



Human Body Temperature Measurement Solution






Deployment Guide



Foreword

Safety Instructions

The following categorized signal words with defined meaning might appear in the Guide.

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

Revision History

Version	Revision Content	Release Time
V1.0.0	First release.	March 2020

Privacy Protection Notice

As the device user or data controller, you might collect personal data of others such as face, fingerprints, car plate number, email address, phone number, GPS and so on. You need to be in compliance with the local privacy protection laws and regulations to protect the legitimate rights and interests of other people by implementing measures include but not limited to: providing clear and visible identification to inform data subject the existence of surveillance area and providing related contact.

About the Manual

- The manual is for reference only. If there is inconsistency between the manual and the actual product, the actual product shall prevail.
- We are not liable for any loss caused by the operations that do not comply with the manual.
- The manual would be updated according to the latest laws and regulations of related regions. For detailed information, see the paper manual, CD-ROM, QR code or our official website. If there is inconsistency between paper manual and the electronic version, the electronic version shall prevail.

- All the designs and software are subject to change without prior written notice. The product updates might cause some differences between the actual product and the manual. Please contact the customer service for the latest program and supplementary documentation.
- There still might be deviation in technical data, functions and operations description, or errors in print. If there is any doubt or dispute, please refer to our final explanation.
- Upgrade the reader software or try other mainstream reader software if the manual (in PDF format) cannot be opened.
- All trademarks, registered trademarks and the company names in the manual are the properties of their respective owners.
- Please visit our website, contact the supplier or customer service if there is any problem occurred when using the device.
- If there is any uncertainty or controversy, please refer to our final explanation.

Important Safeguards and Warnings

Electrical Safety

- All installation and operation should conform to your local electrical safety codes.
- The power source shall conform to the Safety Extra Low Voltage (SELV) standard, and supply power with rated voltage which conforms to Limited power Source requirement according to IEC60950-1. Please note that the power supply requirement is subject to the device label.
- Make sure that the power supply is correct before operating the device.
- A readily accessible disconnect device shall be incorporated in the building installation wiring.
- Prevent the power cable from being trampled or pressed, especially the plug, power socket and the junction extruded from the device.

Environment

- Do not aim the device at strong light to focus, such as lamp light and sun light; otherwise it might cause over brightness or light marks, which are not the device malfunction, and affect the longevity of Complementary Metal-Oxide Semiconductor (CMOS).
- Do not place the device in a damp or dusty environment, extremely hot or cold temperatures, or the locations with strong electromagnetic radiation or unstable lighting.
- Keep the device away from any liquid to avoid damage to the internal components.
- Keep the indoor device away from rain or damp to avoid fire or lightning.
- Keep sound ventilation to avoid heat accumulation.
- Transport, use and store the device within the range of allowed humidity and temperature.
- Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.
- Pack the device with standard factory packaging or the equivalent material when transporting the device.
- Install the device in the location where only the professional staff with relevant knowledge of safety guards and warnings can access. The accidental injury might happen to the non-professionals who enter the installation area when the device is operating normally.

Operation and Daily Maintenance

- Do not touch the heat dissipation component of the device to avoid scald.
- Carefully follow the instructions in the Guide when performing any disassembly operation about the device; otherwise, it might cause water leakage or poor image quality due to unprofessional disassemble. Please contact after-sale service for desiccant replacement if there is condensed fog found on the lens after unpacking or when the desiccant turns green. (Not all models are included with the desiccant).
- It is recommended to use the device together with lightning arrester to improve lightning protection effect.

- It is recommended to ground the device to enhance reliability.
- Do not touch the image sensor (CMOS) directly. Dust and dirt could be removed with air blower, or you can wipe the lens gently with soft cloth that moistened with alcohol.
- Device body can be cleaned with soft dry cloth, which can also be used to remove stubborn stains when moistened with mild detergent. To avoid possible damage on device body coating which could cause performance decrease, do not use volatile solvent such as alcohol, benzene, diluent and so on to clean the device body, nor can strong, abrasive detergent be used.
- Dome cover is an optical component, do not touch or wipe the cover with your hands directly during installation or operation. For removing dust, grease or fingerprints, wipe gently with moisten oil-free cotton with diethyl or moisten soft cloth. You can also air blower to remove dust.



- Please strengthen the protection of network, device data and personal information by adopting measures which include but not limited to using strong password, modifying password regularly, upgrading firmware to the latest version, and isolating computer network. For some device with old firmware versions, the ONVIF password will not be modified automatically along with the modification of the system password, and you need to upgrade the firmware or manually update the ONVIF password.
- Use standard components or accessories provided by manufacturer and make sure that the device is installed and maintained by professional engineers.
- The surface of the image sensor should not be exposed to laser beam radiation in an environment where a laser beam device is used.
- Do not provide two or more power supply sources for the device unless otherwise specified. A failure to follow this instruction might cause damage to the device.

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1 Overview

The solution aims at human body temperature measurement and alarm at various checkpoints such as railway stations, airports and community entrances, and features high precision & reliability, quick temperature recognition rate, easy installation and high cost performance.

The solution adopts thermal network camera (hereinafter referred to as TPC) with the help of blackbody to detect body temperature and send temperature data and alarm to Express, IVSS or NVR to notify inspectors.



The deployment guide is for reference only. If there is any difference between the guide and the product, the actual product shall prevail.

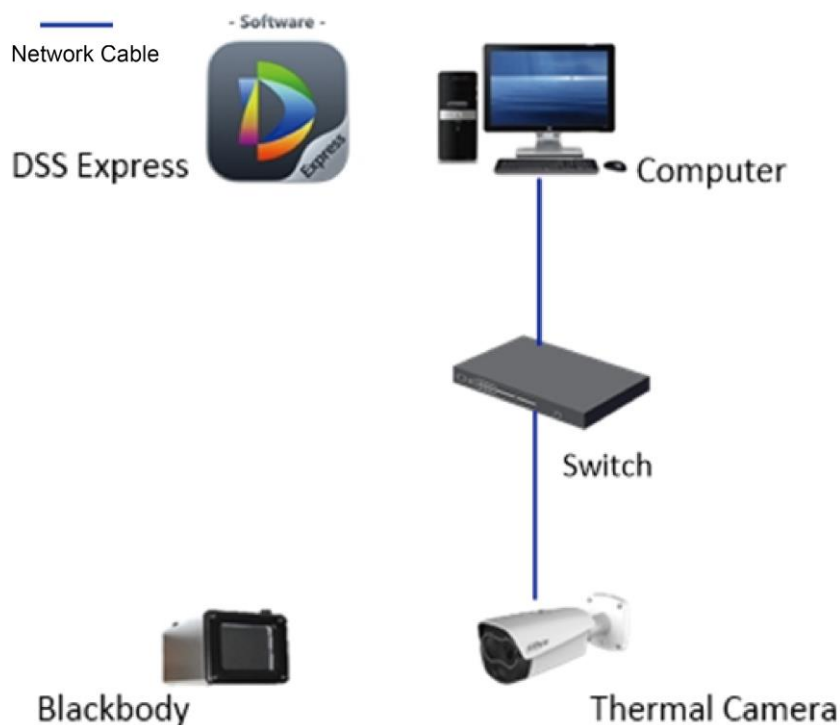
2 Network Diagram

This solution provides the following network diagrams, and you can choose according to your actual needs.

- TPC–Express

TPC is directly added to Express. Video and pictures are stored in the disks of Express server. Express is used for video and alarm monitoring and system management.

Figure 2-1 TPC–Express



- TPC–IVSS/NVR–Express

TPC is added to IVSS/NVR; IVSS/NVR is added to Express. Video and pictures are stored in IVSS/NVR. Express is used for video and alarm monitoring and system management.

Figure 2-2 TPC-IVSS-Express

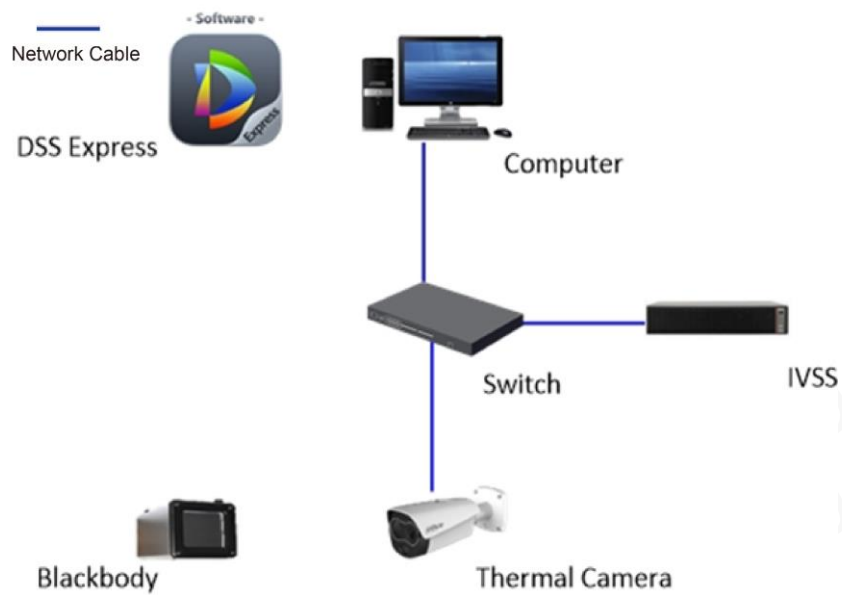
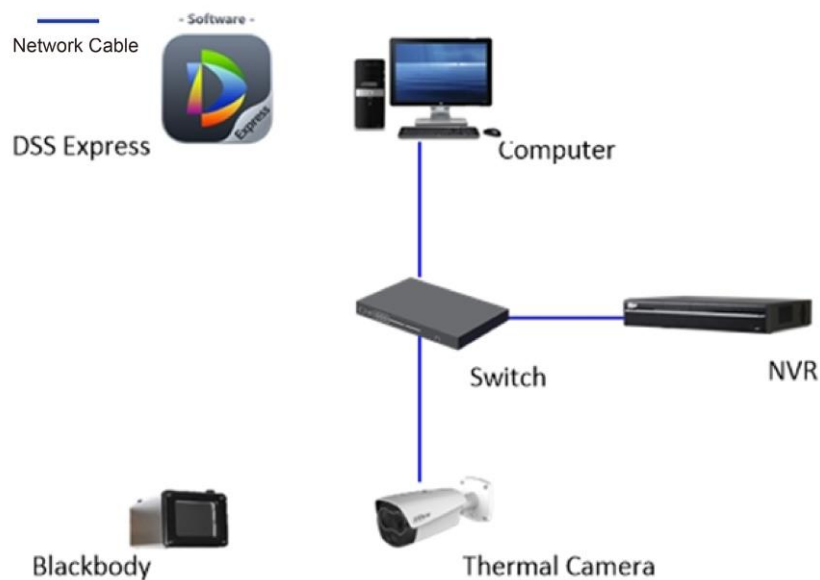


Figure 2-3 TPC-NVR-Express



- TPC-IVSS/NVR

TPC is added to IVSS/NVR. Video and pictures are stored in IVSS/NVR. Video and alarm monitoring and system management are performed on IVSS/NVR.

