;




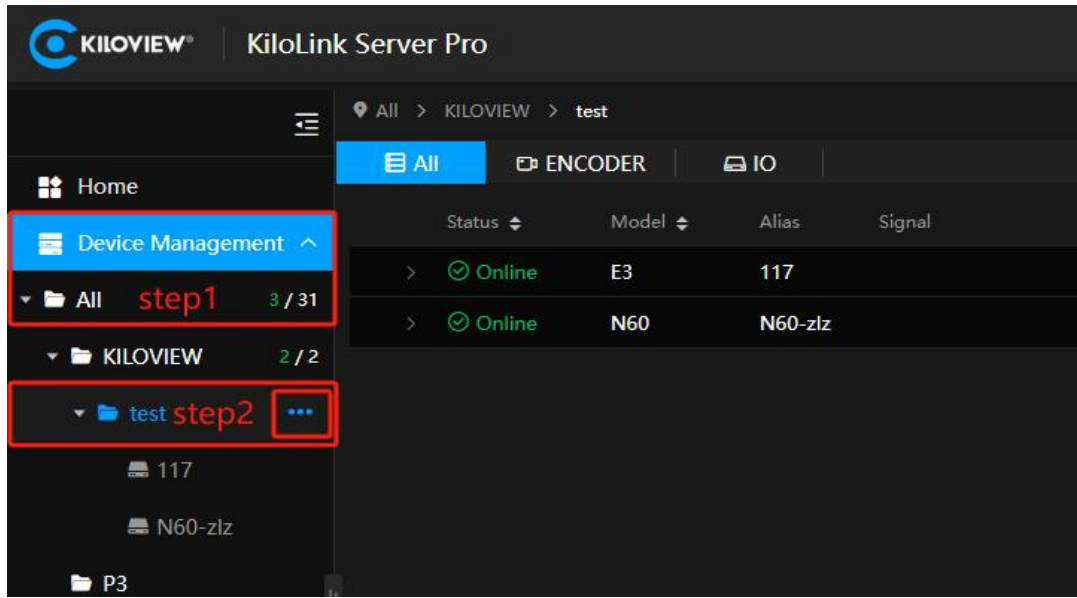
Picture 24

Select the searched user or user group and add the selected item to the allow List. Be careful to choose the right access control permission type, it is recommended to select "View and edit".

4.4.3.3. Move directory

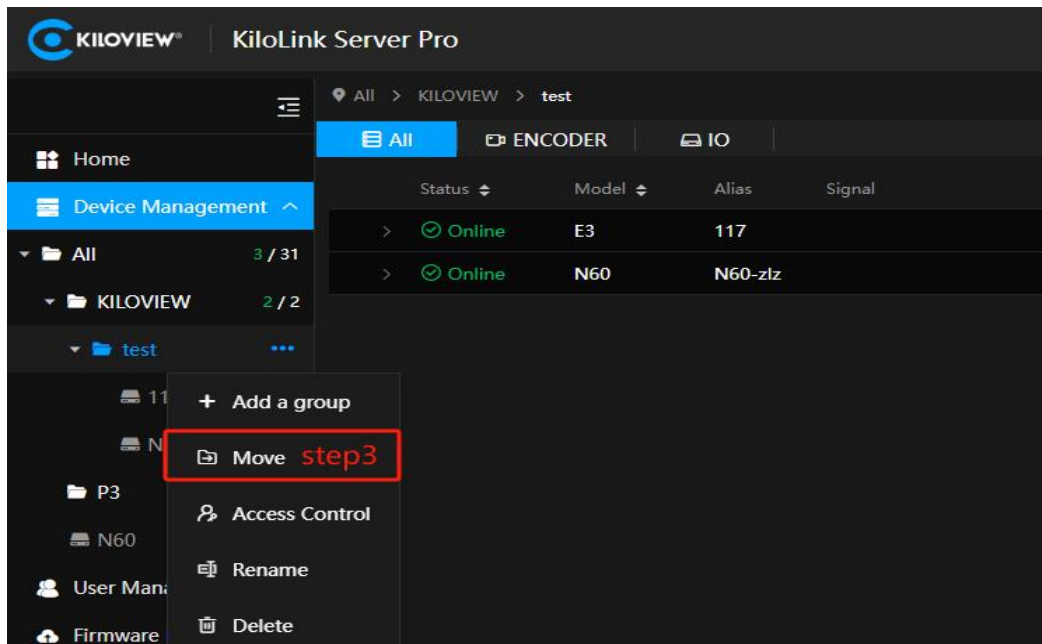
TIP: Use the admin user to move the device directory

Move the mouse to the directory (test) to be added in the left navigation bar,  appears on the directory

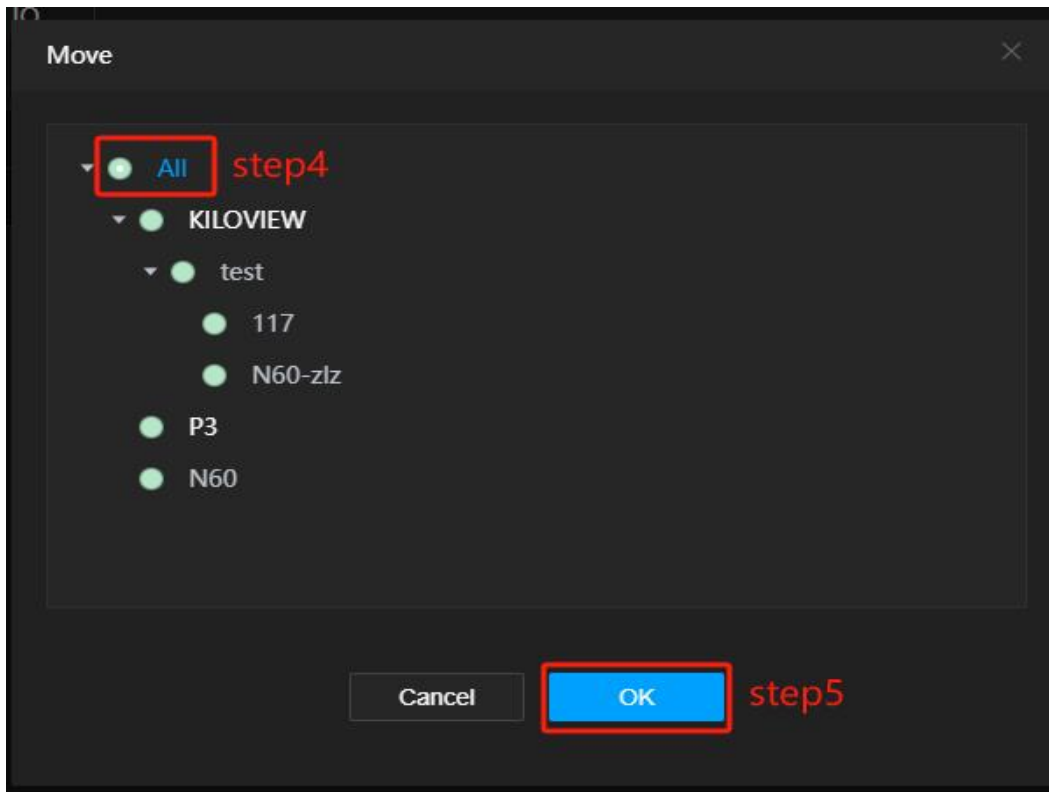


Picture25

When you need to move a directory to another directory, click "Move" to move the directory to the target directory.

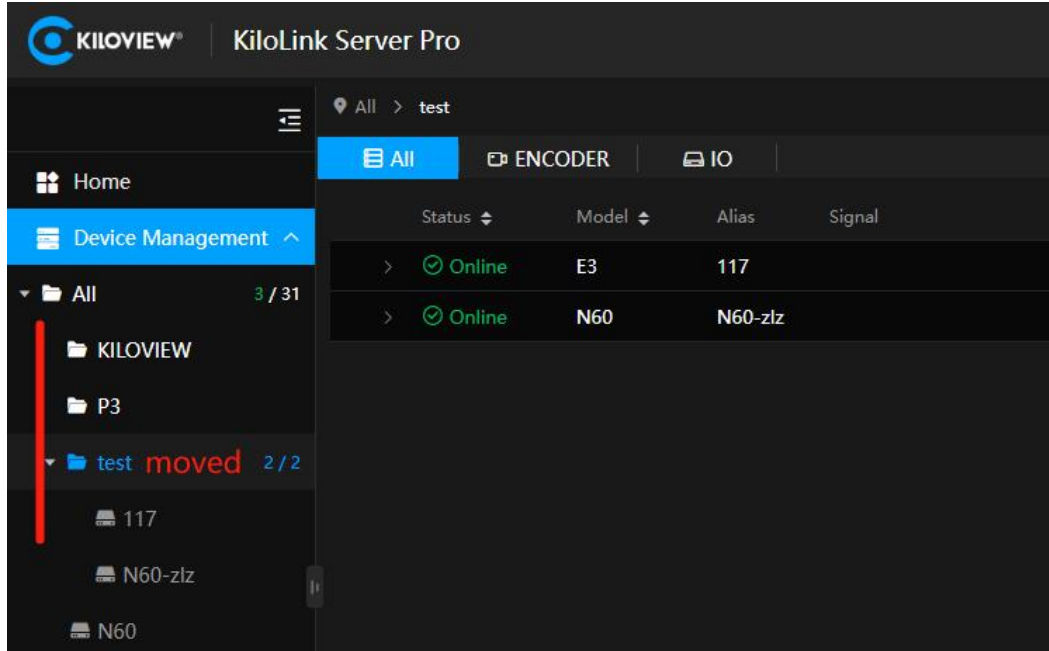


Picture26



Picture27

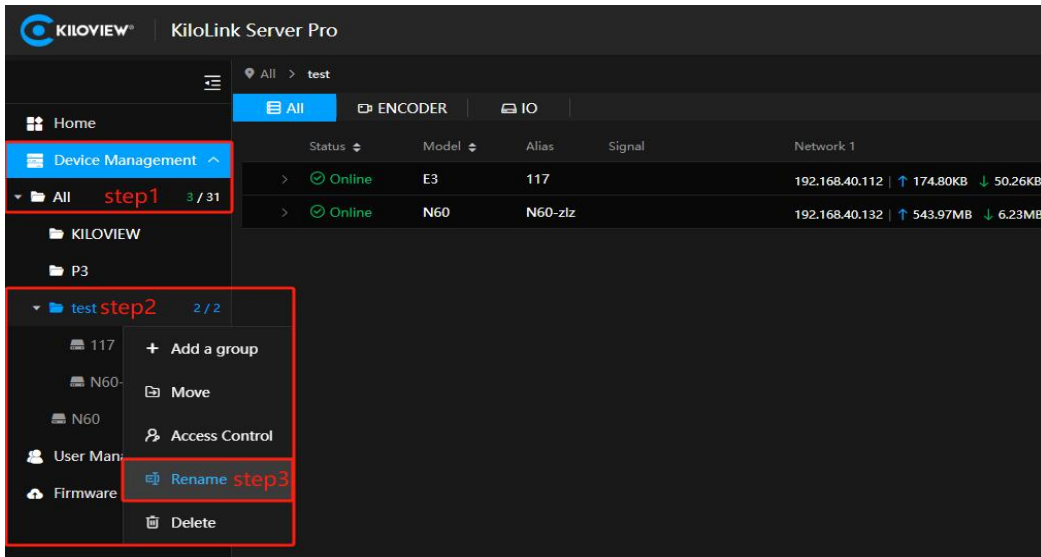
After the move is successful, the result is as follows **Picture28** as shown:



Picture28

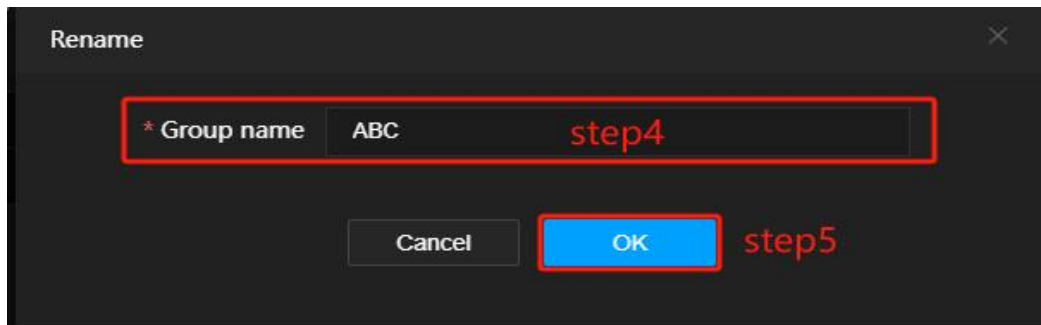
4.4.3.4. Catalog Rename

Move the mouse to the directory (test) to be added in the left navigation bar . . .