Figure 2-4 TPC-IVSS

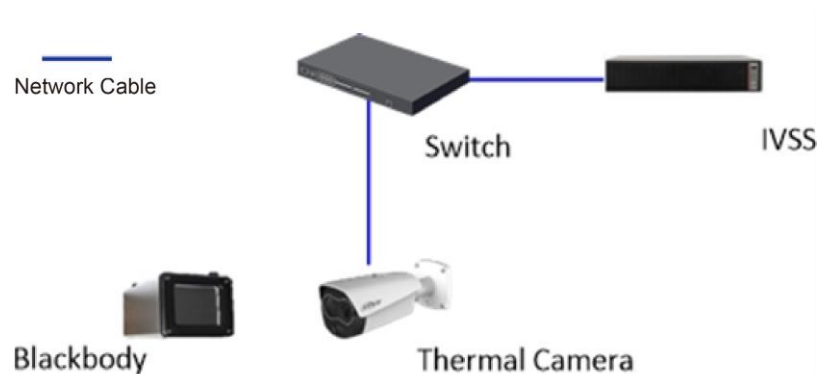
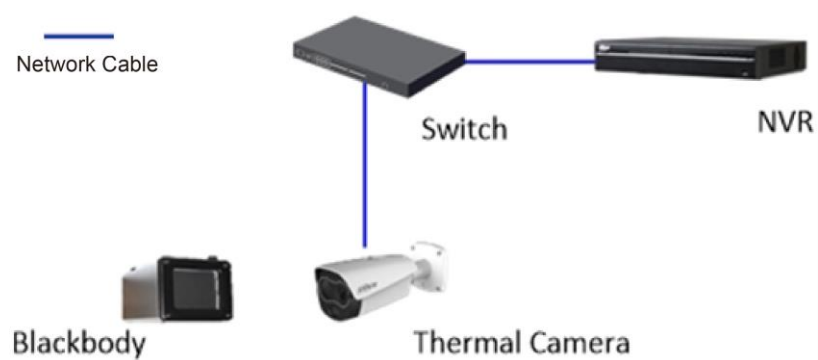


Figure 2-5 TPC–NVR



3 Deployment Process

Before deployment, confirm whether all the devices work properly, and then you can start deployment and configuration. You can install all the devices with the provided manual or guide.

Step 1 Confirm the device models and device quantity. For details, see the material list of the solution.

Step 2 Record all the device SN numbers from the packing boxes in Excel.

Figure 3-1 SN number

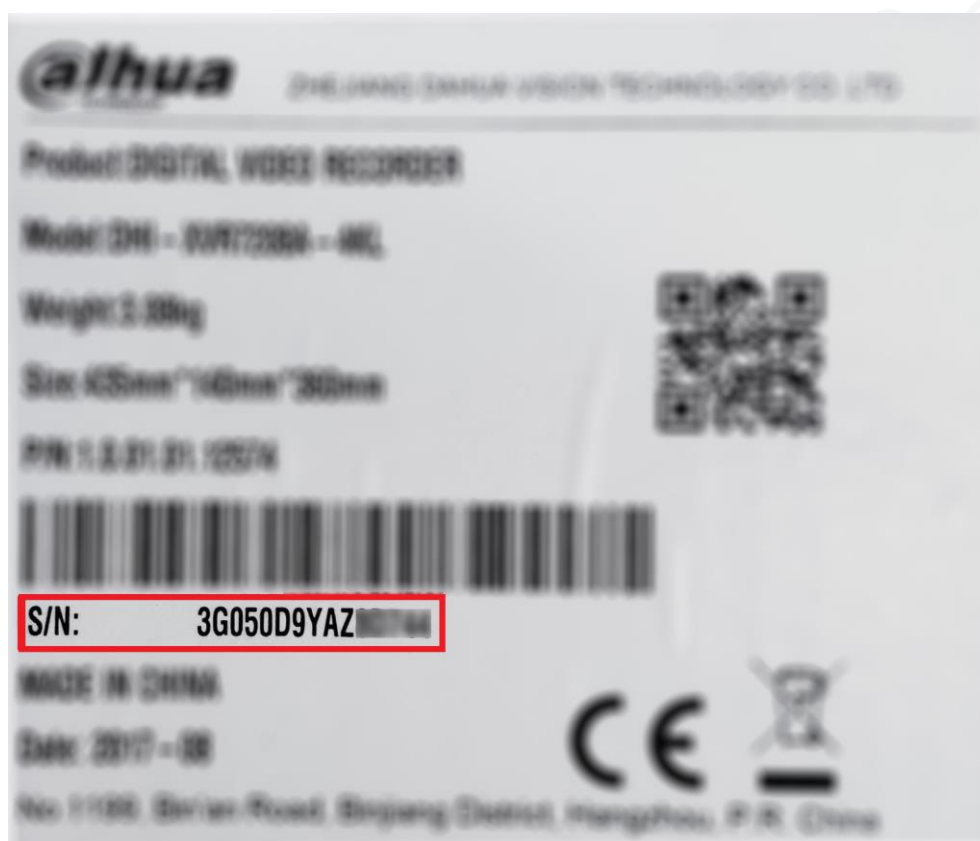


Figure 3-2 Record SN numbers

	A	B	C	D	E
1	No.	Device Name	SN	Installation Position	Note
2	1	Star Light Camera	4J04704YAGF0193		
3	2	TPC	5N757U4HAGF0196		
4	3	FR Camera	8H05774YNF019I		
5	4	Audio/Video Camera	3L05704YAKF0684		
6	5	NVR	9R05704YTGf0753		
7				
8					
9					

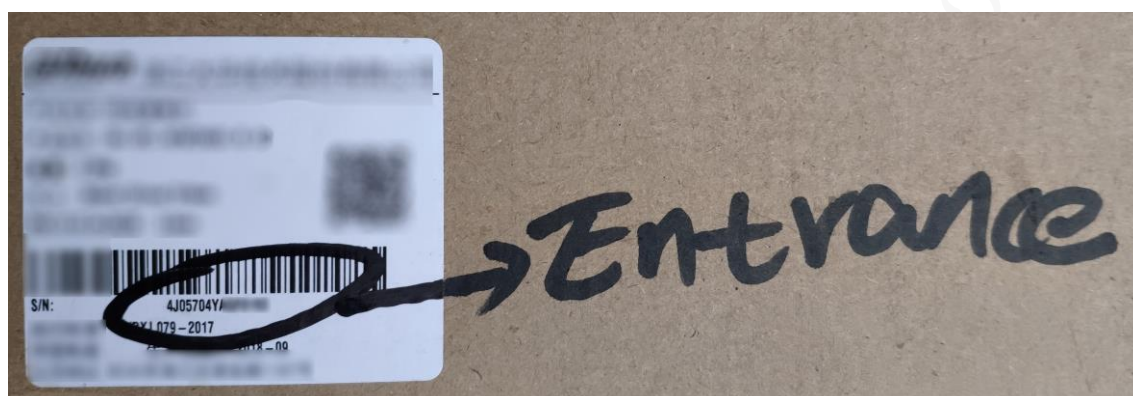
Step 3 Match all the SN numbers with the planned installation positions in the table. You can also modify the content in the table as needed.

Figure 3-3 Match installation position

	A	B	C	D	E
1	No.	Device Name	SN	Installation Position	Note
2	1	Star Light Camera	4J04704YAGF0193	Entrance	
3	2	TPC	5N757U4HAGF0196	Warehouse	
4	3	FR Camera	8H05774YNF019I	Front Door	
5	4	Audio/Video Camera	3L05704YAKF0684	concierge	
6	5	NVR	9R05704YTGf0753	CCTV Center	
7				

Step 4 Mark the installation positions on the corresponding packing boxes as planned, and then install them to proper locations. See Figure 3-4 and "4 Installation."

Figure 3-4 Mark installation position



Step 5 Make sure that all the devices are properly connected, and then power up all the devices. Download the ConfigTool on your PC to initialize all the devices and modify device IP addresses in batches. See "5 Getting Started."

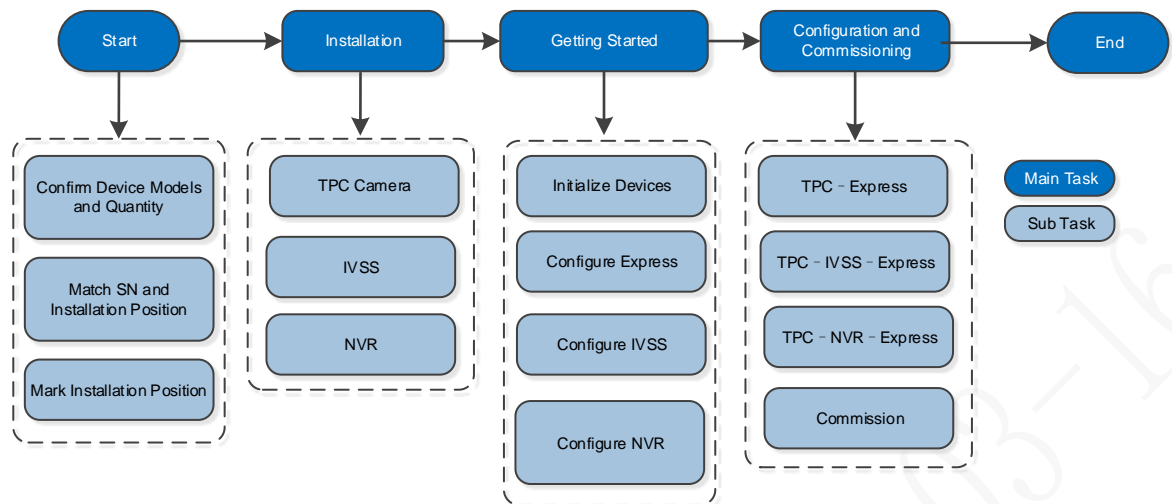
Step 6 After modifying all the IP addresses, you can record them to the planning table too, and then you will have the matching relationship between SN number, installation position, and IP address of every device. You can then easily locate every device you need during configuration.

Figure 3-5 Match IP address

	A	B	C	D	E
1	No.	Device Name	SN	Installation Position	IP Address
2	1	Star Light Camera	4J04704YAGF0193	Entrance	192.168.1.10
3	2	TPC	5N757U4HAGF0196	Warehouse	192.168.1.11
4	3	FR Camera	8H05774YNF019I	Front Door	192.168.1.12
5	4	Audio/Video Camera	3L05704YAKF0684	concierge	192.168.1.13
6	5	NVR	9R05704YTGf0753	CCTV Center	192.168.1.14
7				

Step 7 Configure devices and carry out commissioning. See "6 Configuration and Commissioning."

Figure 3-6 Deployment



4 Installation and Connection

This chapter introduces connection between TPC and blackbody.



For installation details, refer to products user's manual or quick start guide.

4.1 Installation Distance

The distance from TPC to human forehead should be equal to the distance from TPC to the blackbody to ensure temperature measurement accuracy. Confirm your TPC model and see the table below for specific devices installation distance.

Table 4-1 Devices installation distance

Focal Length	Distance between TPC and Blackbody	Distance between TPC and Human Forehead	Width of Passage
BF3221 (7 mm)	3 m	3 m	1.3 m
BF5421 (13 mm)	3 m	3 m	1.5 m

4.2 Installation Illustrations



There is preset factory temperature for blackbody. Blackbody temperature enters its constant state after 30 minutes.

4.2.1 TPC (BF3221) and Blackbody

Figure 4-1 Installation (side view)

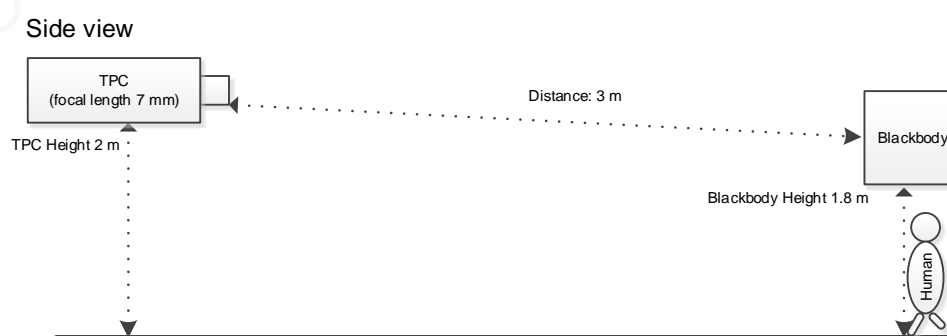
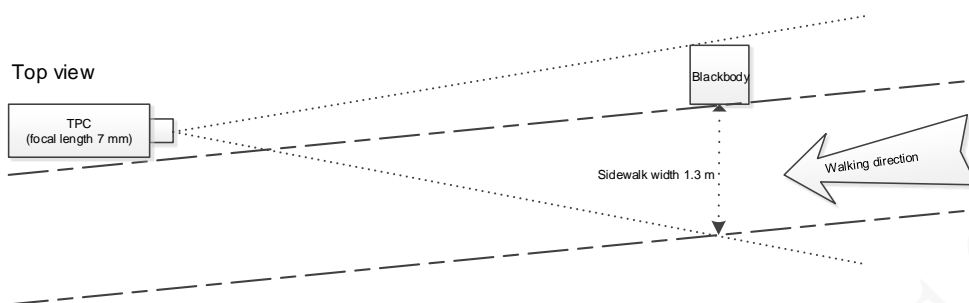


Figure 4-2 Installation (top view)



4.2.2 TPC (BF5421) and Blackbody

Figure 4-3 Installation (side view)

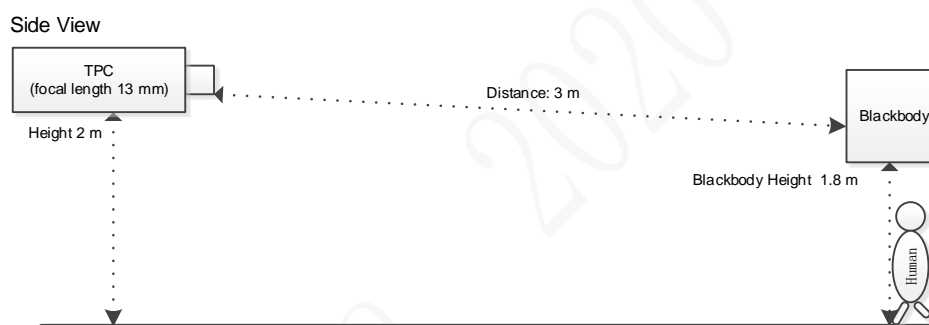
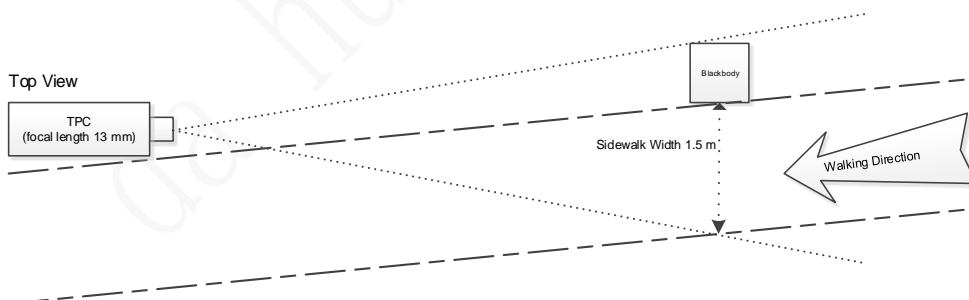


Figure 4-4 Installation (top view)



5 Getting Started

Based on your product combination and networking method (refer to "2 Network Diagram"), partially follow this chapter to initialize and configure your devices.

5.1 Initializing Devices

Initialize your devices and then modify their IP addresses before you can use them.

5.1.1 Initializing TPC and NVR with ConfigTool

5.1.1.1 Initializing TPC and NVR

Initialize your TPCs and NVRs with ConfigTool for first-time use. To acquire the configuration tool, go to Dahua official website, and then select **Support** > **Download Center** > **ToolBox**, follow the on-screen instructions to download and install the tool.

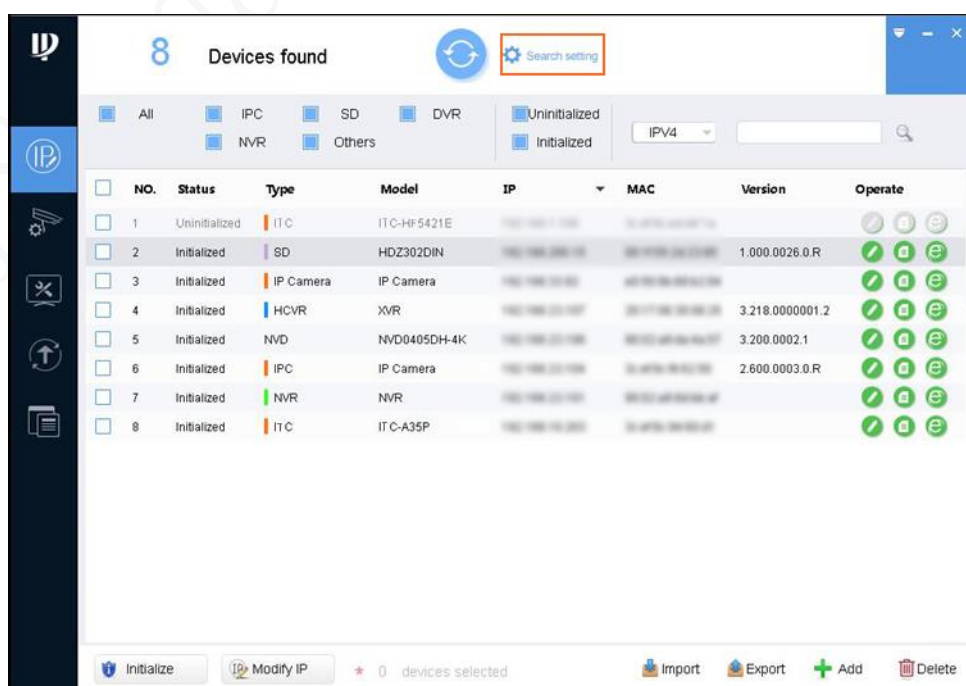


- Device initialization is available only when the IP addresses of the device (192.168.1.108 by default) and the PC stay in the same network segment.
- Plan useable network segment properly to connect the device to the network.
- The following figures and interfaces are for reference only, and the actual product shall prevail.

Step 1 Double-click ConfigTool.exe to open the tool.

Step 2 Click .

Figure 5-1 Modify IP

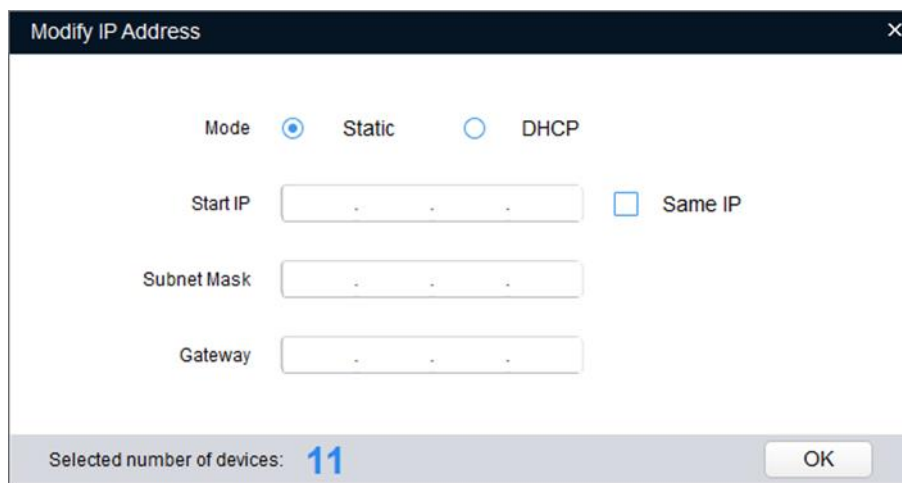




After clicking **Search setting**, enter the username and password, and please make sure that they are the same as what you set during initialization, otherwise there will be "wrong password" notice.

Step 2 Select the devices which IP addresses need to be modified, and then click **Modify IP**.

Figure 5-3 Modify IP Address



Step 3 Select **Static** mode, and then enter start IP, subnet mask, and gateway. All the IP addresses will be modified sequentially from the start IP.



If DHCP server is available in the network, devices will automatically obtain IP addresses from DHCP server when you select **DHCP**.

Step 4 Click **OK**.

5.1.1.3 Updating System

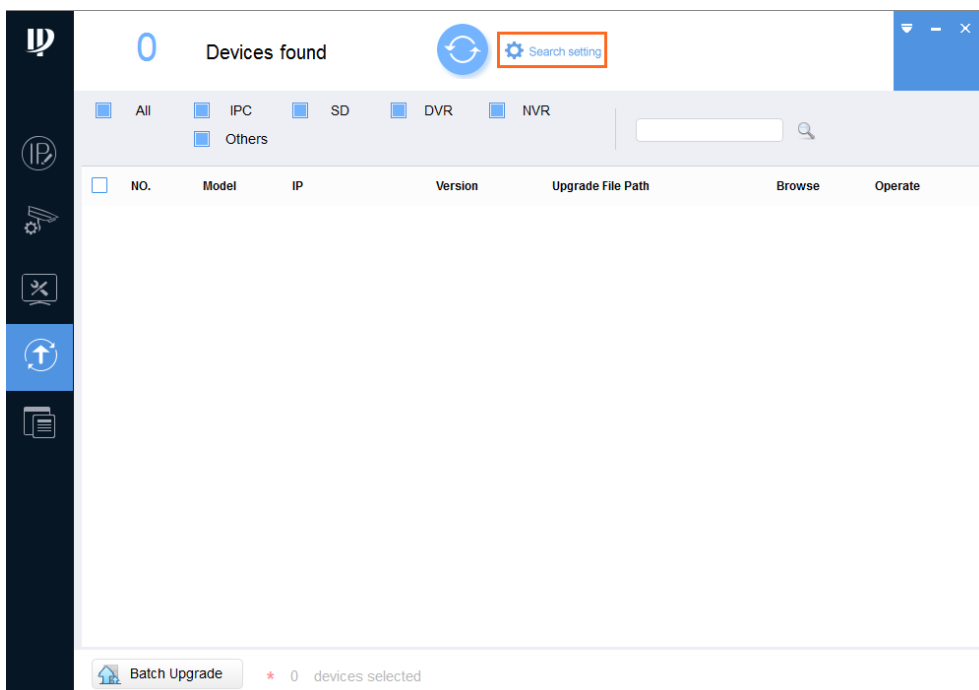
ConfigTool supports updating devices one by one or in batches.