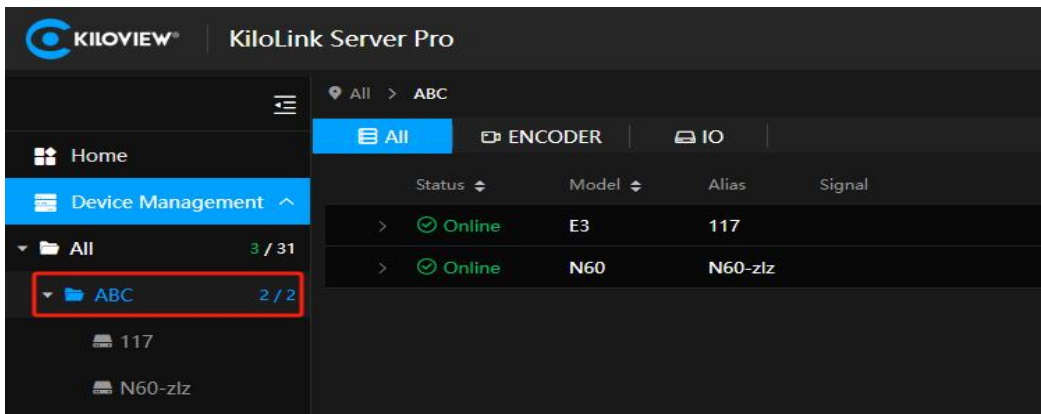
Picture29

Click rename option, pop up "Picture30" The window shown;



Picture30

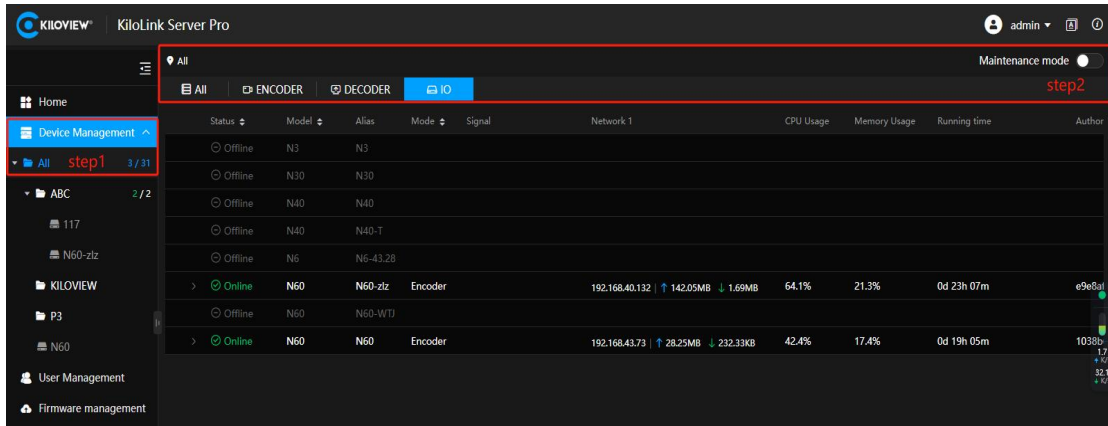
After modifying the device directory name, the result is show as follows Picture31:



Picture31

4.4.4. Equipment maintenance

Tip: Only after turning on the "Maintenance Mode" can you add devices to the system or restart or reset the devices with one click.



Picture32

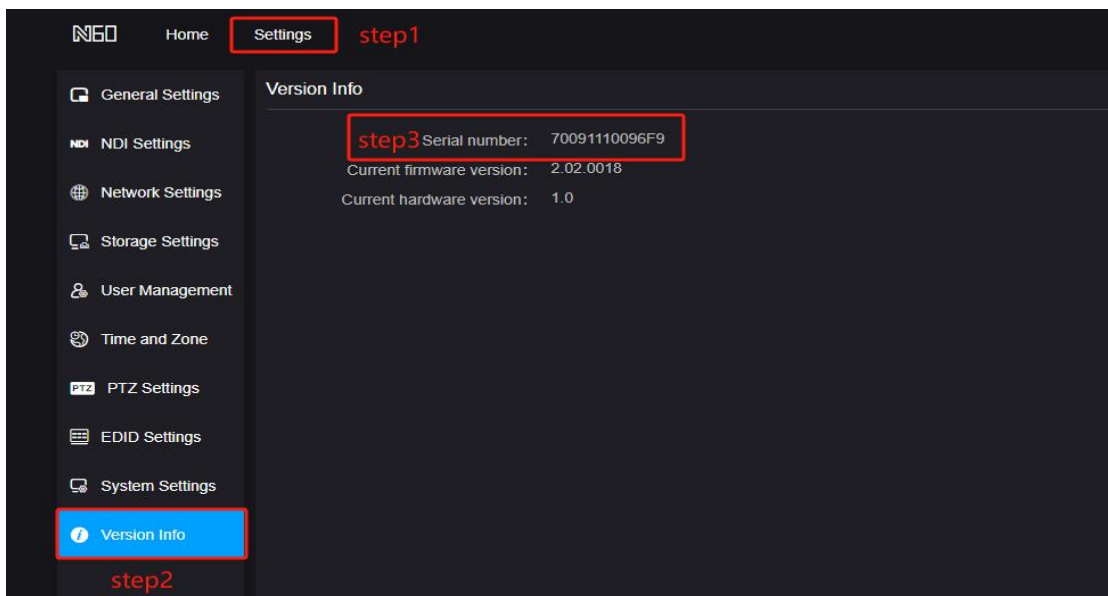
4.4.4.1. Add a device

TIP: Prepare the serial code of the device in advance.

Note that not all devices are in "Picture33" shown in the location.

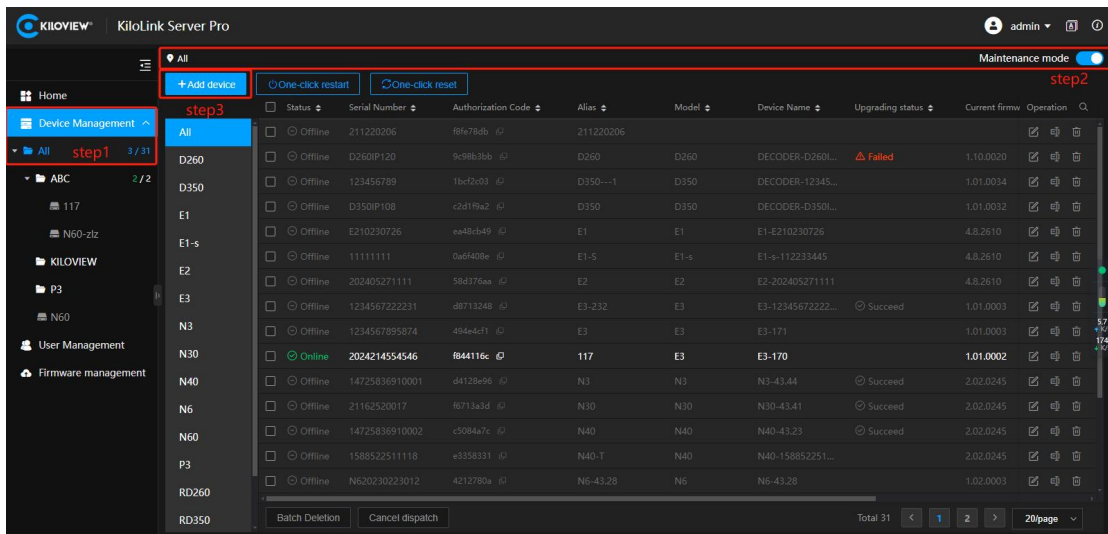
Take N60 for example, find the version information of the device, which generally contains the device serial code.

Like "Picture33" shown:



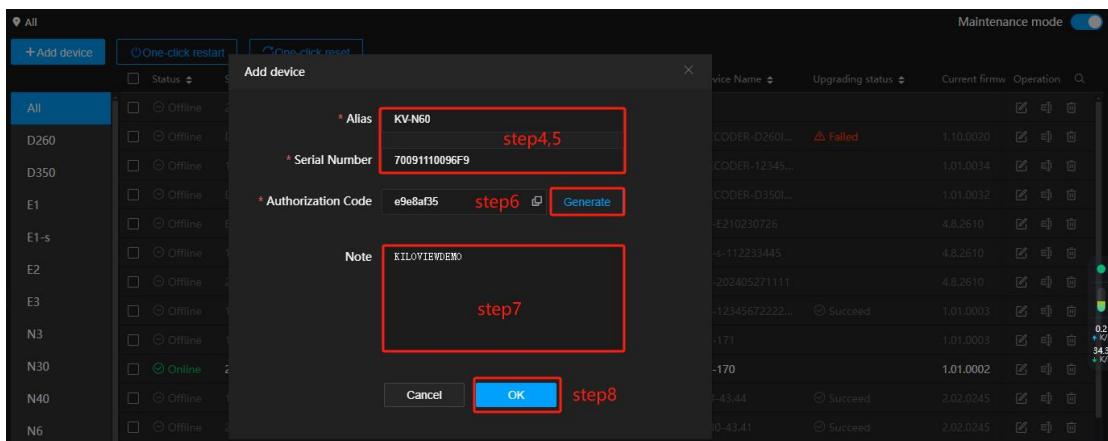
Picture33

The process of adding a device is as follows: "Picture34" as shown:



Picture34

Enter the device management page, turn on the maintenance mode switch, and click the "Add Device" button.



Picture35

Enter the following information:

1. Device Name
2. Serial number
3. Authorization code
4. Remarks

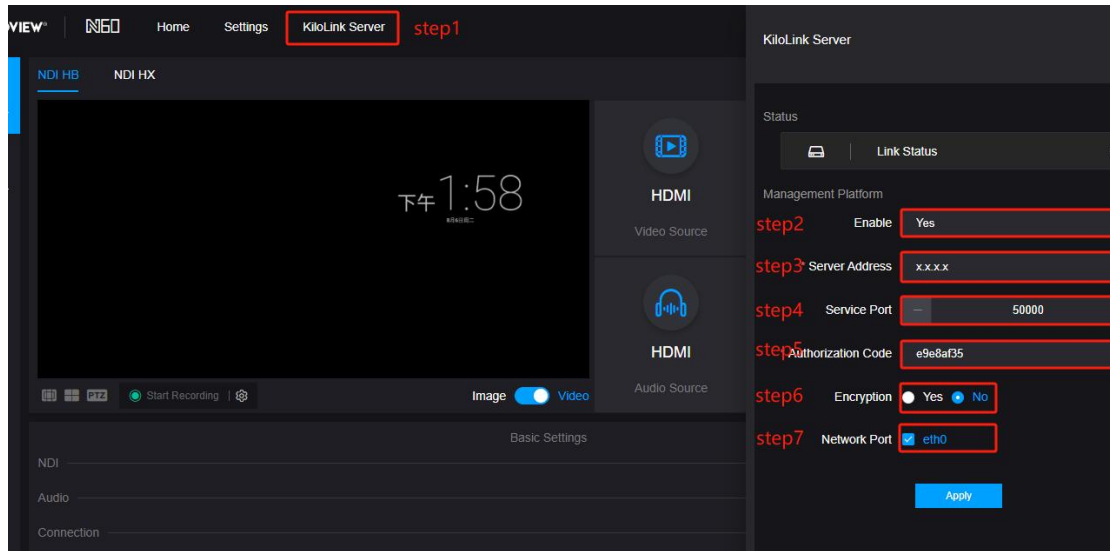
Authorization code can be generated automatically by clicking "Generate".

4.4.4.2. Device Registration

TIP: Prepare the authorization code generated on KiloLink Server Pro in advance.

To connect the devices to KiloLink Server Pro platform, input the unique authorization code to complete the registration operation.

Take N60 as an example:



Picture36

First, click on the web UI to enable the KiloLink Server Pro connection function.

Again, fill in the IP address of the KiloLink Server Pro.

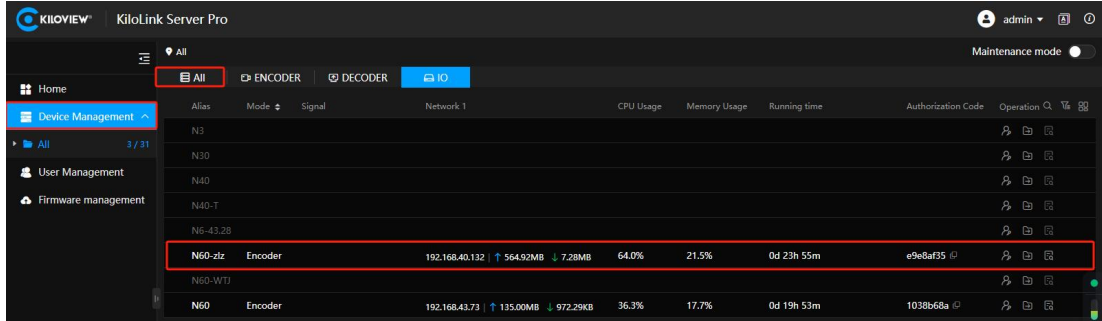
Last, fill in or selected Server Port, Authorization Code, Network Interface, enable encryption or not.

Tip:

In general, the server port and encryption method are set to the default values, unless KiloLink Server has additional configurations.