- Updating devices one by one is ideal when few devices are involved, and login username and password of the devices are different.
- Updating devices in batches is recommended when multiple devices are involved, and login username and passwords of cameras are the same.

Step 1 Double-click "ConfigTool.exe" to open the tool.

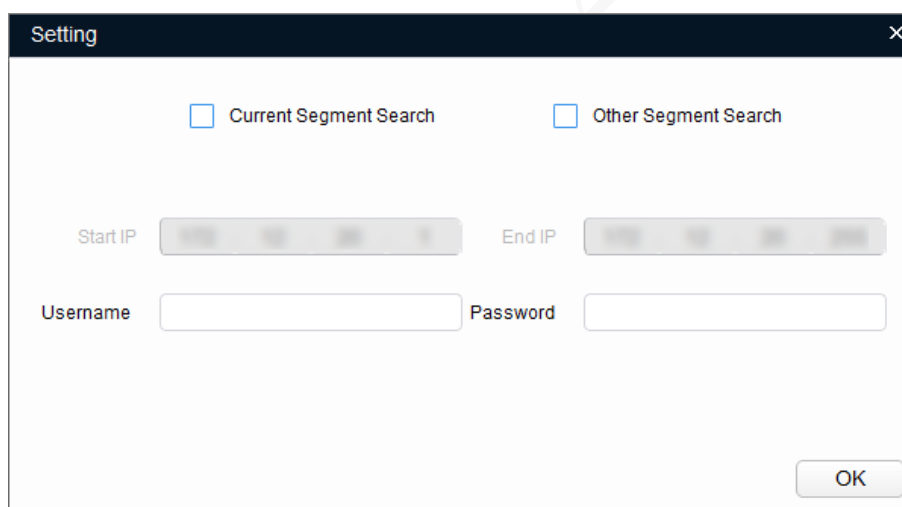
Step 2 Click .

Figure 5-4 Update



Step 3 Click **Search setting**.

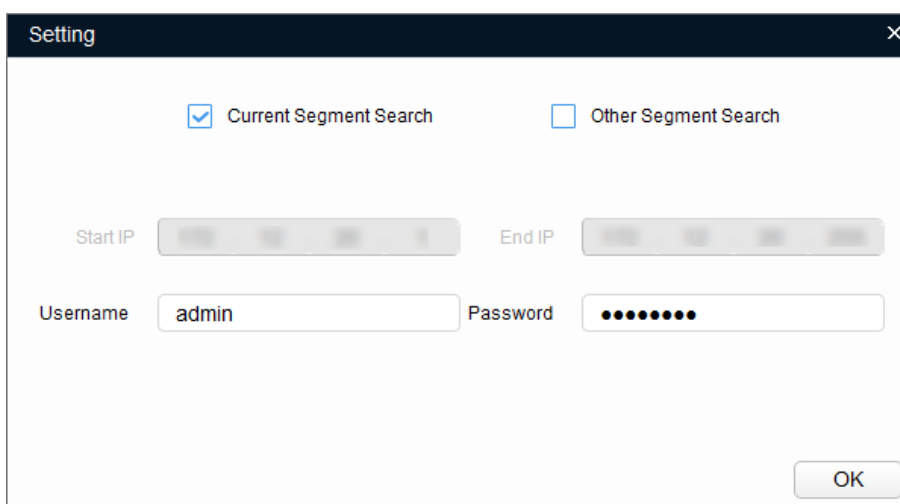
Figure 5-5 Search setting



Step 4 Select the network segment for the target device.

- If the IP address of the target device is in the current network segment, select **Current Segment Search**, and then enter the user name and the password of the target camera.

Figure 5-6 Current segment search



Setting

☒ Current Segment Search ☐ Other Segment Search

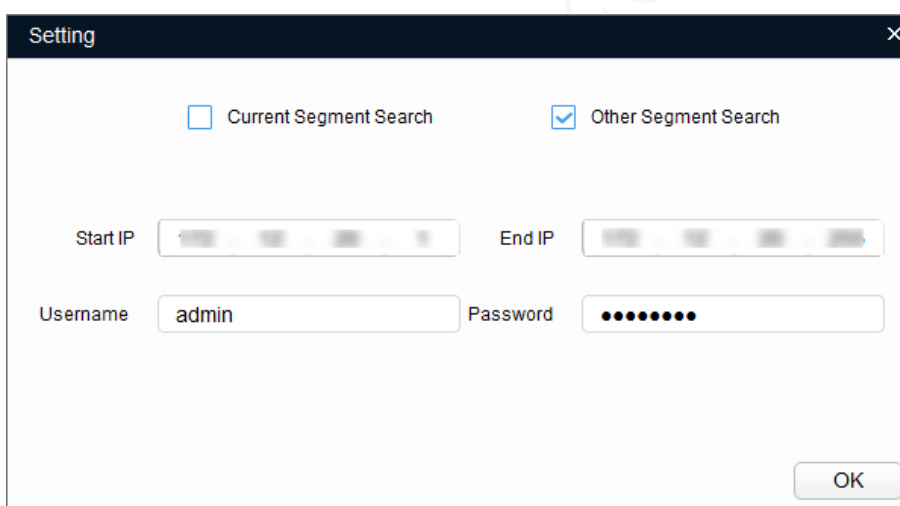
Start IP End IP

Username Password

OK

- If the IP address of the target device is in other network segment, select **Other Segment Search**, then enter the start IP address and end IP address of the network segment you need, and then enter the user name and the password of the target camera.

Figure 5-7 Other segment search



Setting

☐ Current Segment Search ☒ Other Segment Search

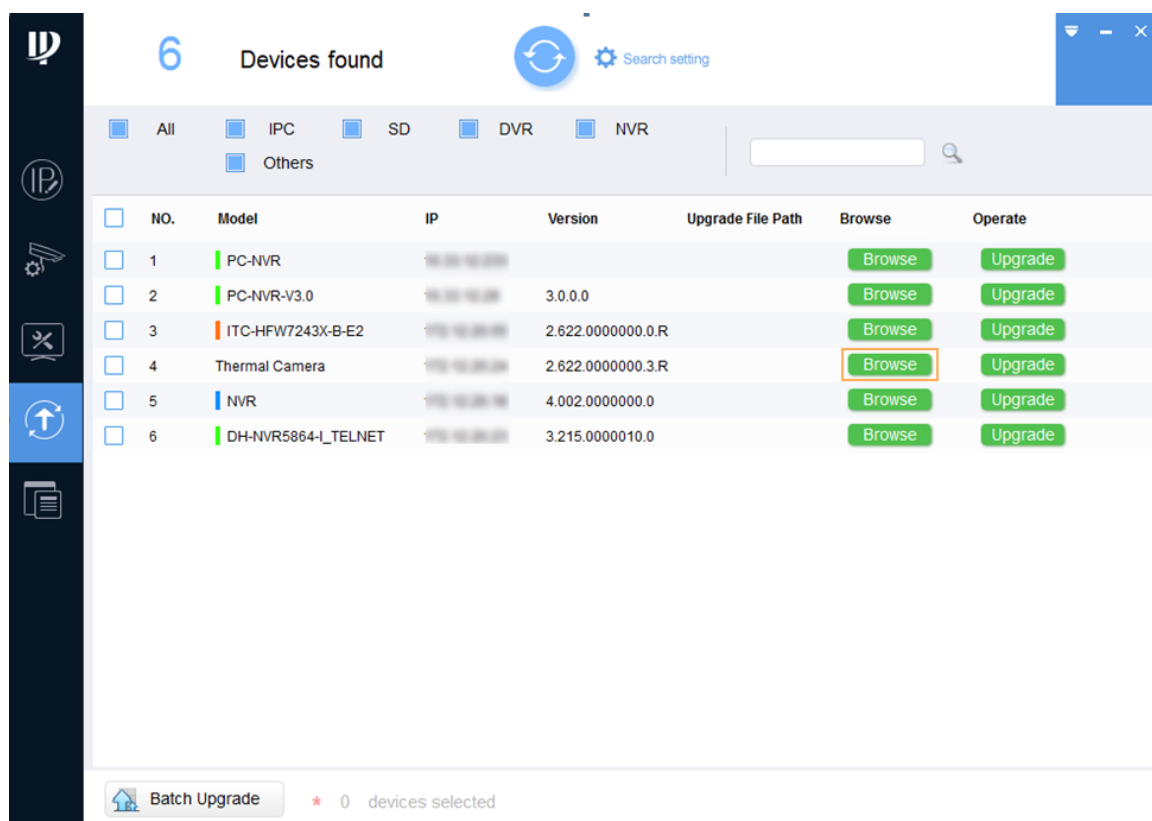
Start IP End IP

Username Password

OK

Step 5 Click **OK**.

Figure 5-8 Search result

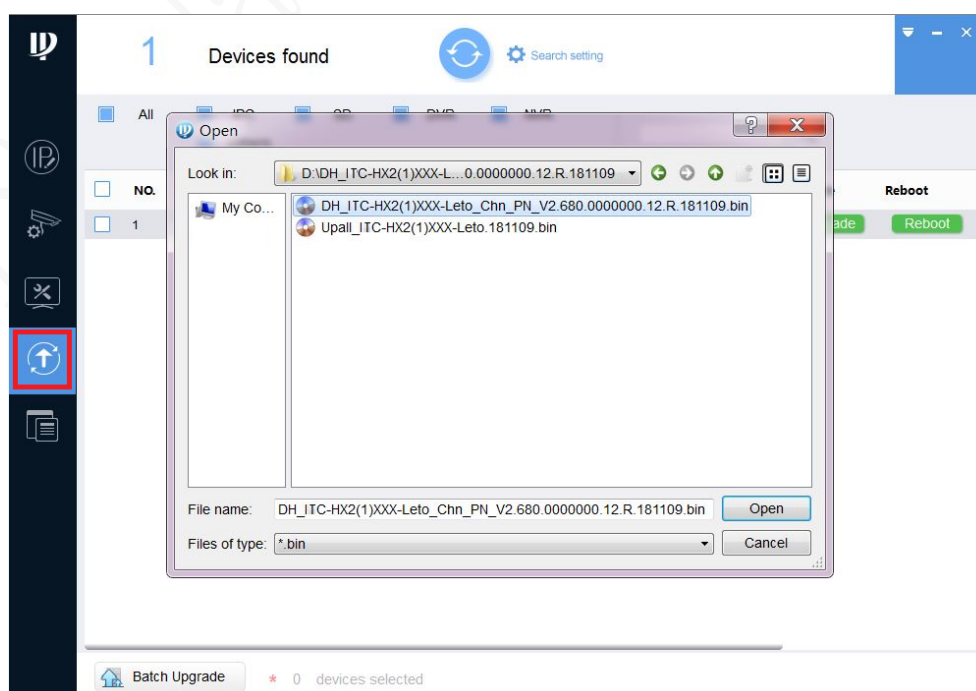


Step 6 Select the devices to update.

- Update devices one by one: Select the corresponding device, and then click **Browse**.
- Update devices in batches: Select multiple devices, and then click **Batch Upgrade**.

Step 7 Select the update file.

Figure 5-9 Browse

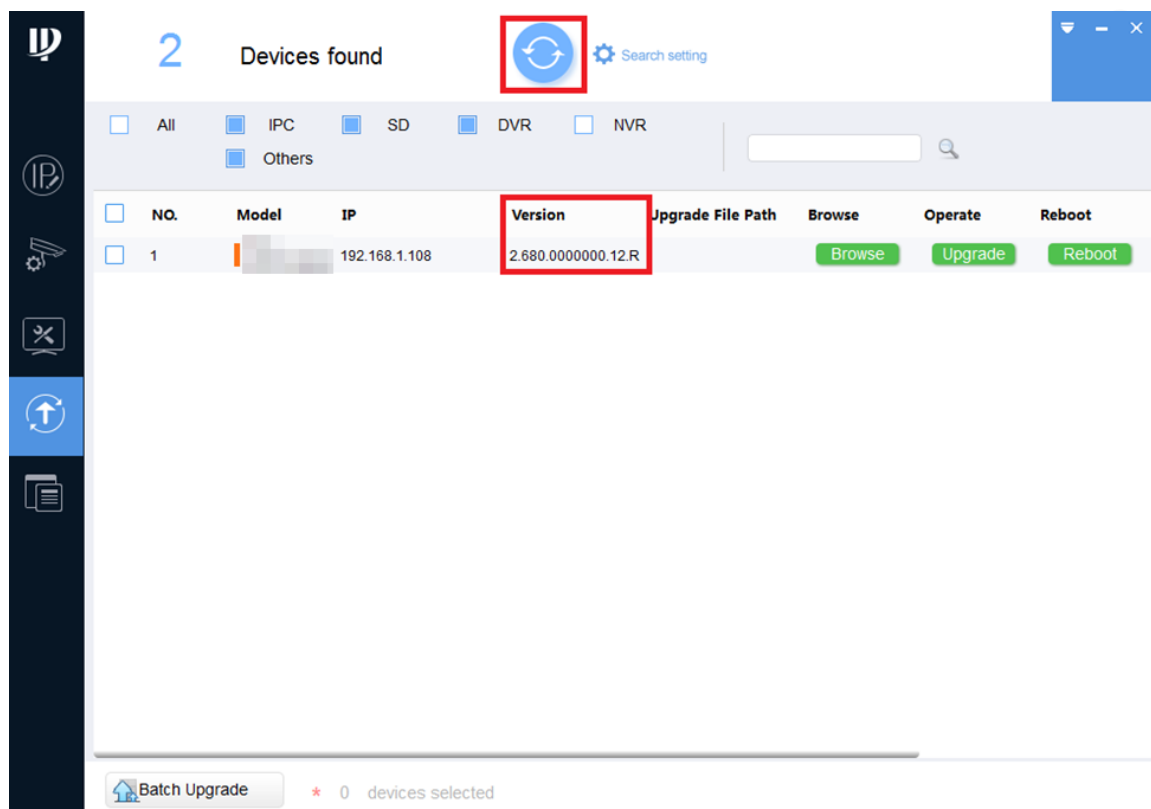


Step 8 Update the devices.

- Update the devices one by one: Click **Upgrade**, and the system starts updating. You can see the update progress.
- Update the devices in batches: Click **OK**, and the system starts updating.

Step 9 After restarting the device, click the refresh button to confirm the system version.

Figure 5-10 Confirm version



The update succeeded if the **Version** is the same as the version of the update file.



If the update failed, you can:

- Check whether the update file is correct.
- Restart the ConfigTool and do the update again.

5.1.2 Initializing and Logging in to Express


Install and activate your Express before you can use it normally. Skip this chapter if you do not use Express.

5.1.2.1 Installing Express Service

Server Requirements

Follow this table to prepare a server for installing Express service.

Table 5-1 Server configuration requirement

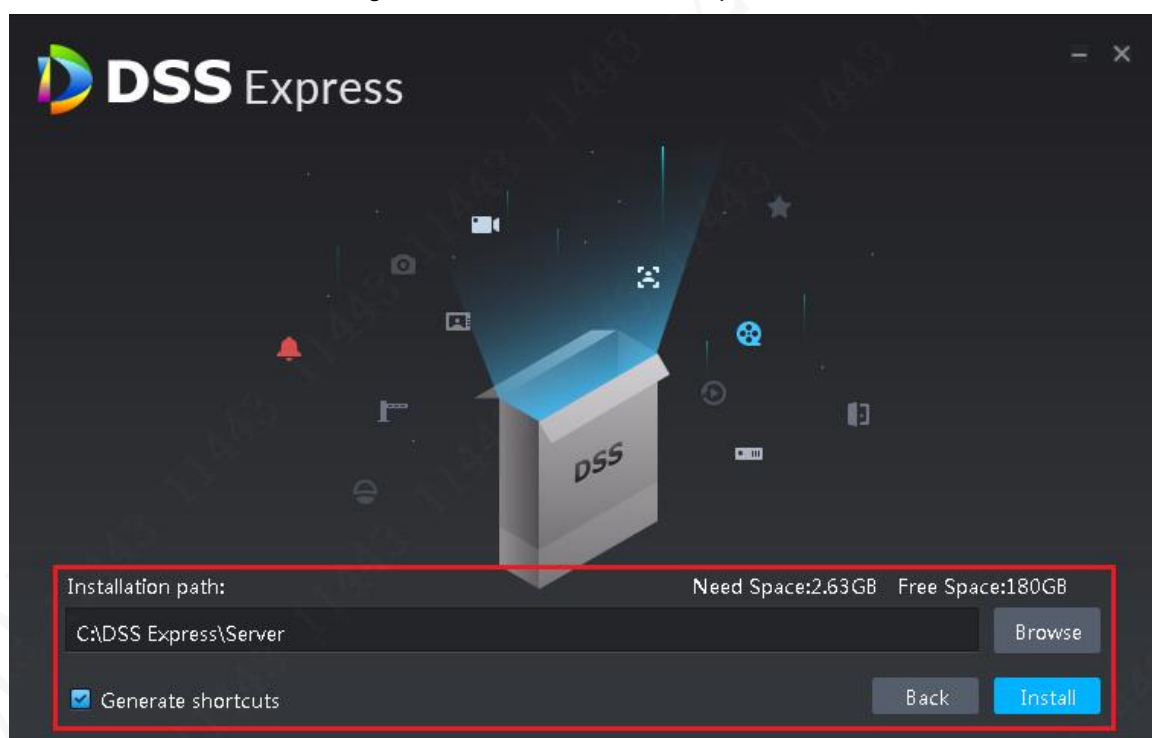
DSS Server Configuration Requirement	
Recommended config	<ul style="list-style-type: none"> • CPU: Intel® Xeon® CPU E3-1220 v5 @3.00GHz • RAM: 8 GB • Network adapter: 1Gps • DSS installation directory space: Over 500 GB
Minimum config	<ul style="list-style-type: none"> • CPU: i3-2120 • RAM: 8 GB • Network adapter: 1Gps • DSS installation directory space: Over 200 GB
System	<p>Support Win7 and later systems.</p> <p> The manual takes Windows Server 2012 R2 as an example to introduce how to configure server IP address and system time.</p>

Installing Program

Step 1 Double-click installer.

Step 2 Select I have read and agree the DSS agreement, and then click Next.

Figure 5-11 Select installation path



Step 3 Click **Browse** and select installation path, click **Install**.

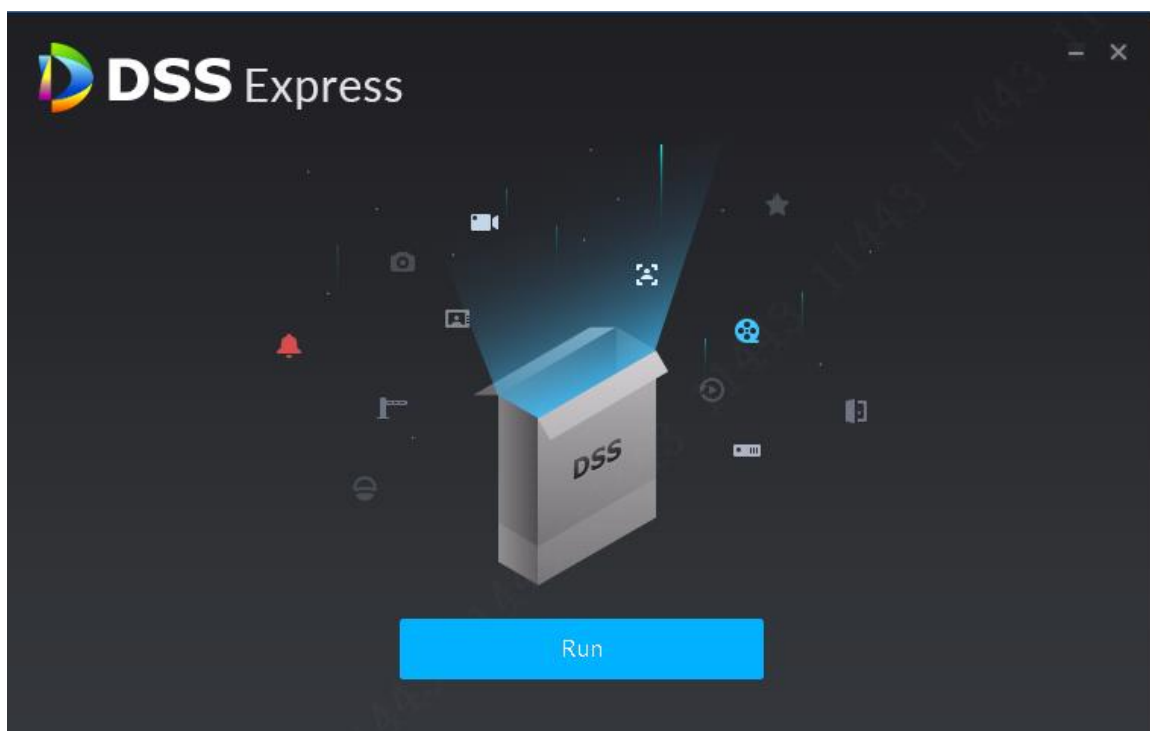
The system displays installation progress, the whole installation needs 5-10 minutes. See Figure 5-12 after installation is completed. The server starts automatically after installation.