4.4.4.3. Device Confirmation

TIP: On KiloLink Server Pro, pay attention to switching between different tabs

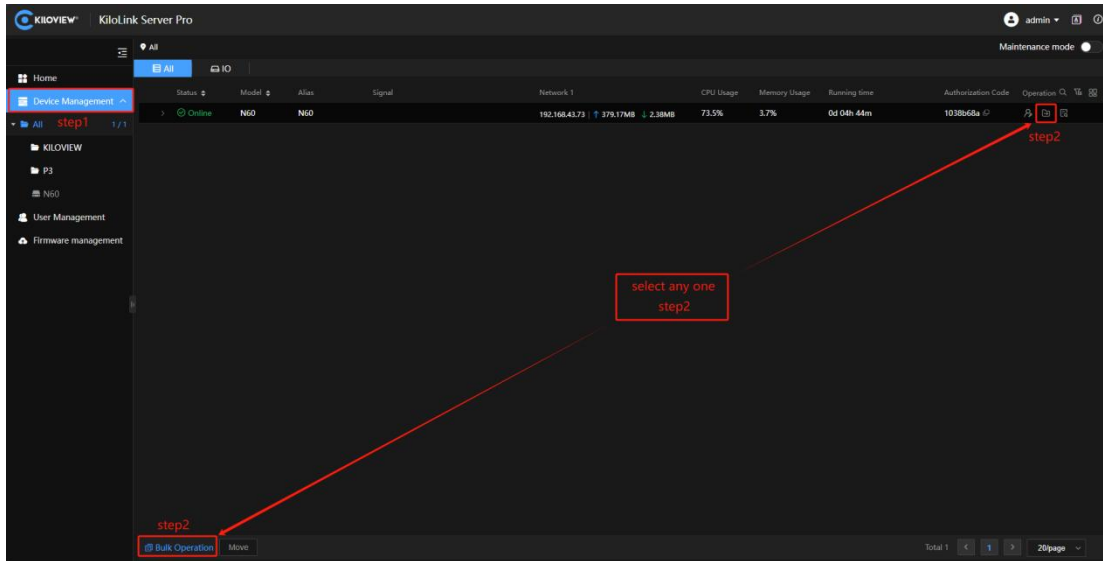


Picture37

Return to KiloLink Server Pro to view the device status. If the device is displayed as online, it means the device has been added successfully.

4.4.4.4. Move devices

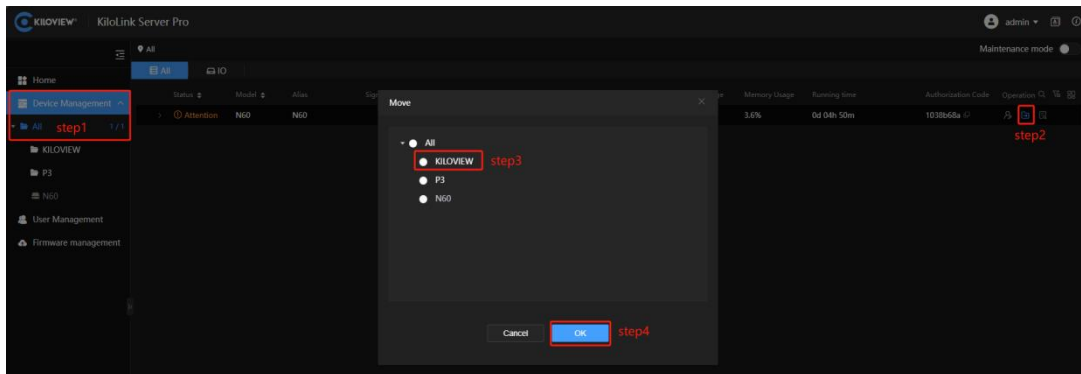
TIP: On KiloLink Server Pro, "Move devices" operations require the use of the admin user



Picture38

Single device move

On the far right of the device list, you can see the move button for the current device. Click it and a pop-up window will appear like this: shown as "Picture39":

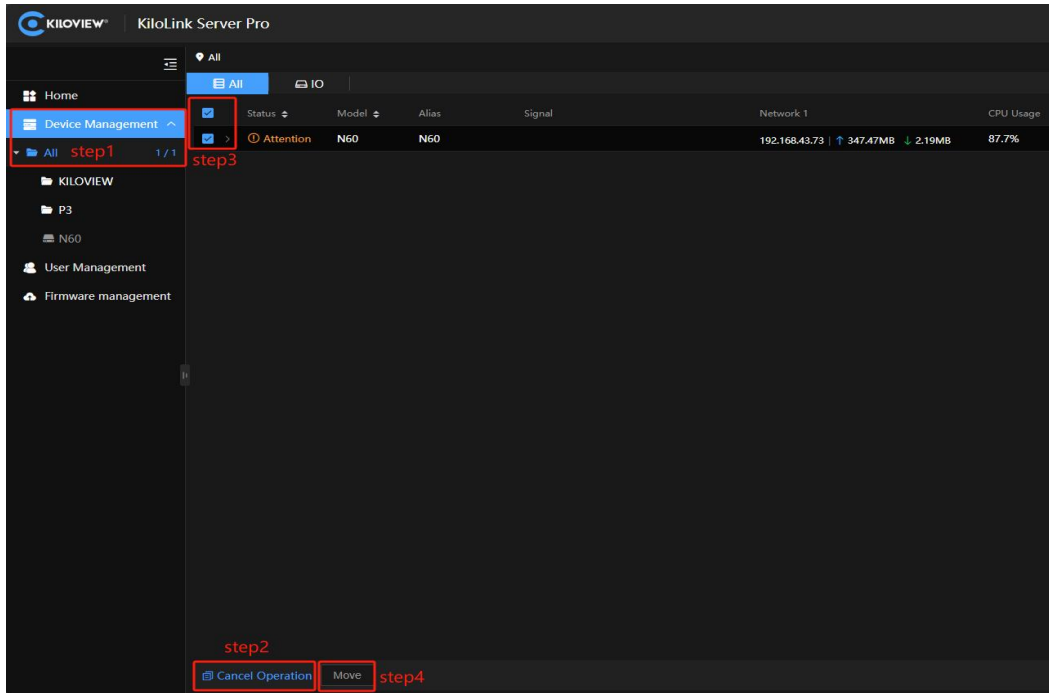


Picture39

In the pop-up window, select the device category directory (Kiloview) as the target of the move. Finally, click Confirm.

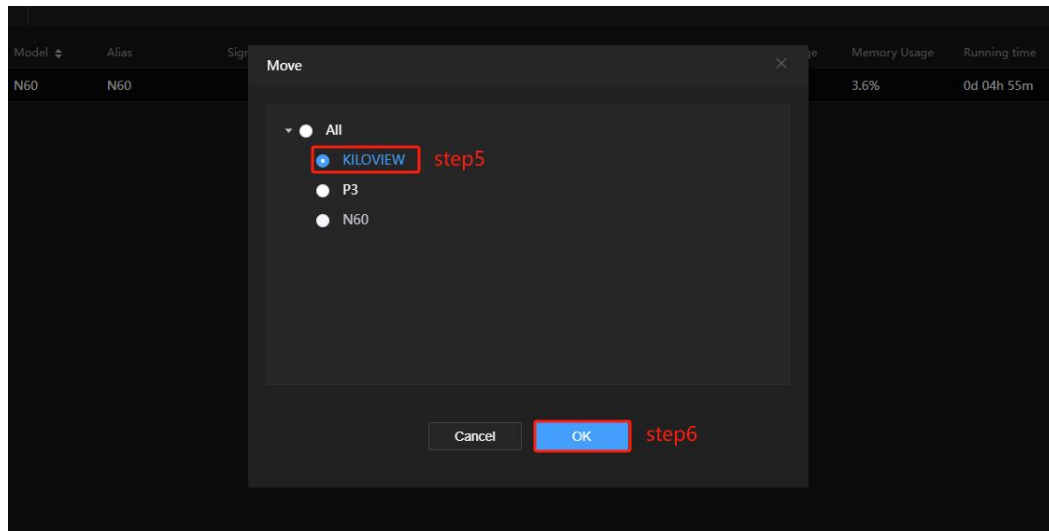
Batch Move

Click the batch operation button at the bottom left of the device list and the device checkbox will appear.



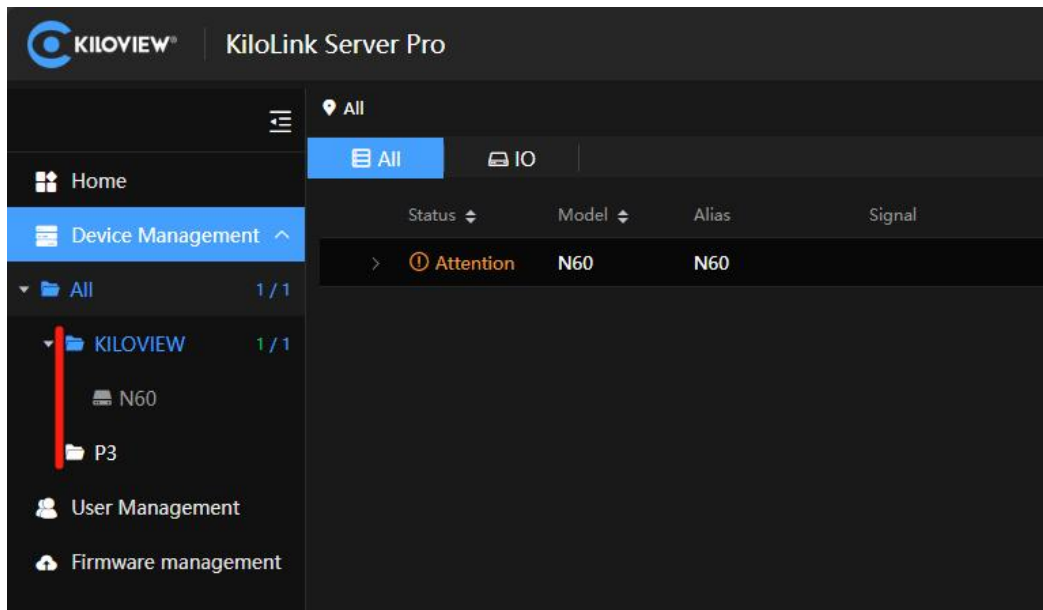
Picture40

Select the checkbox of the devices that need to be moved in batches, and then click the "Move" button. A pop-up window will appear like this:"Picture41" as shown:



Picture41

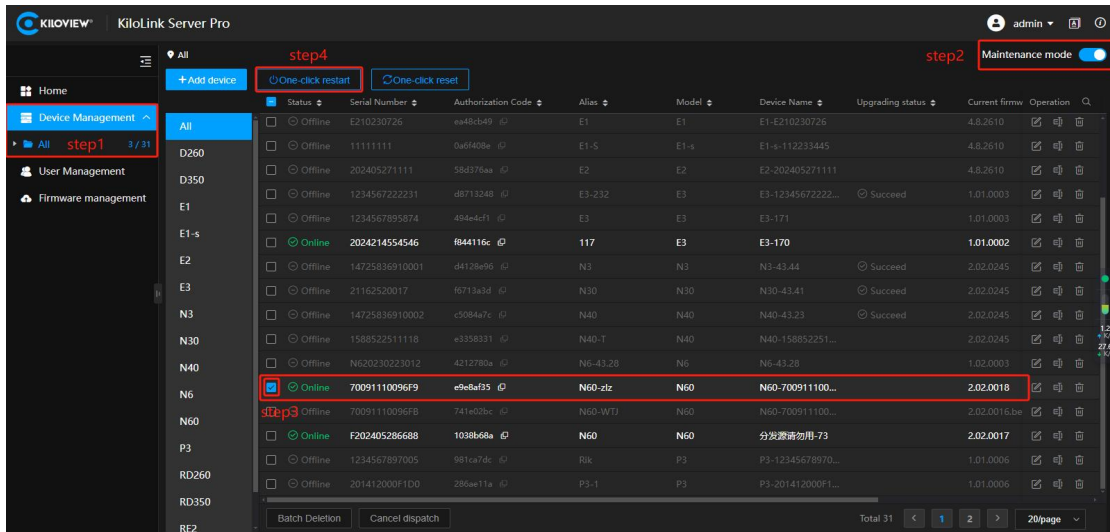
In the pop-up window, select the device category directory (Kiloview) as the target of the move. Finally, click Confirm.



Picture42

4.4.4.5. One-click Restart

TIP: To restart or reset the device on KiloLink Server Pro, you need to enter maintenance mode first.



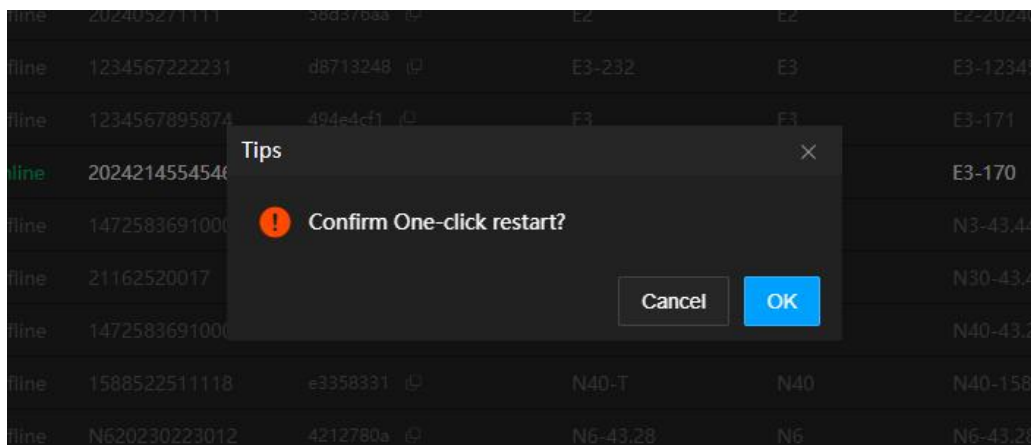
Picture43

Step 3: Select device

You can select a single device, or select multiple devices at once using "Batch Operation".

Step 4: Click the "One-click restart" button.

Click OK in the pop-up confirmation dialog box to restart the selected device.

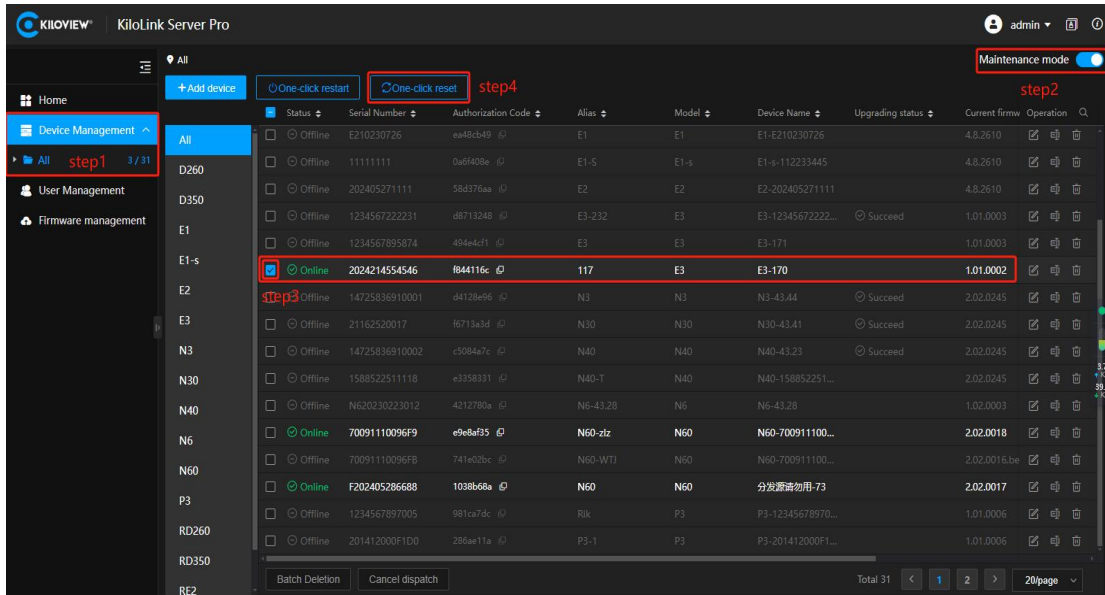


Picture44

4.4.4.6. One-button Reset

Step 3: Select device

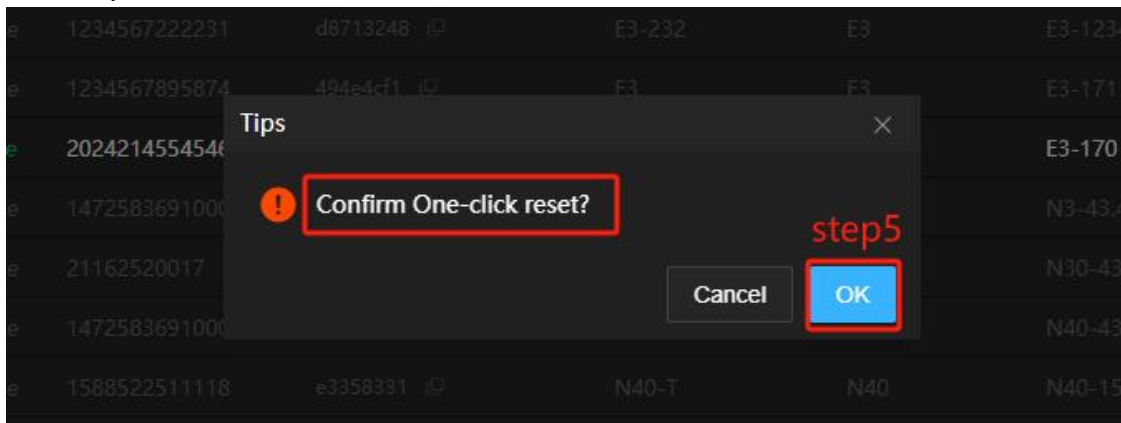
You can select a single device, or select multiple devices at once using "Batch Operation".



Picture45

Step 4: Click the "One-click reset" button.

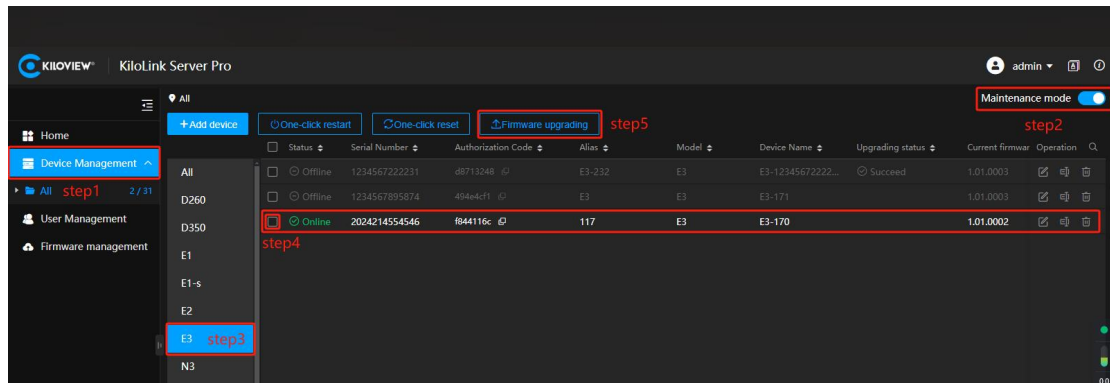
Click Confirm in the pop-up confirmation dialog box to perform a "one-click reset" operation on the selected device.



Picture46

4.4.4.7. Firmware Upgrade

- Enable maintenance mode in the upper right corner of the page;
- Click the model in the list on the left column;
- Check the relevant equipment that needs to be upgraded;
- Click the "Firmware Upgrade" button.



Picture47

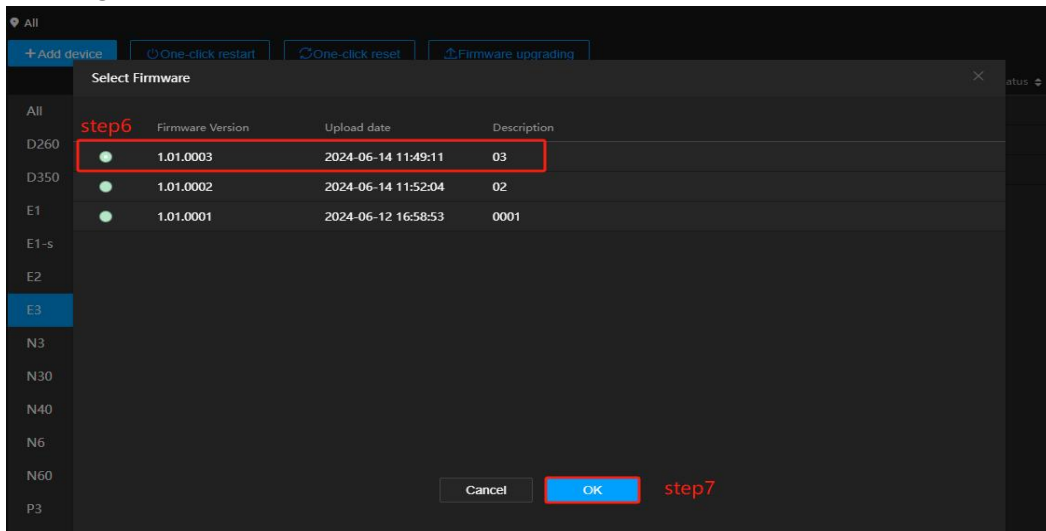
Notice:



TIP:

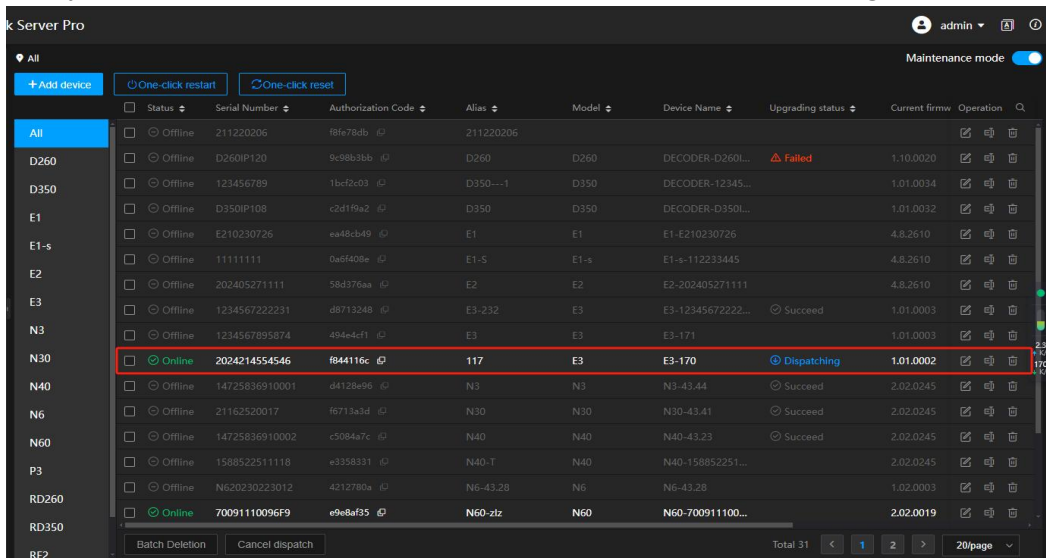
1. Before upgrading, you need to upload the corresponding version of the device firmware to KiloLink Server Pro;
2. For the operation of uploading firmware, please refer to the contents of section "4.6. Firmware Management";
3. To upgrade the firmware on KiloLink Server Pro, you need to enter the maintenance mode first;
4. Please use the admin user to perform the upgrade operation, otherwise there may be permission issues.

In the dialog box that pops up, select the firmware to be upgraded and confirm the upgrade operation.



Picture48

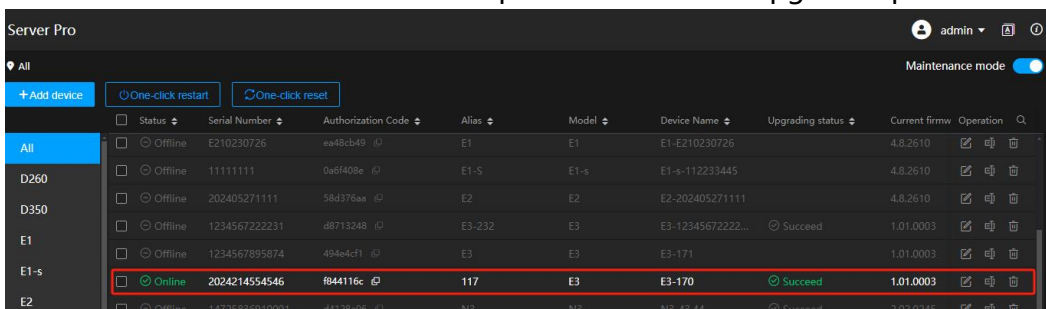
the system will automatic dispatch firmware to the corresponding device.



Picture49

■ Dispatch after completion

wait for the device to restart to complete the firmware upgrade operation.



Picture50

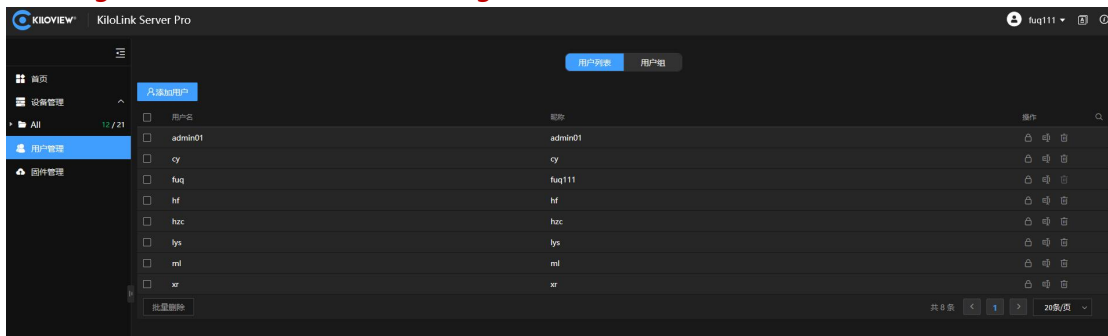
4.5. User Management

Default administrator username: admin

Default administrator password: Kiloview001

- First, Login to KiloLink Server Pro
- Then, Create new users and user groups through the user management interface, and add permissions to users and user groups.
- Finally, Save the configuration

TIP: The user management function also includes operations of adding, modifying, deleting individual users, and deleting users in batches.