- The system automatically detects the available space of path after the installation path is selected, if available space is less than needed for system installation, then the icon **Install** becomes gray, and installation cannot be implemented.

- Do not select **Generate Shortcuts** if it is not necessary.
- If port conflict exists, the system will prompt conflicted port during installation. Open DSS Express Server and modify port after installation is completed.

Figure 5-12 Installation completed



Step 4 Click **Run**.

The network card selection interface is displayed.

Step 5 Select a network card, and then click **Next**.

The security setting interface is displayed.

Step 6 Enable or disable TLS1.0 protocol as needed.

If TLS1.0 is disabled on Express, to use the platform, you need to enable TLS1.1 and TLS1.2 on the browser.

Step 7 Click **OK**.

5.1.2.2 Installing Express PC Client

PC Configuration Requirement

Table 5-2 Configuration requirement

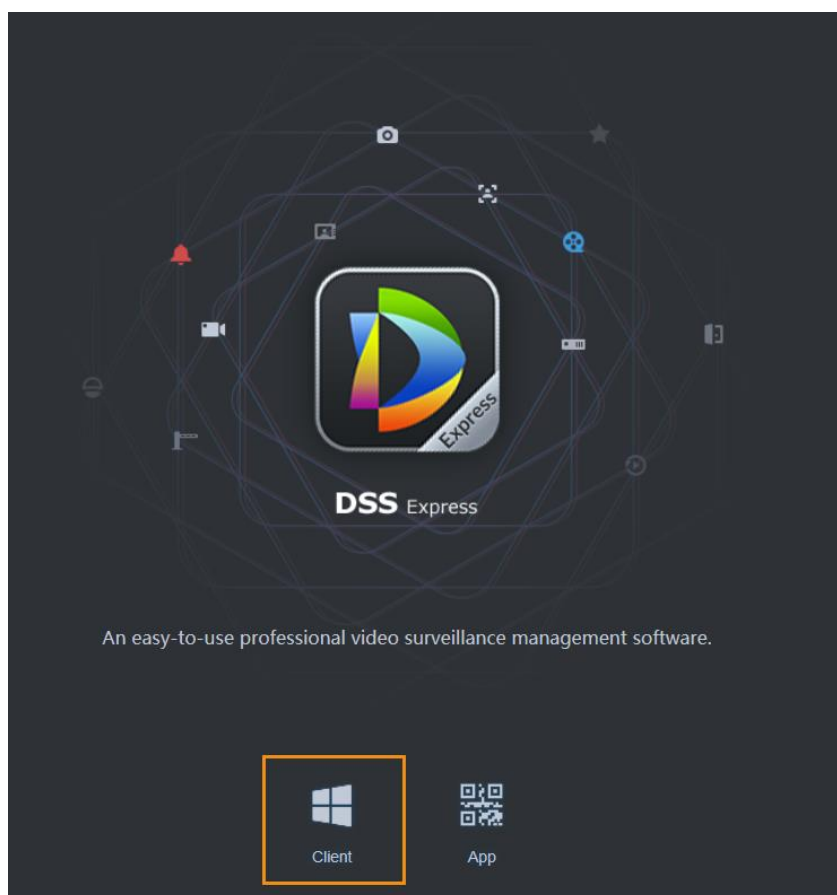
PC Configuration Requirement	
Recommended Config	<ul style="list-style-type: none"> • CPU: i5-6500 • Basic frequency: 3.20GHz • Memory: 8 GB • Graphic card: Intel® HD Graphics 530 • Network adapter: 1Gbps • DSS client installation directory space: 100 GB
Min Config	<ul style="list-style-type: none"> • CPU: i3-2120

- Memory: 4 GB
- Graphic card: Intel (R) Sandbridge Desktop Gra
- Network adapter: 1Gbps
- DSS installation directory space: 50 GB

Download and Install

Step 1 Enter server IP address into browser, click **Enter**.

Figure 5-13 Download client




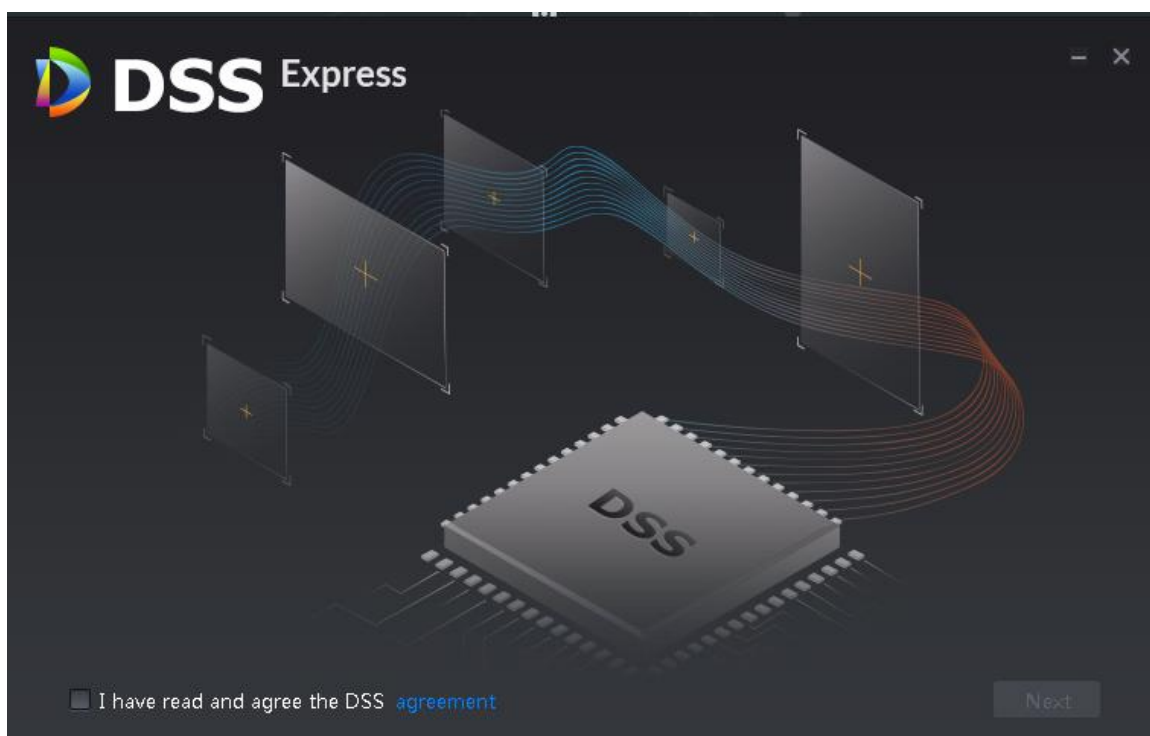
Step 2 Double-click , run or download client according to interface prompt. For more download details, see Table 5-3.

Table 5-3 Download operation

Operation	Description
Run	Download temporary file, you can install after it is checked.
Save	Download installation package to IE default path.
Save as	Download installation package to designated path.
Save and Run	Download installation package to IE default path, and you can install after it is checked.

Step 3 Click **Run**, or Double-click client installation program under the save directory.
The system displays agreement interface.

Figure 5-14 Confirm agreement



Step 4 Select **I have read and agree the DSS agreement**, click **Next**.

Figure 5-15 Select installation path



Step 5 Click **Browse** and select installation path, click **Install**.

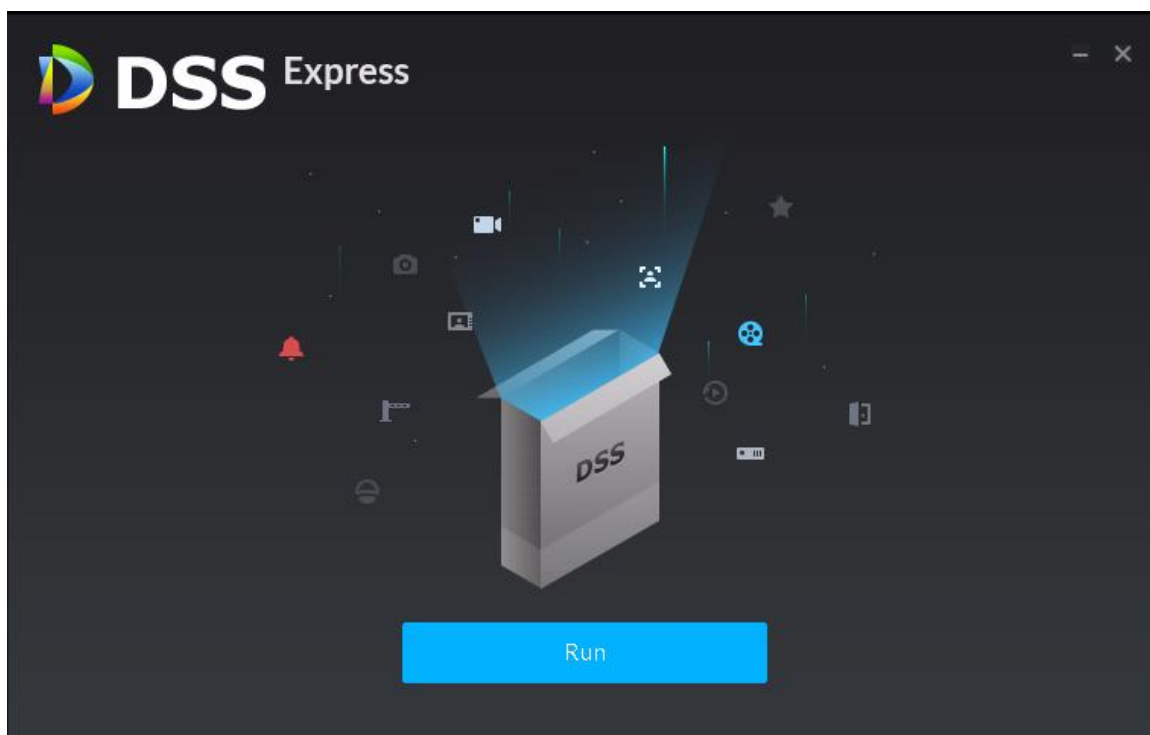
The system displays installation progress, and the installation takes about 2-3 minutes. The interface is shown after installation is completed.



- The system automatically detects the available space of path after the installation path is selected, if available space is less than needed for system installation, then the icon **Install** becomes gray, and installation cannot be implemented.

- Do not select **Generate Shortcuts** if it is not necessary.

Figure 5-16 Installation completed



5.1.2.3 Initialization Configurations

You need to initialize server if you log in for the first time. Modify password, set security questions for system user. You can find password by answering questions when you forget password.