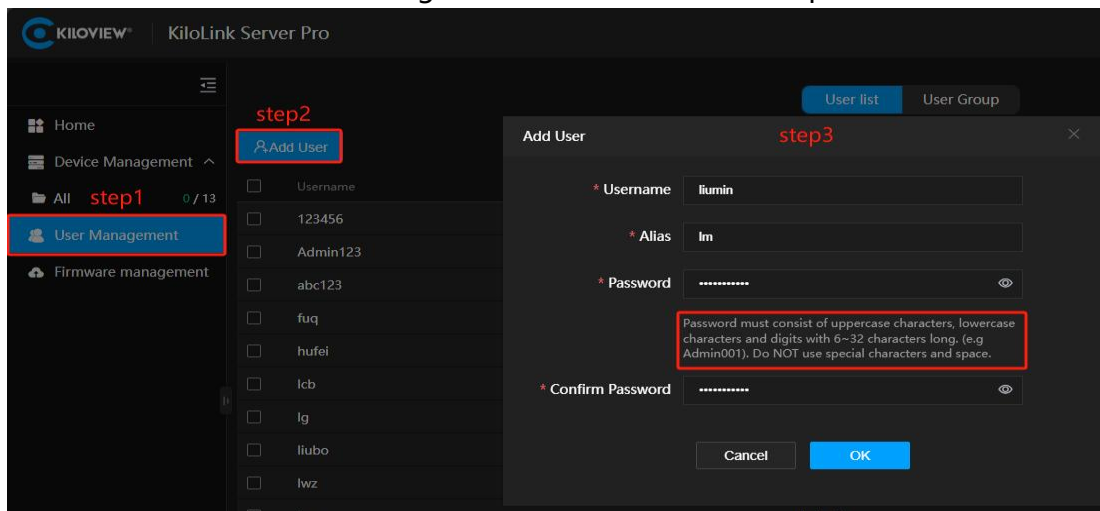


Picture51

4.5.1. Add User

On the user management interface, find and click the "Add User" button.

Enter user information including: user name, nickname, and password.



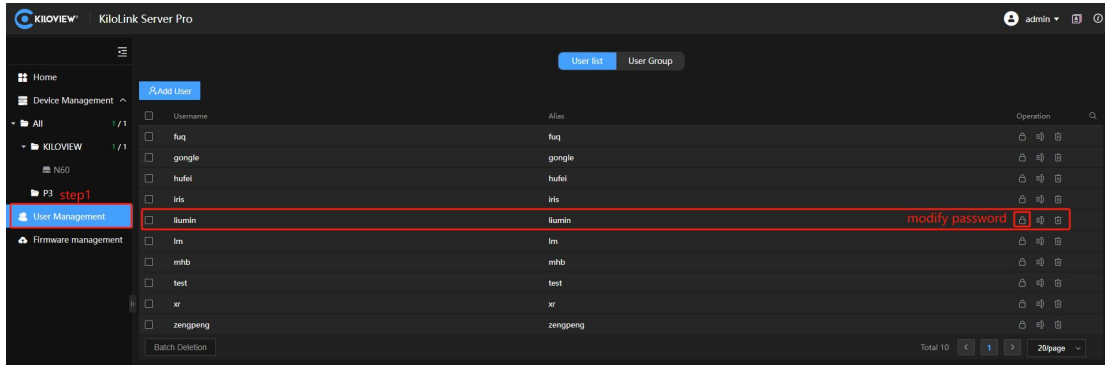
Picture52

TIP: The password must contain uppercase and lowercase letters and numbers and be at least 6-32 characters long between positions.

4.5.2. Modify User

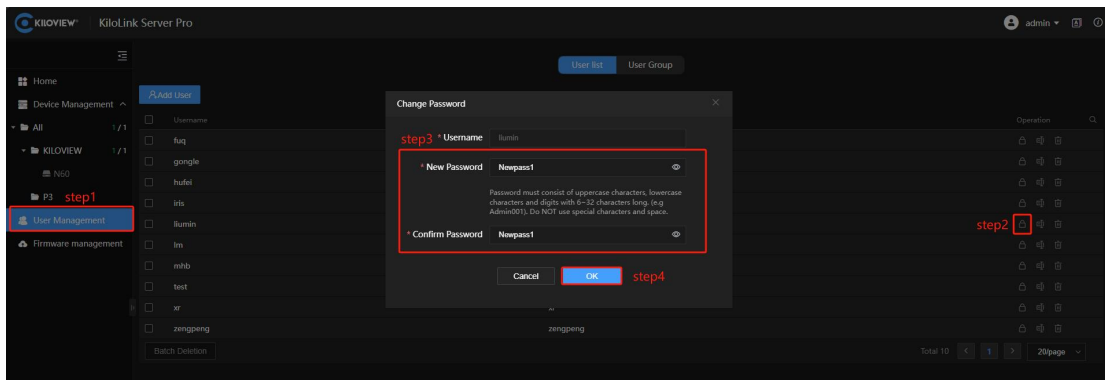
User password modification

In the user management interface, find the target user, click the "Change Password" button, and the "Change Password" window will pop up.



Picture53

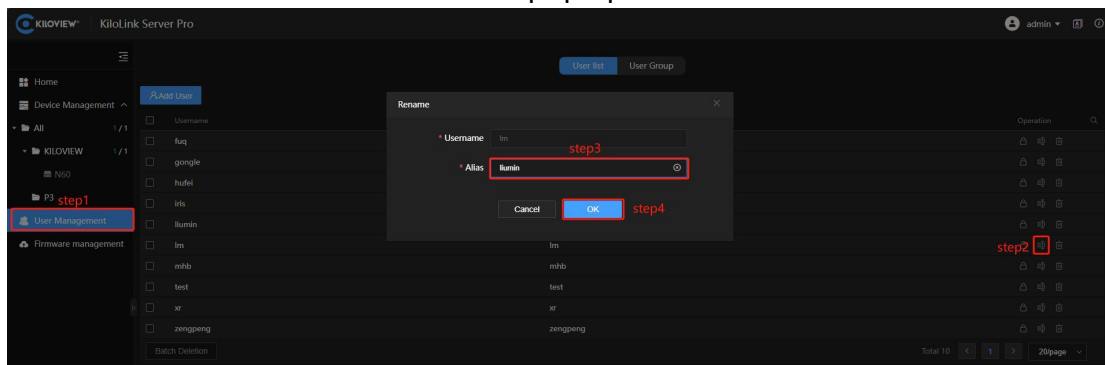
In the "Password Change" window, fill in "User Name", "Password", "Confirm Password", and then click "Confirm".



Picture54

User alias modification

In the user management interface, find the target user, click the "Modify Alias" button, and the "Rename" window will pop up.



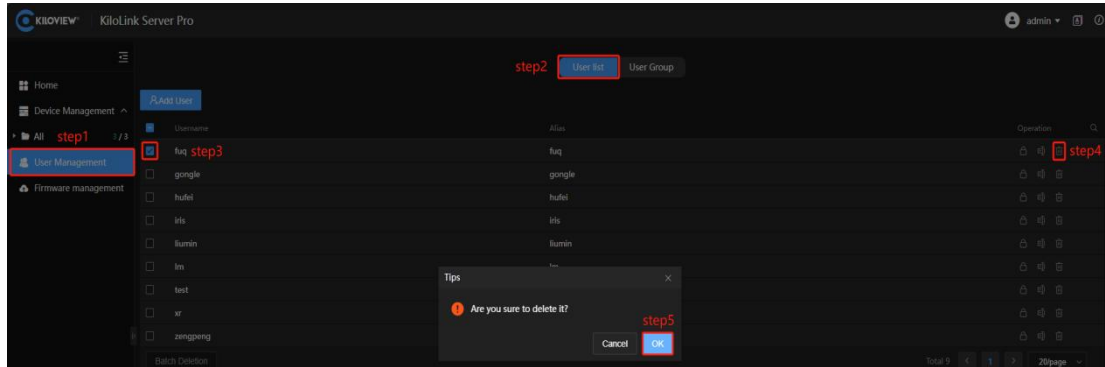
Picture55

Enter a new alias and click OK to save.

4.5.3. Delete Users

■ Deleting a Single User

In the user management interface, find the target user, click the "Delete" button, and a "Tips" window will pop up.

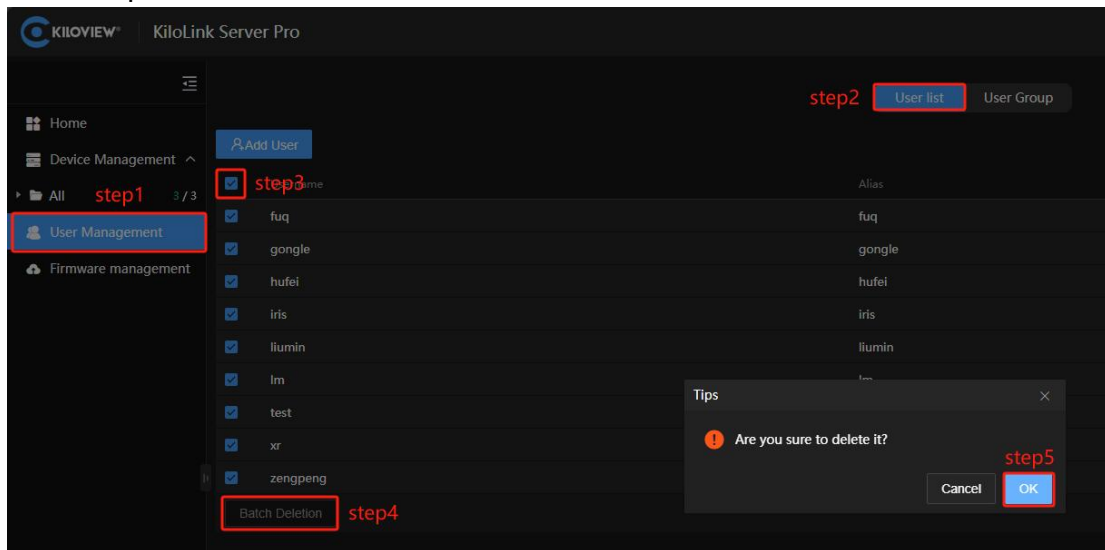


Picture56

■ Deleting Users in Bulk

In the user management interface, select the target users to be deleted in batches, click "Batch Delete", and the "Prompt" will pop up.

In the "Tips" window, click "OK" to delete users in batches.



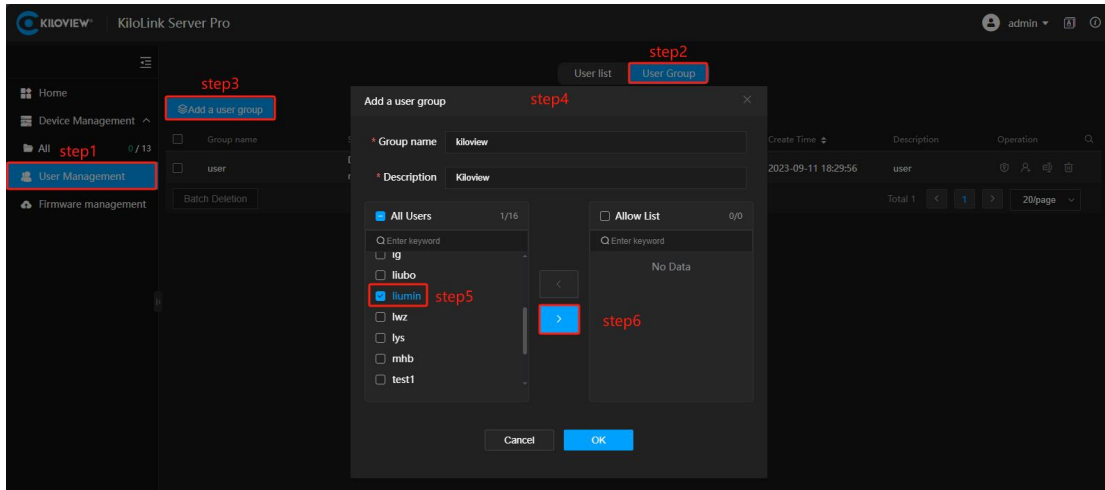
Picture57

4.5.4. Configure User Group

4.5.4.1. Add User Group

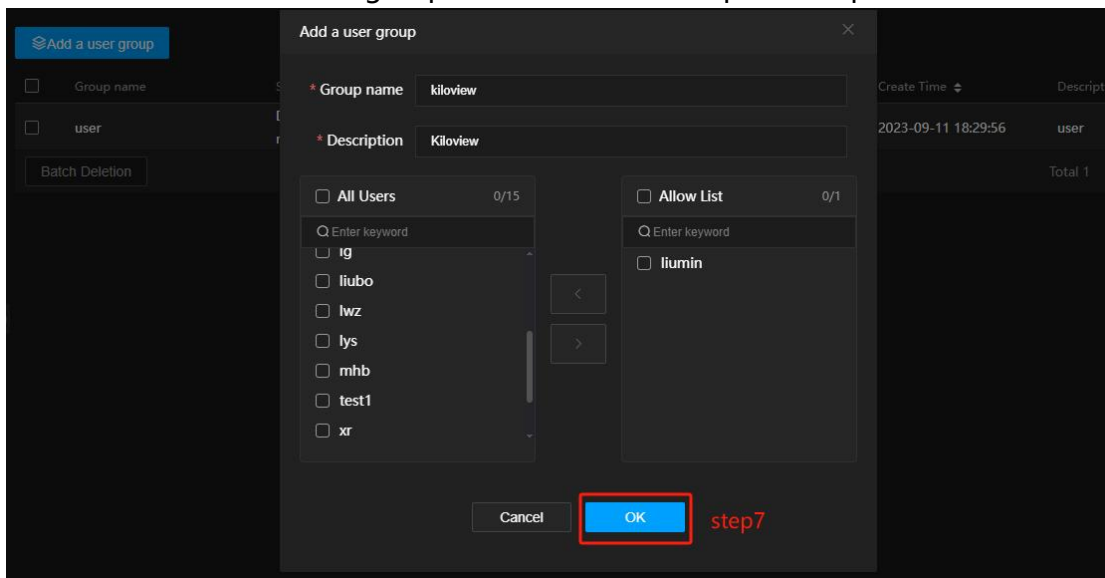
In the User Management interface, select the User Groups tab, and then click the "Add User Group" button. When the "Add a User Group" window pops up, fill in the "Group Name | Description".

Search and select the user you want to add.



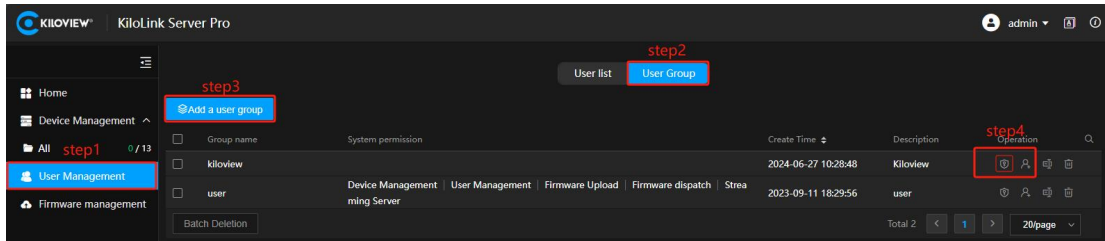
Picture58

Add users to the new user group and click OK to complete the process.



Picture59

4.5.4.2. Authorized User Group



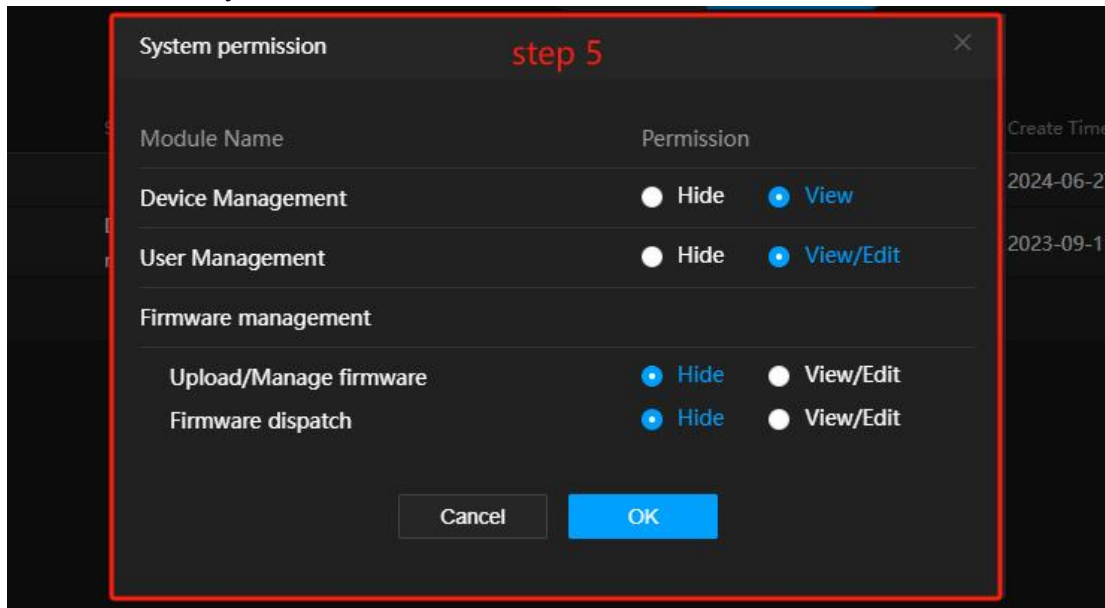
Picture60

Select a user group and authorize it relevant permissions.

System permissions include:

- Equipment management;
- User Management;
- Firmware management;

You can authorize different system permissions to different user groups, which will take effect after you click OK.



Picture61

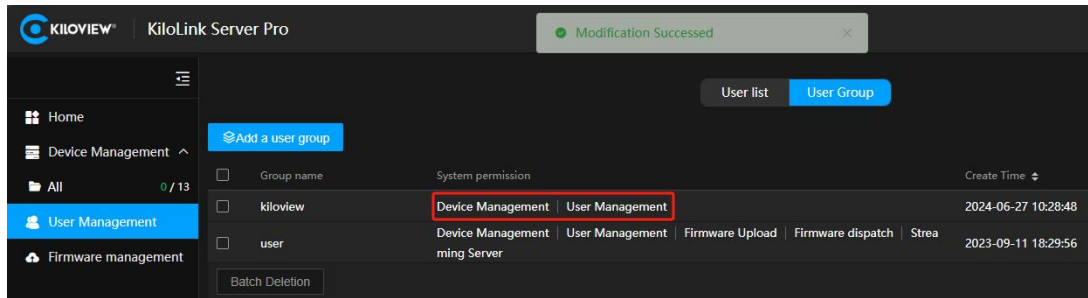
Note: Device management permissions need to be set in "Device Management".

TIP: Device permissions can only be authorized by the admin user
 When you create a user for the first time and assign device management permissions, you do not yet have permission to access specific devices. You need to first authorize in the device directory and then authorize a single device. The permissions of the two are cumulative.

Hidden: management permission without corresponding functions for the relevant user groups;

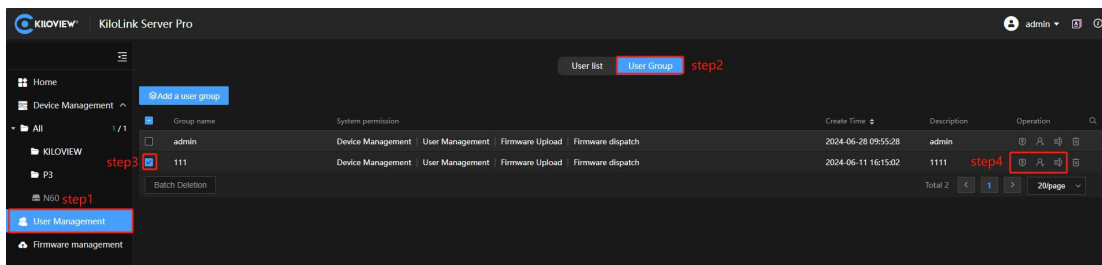
View: The relevant user group can only view the authorized function modules;

Edit: The relevant user group can operate the authorized functions;



Picture62

4.5.4.3. User Management



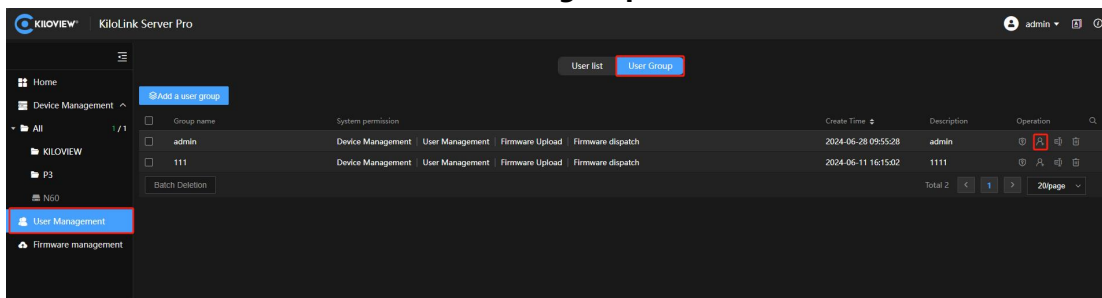
Picture63

The modification options are:

- **User Group Authorization Modify**

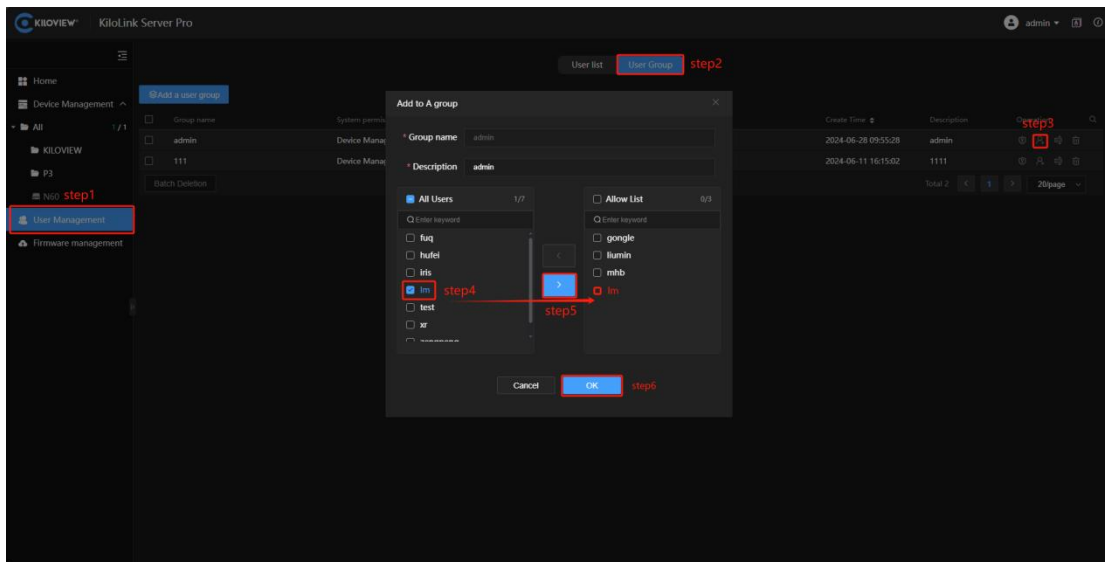
"User Group Authorization Modify" Reference"4.5.5.2. Authorized User Groups".

- **Add or delete a members of a user group**



Picture64

In the User Management interface, select the User Groups tab, and then click the "User Group Members" button.

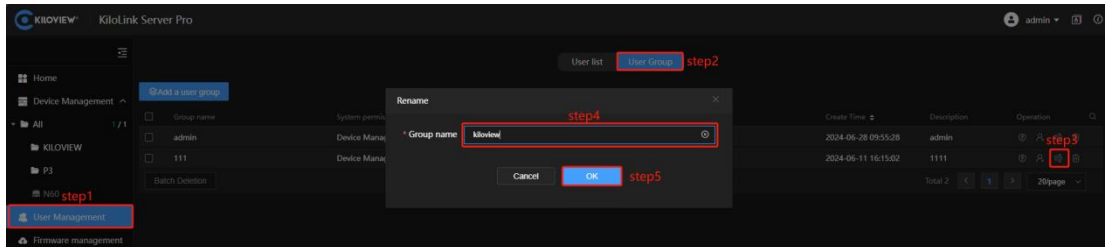


Picture65

Deletion and addition of User group members, Please refer " 4.5.5.1. Add User Group".