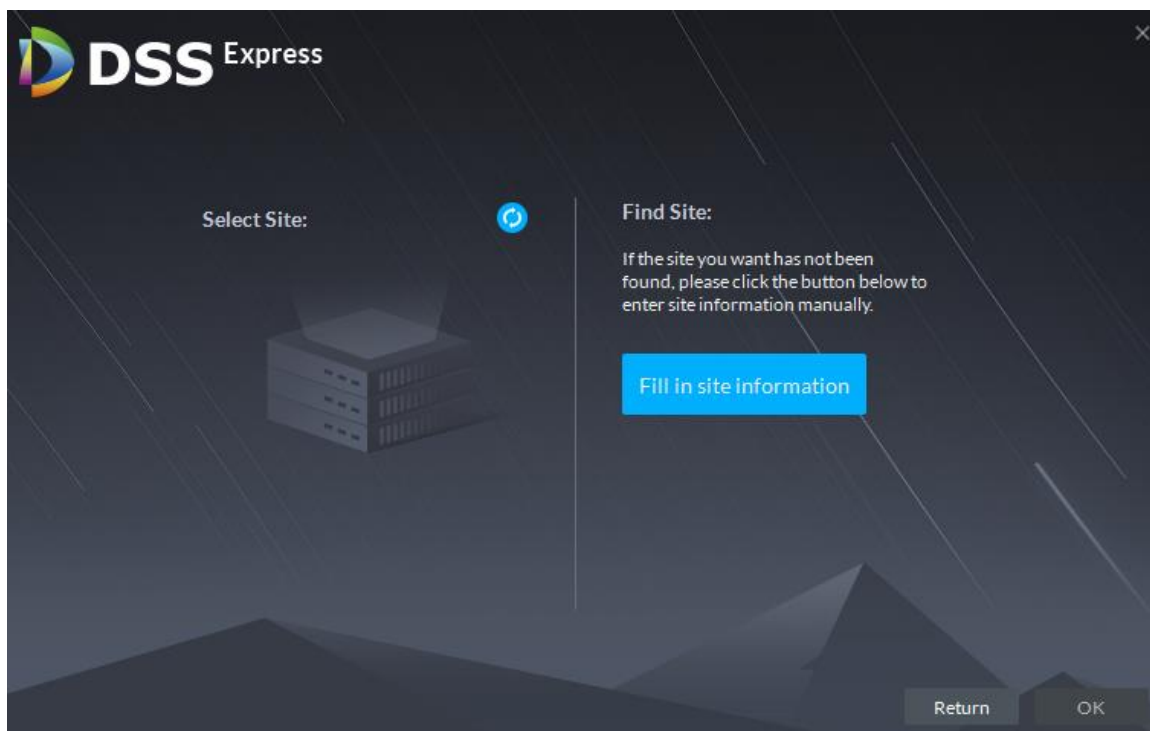
Step 1 Double-click  on server desktop, or click **Run** on the interface after program is installed.

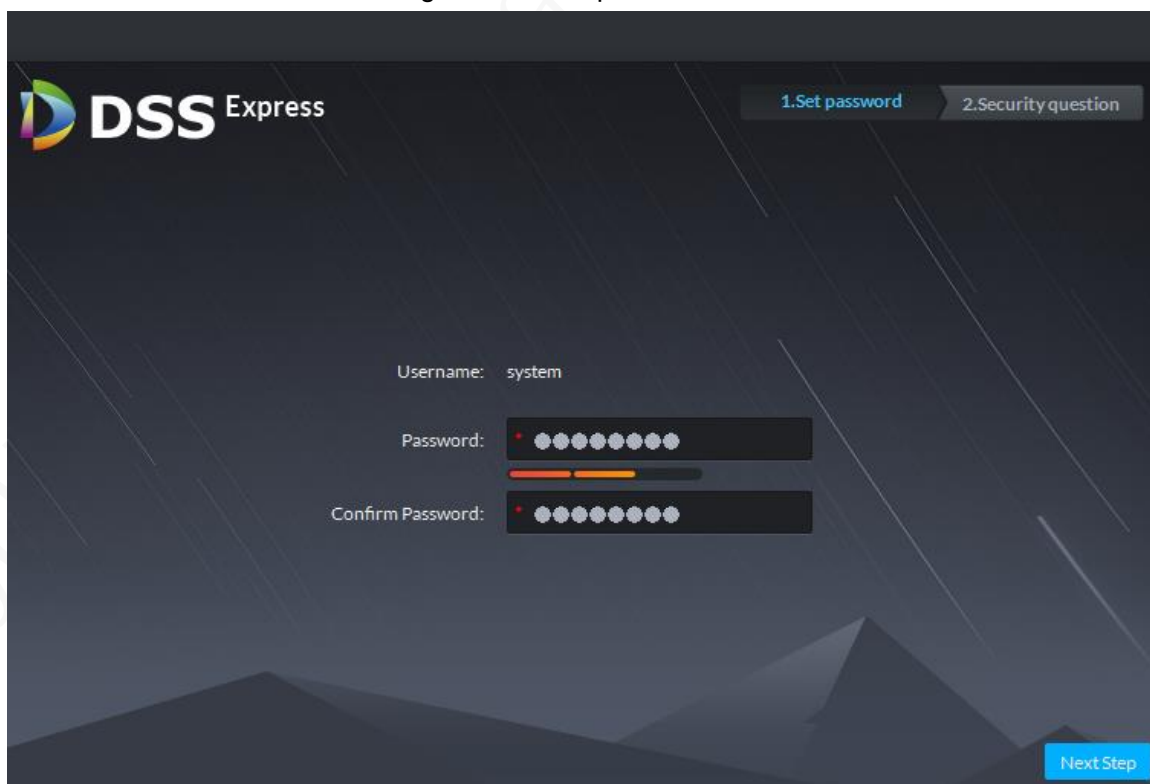
Figure 5-17 Log in to control client (1)



Step 2 Select a detected server on the left of the interface, or click **Fill in site information**, enter in IP address and port number.

Step 3 Click **OK**.

Figure 5-18 Set password



Step 4 Enter new password, and then click **Next**.

Figure 5-19 Security question

Step 5 Select questions, set answers, and then click **OK**.
The **Homepage** interface is displayed.

5.1.2.4 Logging in to Express

You can configure and manage the system remotely by using the client.


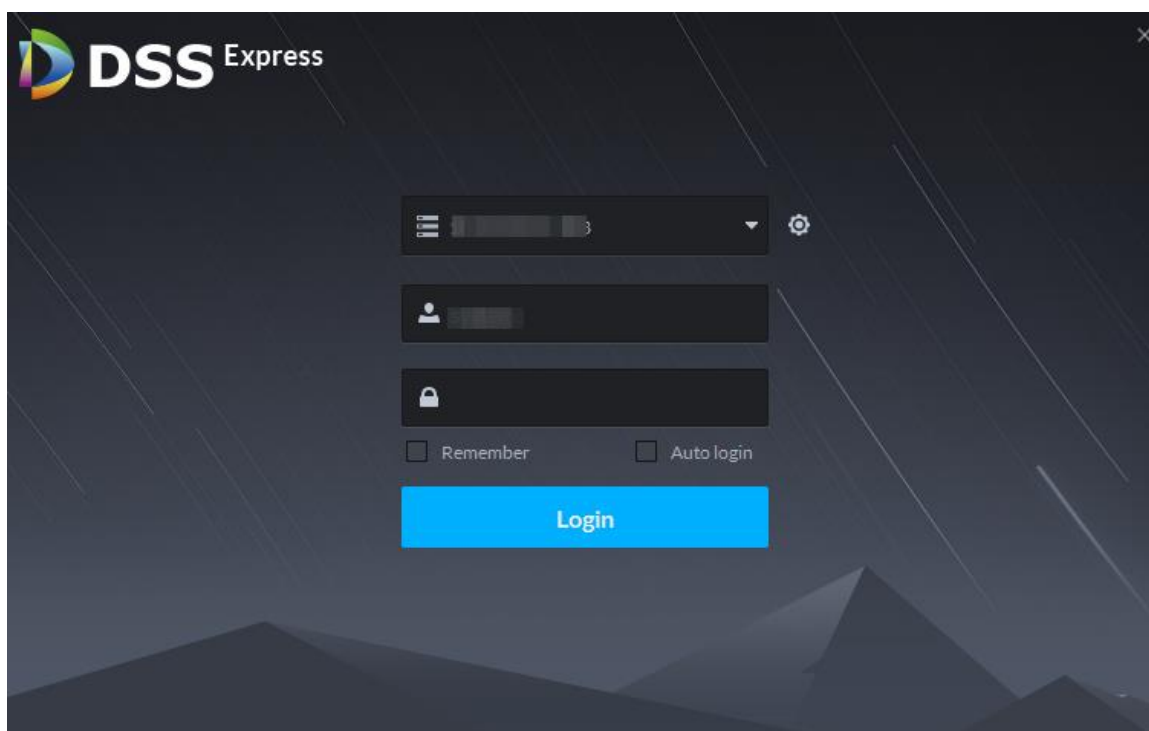
Step 1 Double-click the shortcut icon  on the server desktop, or click **Run** on the program interface after the program installation is completed.

Figure 5-20 Client login interface



Step 2 Select the detected server, enter username and password, and then click **Login**.

5.1.2.5 Licensing Express

Make sure that you have purchased a proper license for activating Express. To purchase a license, contact our local sales team.

This section introduces how to import your license file to activate Express.

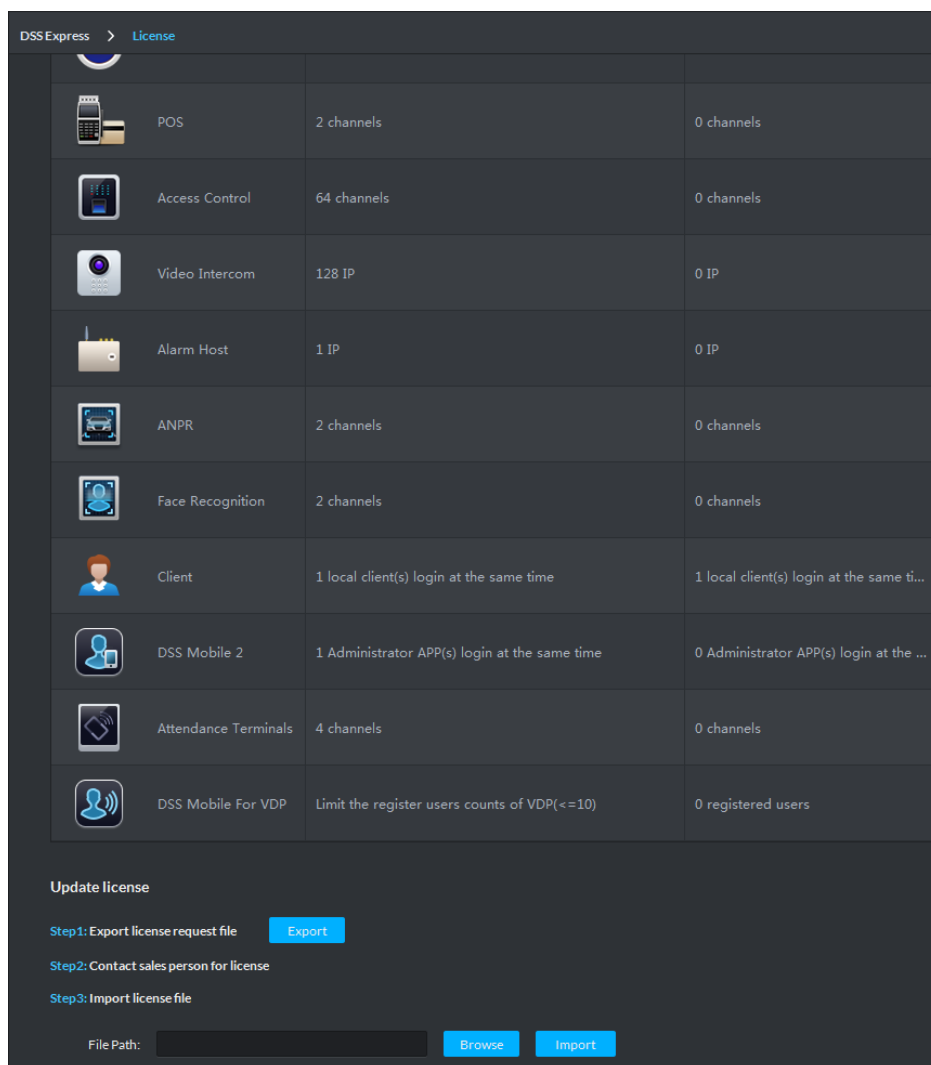
Step 1 Log in to Express client.