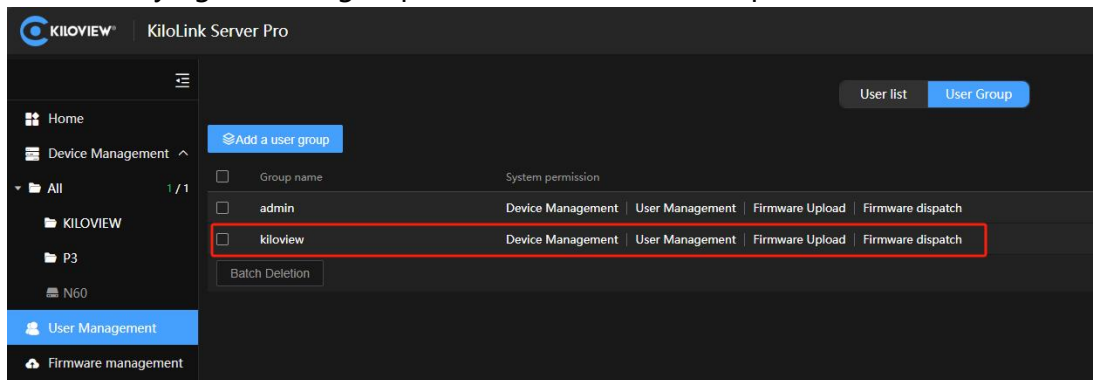
■ **Rename a User Group**

In the User Management interface, select the User Group tab and click the "rename" button.



Picture66

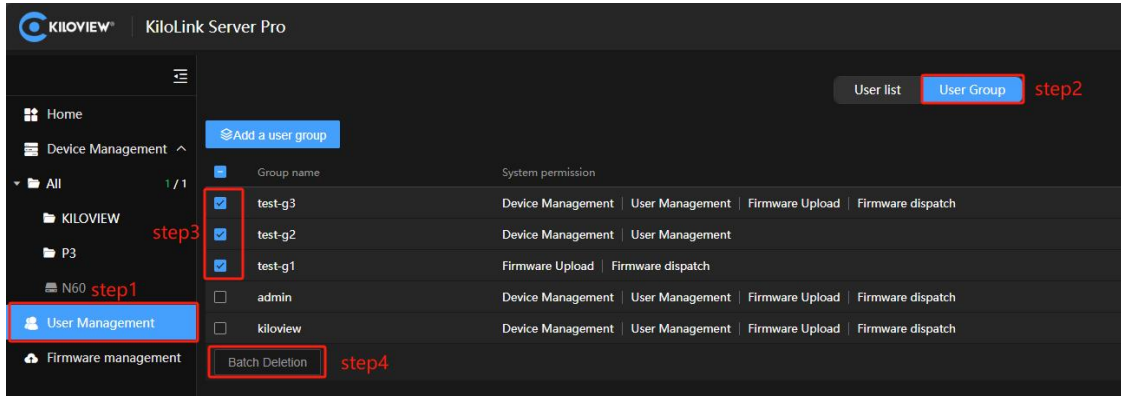
After modifying the user group name, click "OK" to complete modification.



Picture67

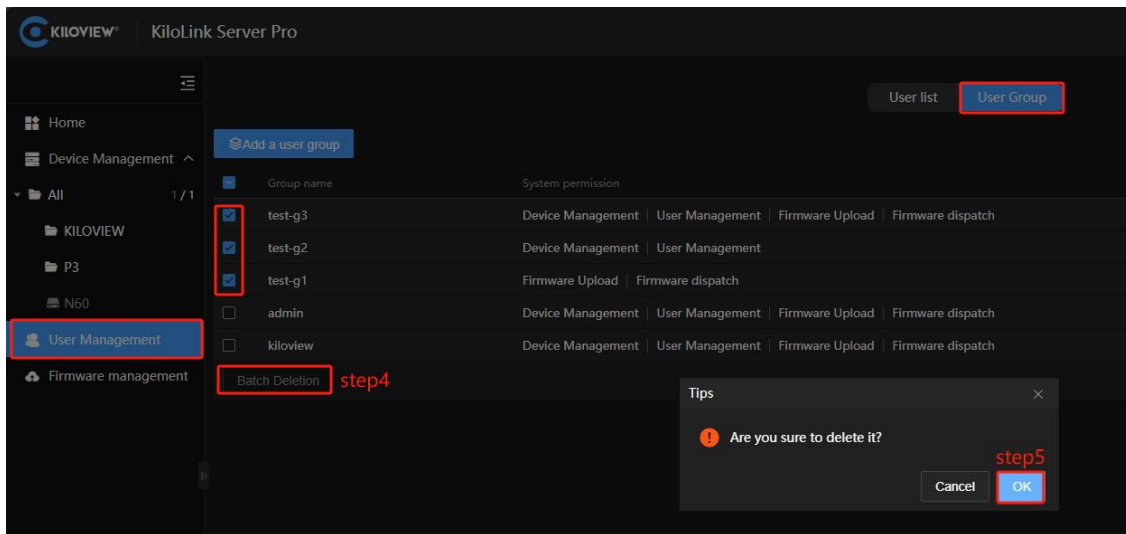
4.5.4.4. Delete User Group

In the User Management interface, First select the User Group tab and then select the user group to be deleted.



Picture68

Click "Batch Deletion" to pop up the deletion confirmation Tips. Click "OK" to delete.



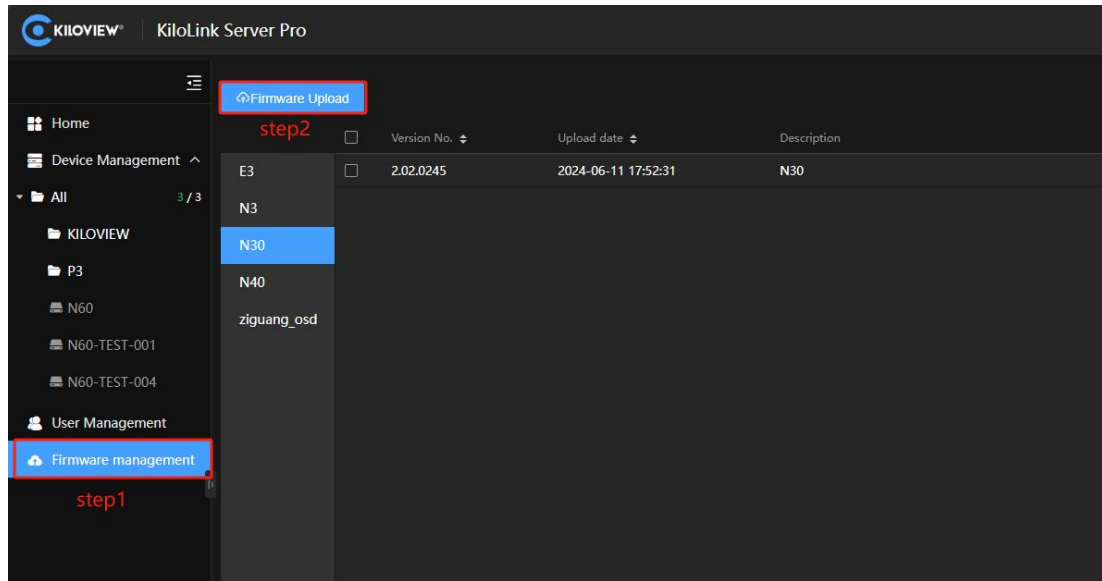
Picture69

4.6. Firmware Management

TIP: Prepare the firmware packages of related devices before uploading the firmware to the KiloLink Server Pro

4.6.1. Firmware Management

After login into the KiloLink Server Pro system, find the "Firmware Management" option in the main menu.

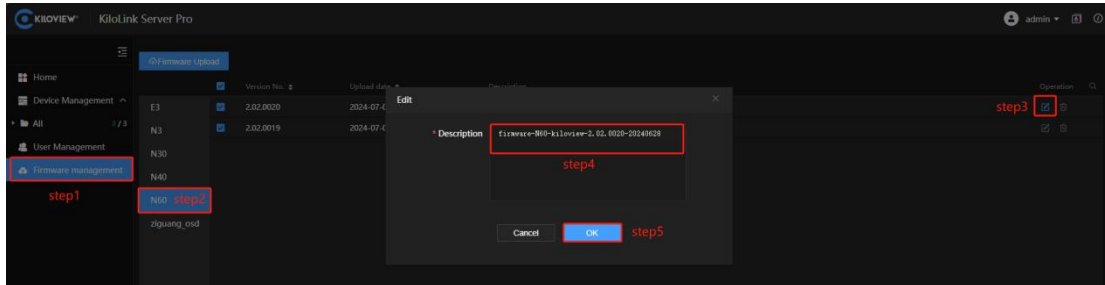


Picture70

4.6.2. Manage Firmware

In the firmware management interface, select the "Device Model" tab and click the "Edit" button.

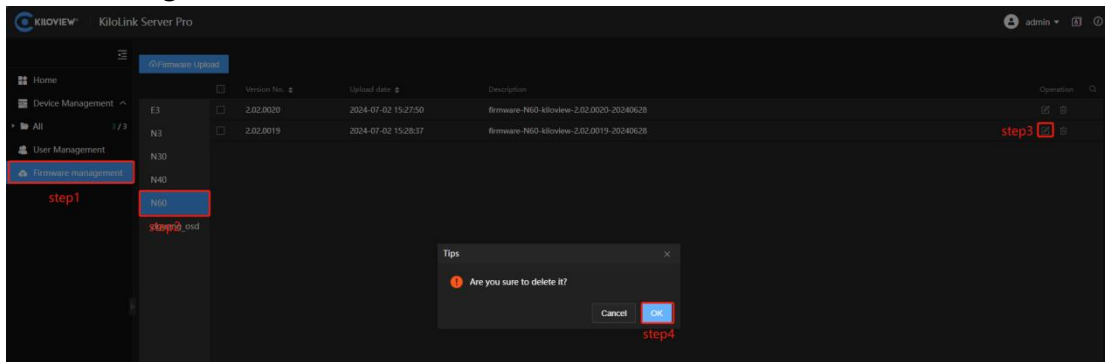
Edit the description, such as "Picture77" as shown:



Picture77

In the firmware management interface, select the "Device Model" tab and click the "Delete" button.

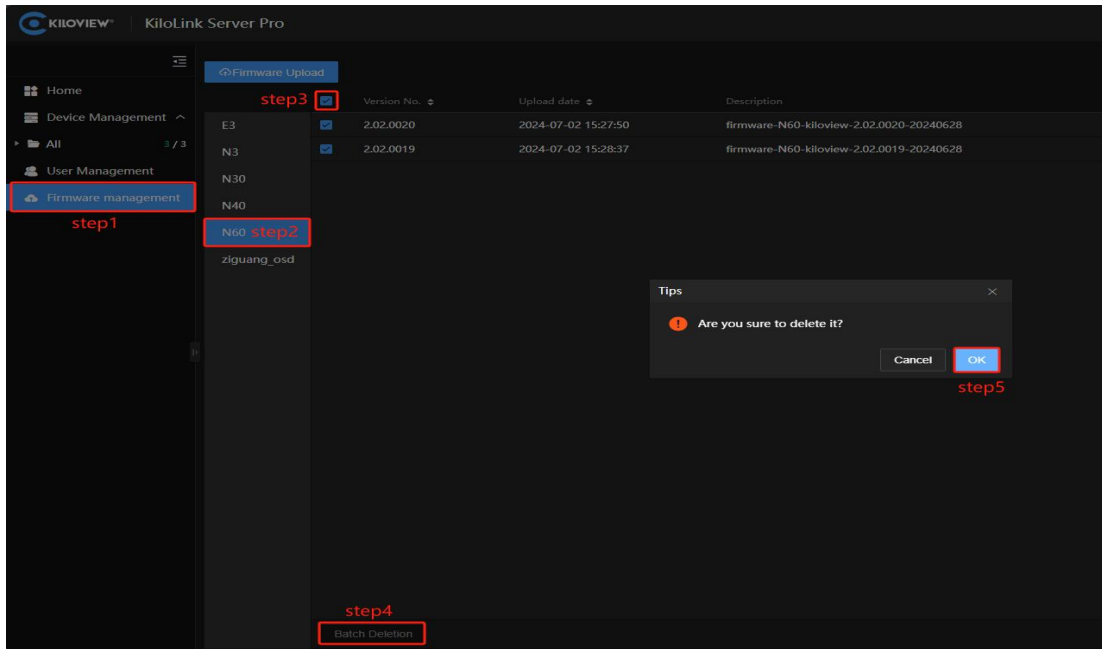
Delete a single firmware, such as "Picture78" as shown:



Picture78

In the firmware management interface, select the "Device Model" tab. Then select the checkbox of the device firmware that you want to delete and click the "Batch Delete" button.

Batch delete firmware, such as "Picture79" as shown:

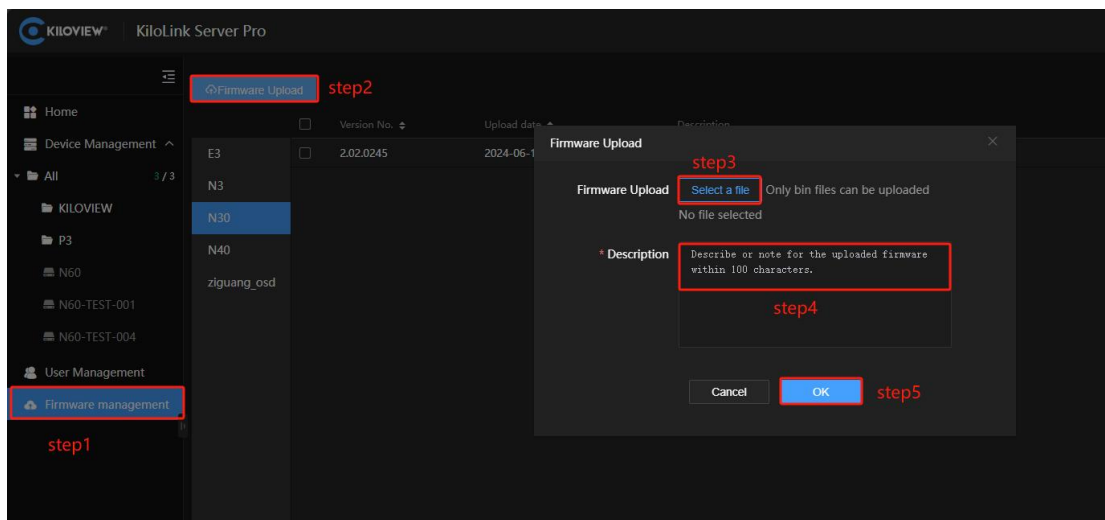


Picture79

4.6.3. Upload Firmware

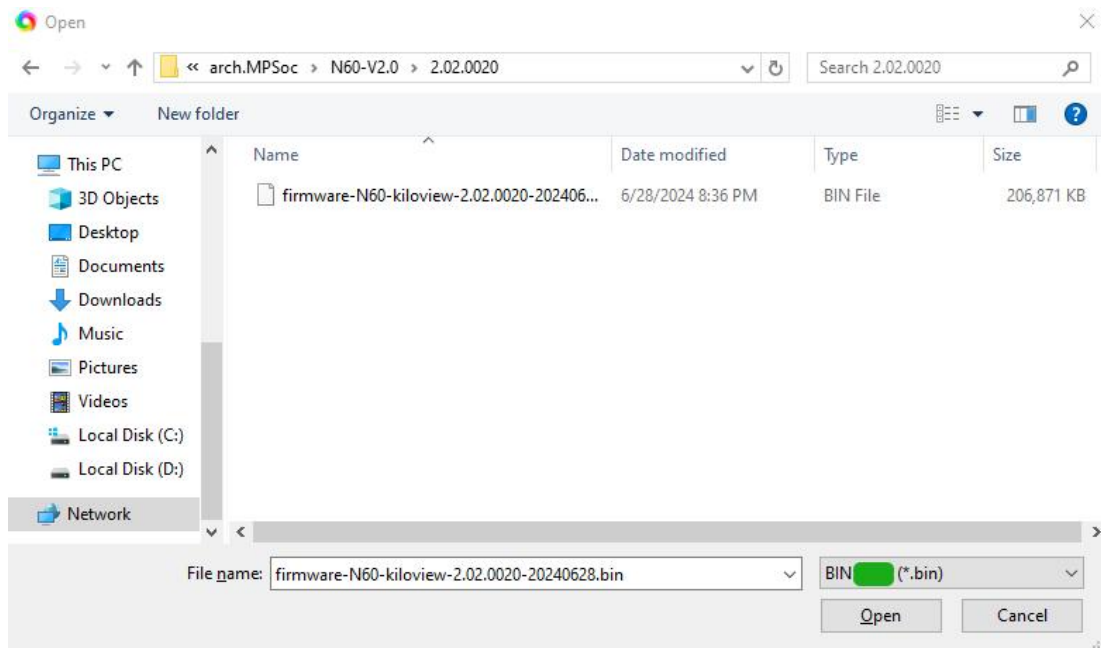
■ Find the firmware management interface

In the firmware management interface, find the "Firmware Upload" button and click it.



Picture71

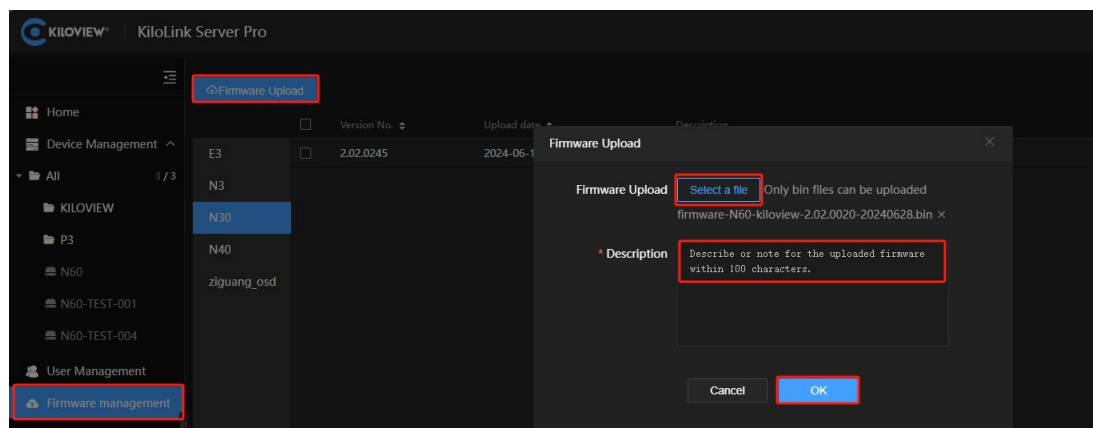
■ Select the firmware file



Picture72

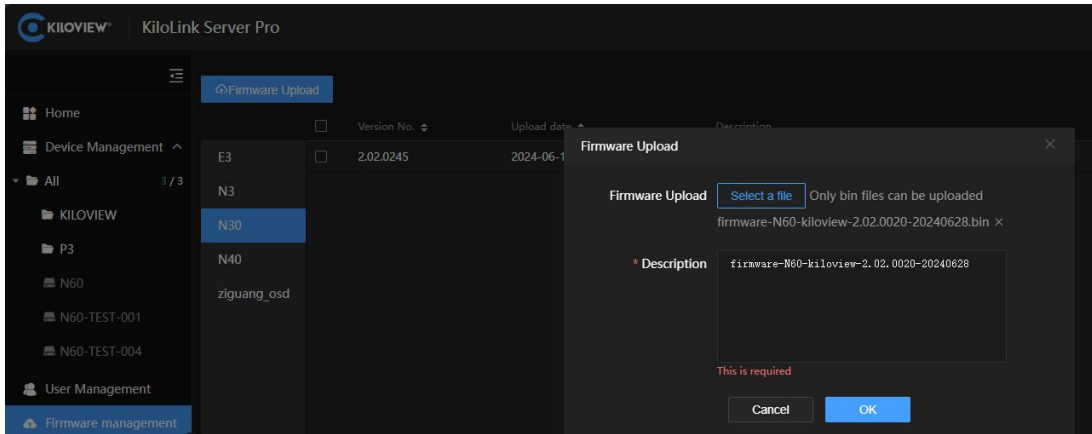
Select the firmware file to be uploaded in the pop-up file (usually *.bin Format).

■ Describe the firmware



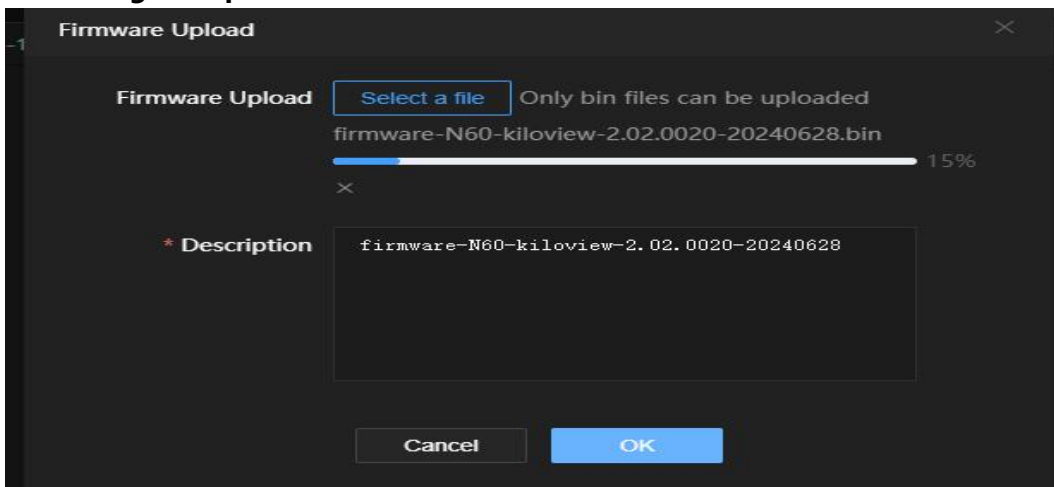
Picture73

Enter a description of the firmware in the "Description" field. Click the "OK" button to start uploading.



Picture74

■ **Waiting for upload**



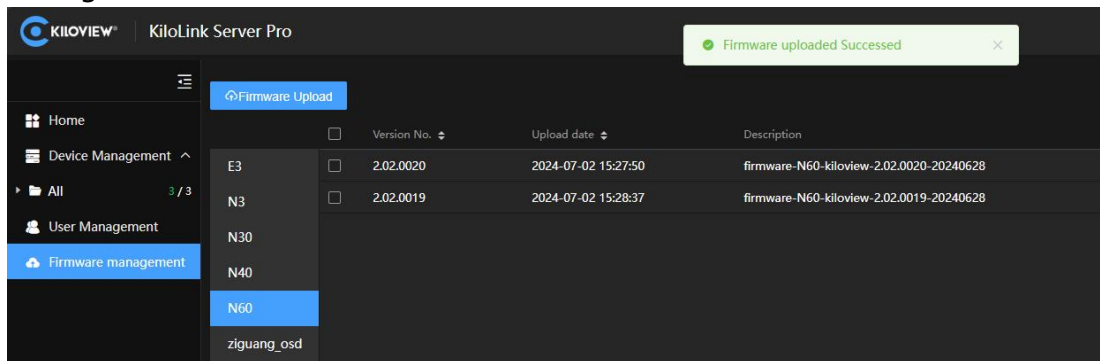
Picture75

KiloLink Server Pro will display the upload progress, waiting for the firmware upload to complete.

TIP: The firmware upload time depends on the file size and network speed, please wait and observe patiently.

4.6.3. Check Uploaded Firmware

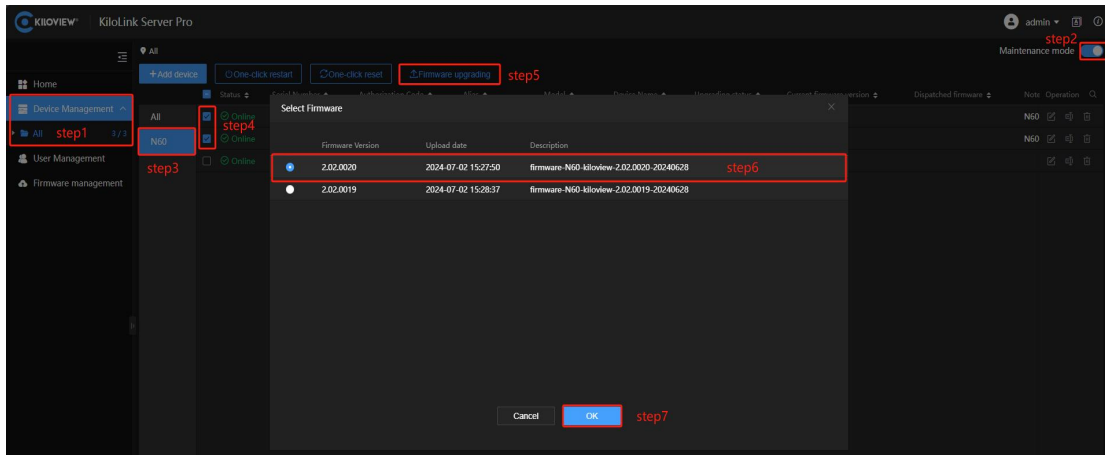
After uploading is complete, you can view the uploaded firmware in the firmware management list.



Picture76

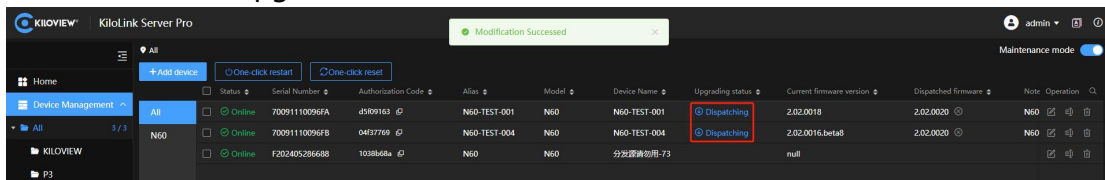
4.6.4. Upgrade Firmware

For details on operation, see "4.4.4.7. Firmware Upgrade" chapter. In the device management interface, turn on "Maintenance Mode" and select the "Device Model" tab. Select the checkbox of the device that needs to be upgraded. Then click the "Firmware Upgrade" button and a window for selecting firmware will pop up.



Picture80

Select the corresponding "Firmware Version" in the pop-up window, and then click "OK" to start the upgrade.



Picture81

Thanks for reading!

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