Step 2 On the client homepage, select **Config > License**.

Step 3 Click **Update License**.

The system moves to the license update section.

Figure 5-21 Update license



Icon	Category	Current Status	Limit
	POS	2 channels	0 channels
	Access Control	64 channels	0 channels
	Video Intercom	128 IP	0 IP
	Alarm Host	1 IP	0 IP
	ANPR	2 channels	0 channels
	Face Recognition	2 channels	0 channels
	Client	1 local client(s) login at the same time	1 local client(s) login at the same ti...
	DSS Mobile 2	1 Administrator APP(s) login at the same time	0 Administrator APP(s) login at the ...
	Attendance Terminals	4 channels	0 channels
	DSS Mobile For VDP	Limit the register users counts of VDP(<=10)	0 registered users

Update license

Step1: Export license request file Export

Step2: Contact sales person for license

Step3: Import license file

File Path: Browse Import

Step 4 Click **Browse**, select License file you want to upload according to system prompt.

Step 5 Click **Import**.

System loads License, after that the system prompts license info is changed and the program restarts.

Step 6 Log in client again, enter license configuration interface, and make sure the License is the same as applied.

5.1.3 Initializing IVSS

If it is your first time to use the device after purchasing or after restoring factory defaults, set a login password of admin (system default user). At the same time, you can set proper password protection method. Skip this chapter if you don't use IVSS.



Take web remote initialization for example.

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




Default IP address of network port 1 to network port 4 are 192.168.1.108 to 192.168.4.108. Enter the corresponding IP address of the actually connected network port.

- Step 2** On the **Language Set** interface, select a country or region, a language, and a language standard. Click **Next**. The language setting step is only available on the local interface of the Device.

Figure 5-22 Time setting

Device Initialization

1 Time 2 Input Password 3 Password Protection

 Date: 2019-11-04 Time: 10:52:52

Time Zone:

Time: ☒ Manual Setting ☐ Sync with Internet Time Server

Date/Time:


Server:

Auto Sync Time Interval: hours

Next

- Step 3** On the **Time** interface, set time parameters.

Table 5-4 Time parameters description

Parameters	Description
Time Zone	The time zone of the Device.
Time	<p>Set system date and time manually or by synchronizing with NTP server time.</p> <ul style="list-style-type: none"> Manual setting: Select date and time from the calendar. Sync with Internet Time Server: Select Sync with Internet Time Server, enter NTP server IP address or domain, and then set the automatic synchronization interval. <p> Device time will synchronize with the server time after Sync with Internet Time Server is set.</p>

- Step 4** Click **Next**.

Figure 5-23 Set password

Device Initialization

1 Time 2 **Input Password** 3 Password Protection

Username

Password

Confirm Password

Back Next

Step 5 Set admin login password.

Table 5-5 Description of password parameters

Parameters	Description
Username	The default user name is admin.
Password	Set admin login password, and confirm the password.
Confirm Password	The new password can be 8 characters to 32 characters in length and contains at least two types from number, letter and special characters (excluding ";:& and space). Enter a strong password according to the password strength indication.

Step 6 Click **Next**.

Figure 5-24 Password protection

Device Initialization

Time Input Password Password Protection

Email (To reset password) ☐

Email

Security Questions ☐

Question 1 What is your favorite book during your childhood?

Answer

Question 2 What was the first name of your first boss?

Answer

Question 3 What is the name of your favorite fruit?

Answer

Back Finish

Step 7 Set password protection information.

You can use the email you input here or answer the security questions to reset admin password.



- Click ☐ to cancel the email or security questions.
- If the email or security questions are not set, the password can be reset on the local interface only.

Table 5-6 Password protection

Password protection mode	Description
Email	Leave an email address for resetting password.
Security question	Set security questions and corresponding answers. Reset the password through the security question.

Step 8 Click **Finish**.

5.2 Configuring Express

After installing and activating Express, you need to add devices, configure device features, set recording plan and storage space. Skip this chapter if you do not use Express.

5.2.1 Adding TPC to Express

You can add TPC by entering camera information, or searching the network for online TPCs to quickly add them.

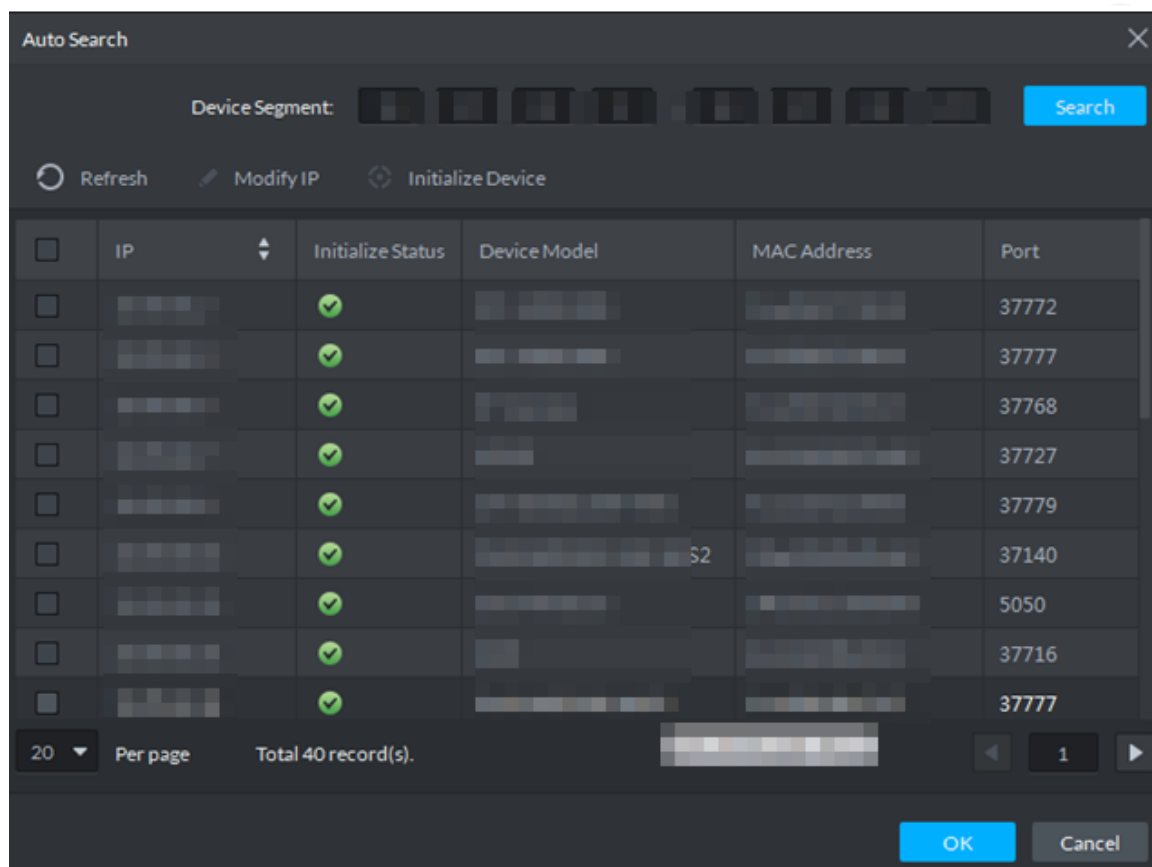
5.2.1.1 Adding by Search

Step 1 Click **Device** on the client homepage.

Step 2 Click **Auto Search**.

The system searches the device with the same segment as server by default.

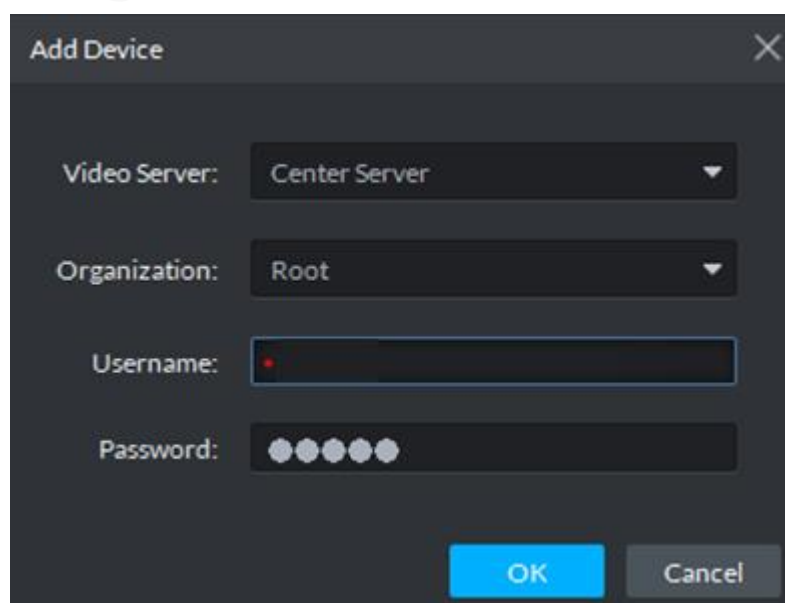
Figure 5-25 Auto search



Step 3 Enter searched start IP and end IP, click **Search**.



Step 4 Select the device to be added, click **OK**.

Figure 5-26 Add Device



Step 5 Enter login username and password, click **OK**.



- The added device username is required to be the same as password when adding several devices.
- After device is added, the system continues to stay on the **Auto Search** interface, click **Cancel** or  to exit interface.
- After device is added, the platform logs in device automatically, the device is displayed as online after logging in successfully. If offline, please make sure if login username and password are correct, click  to modify username and password.

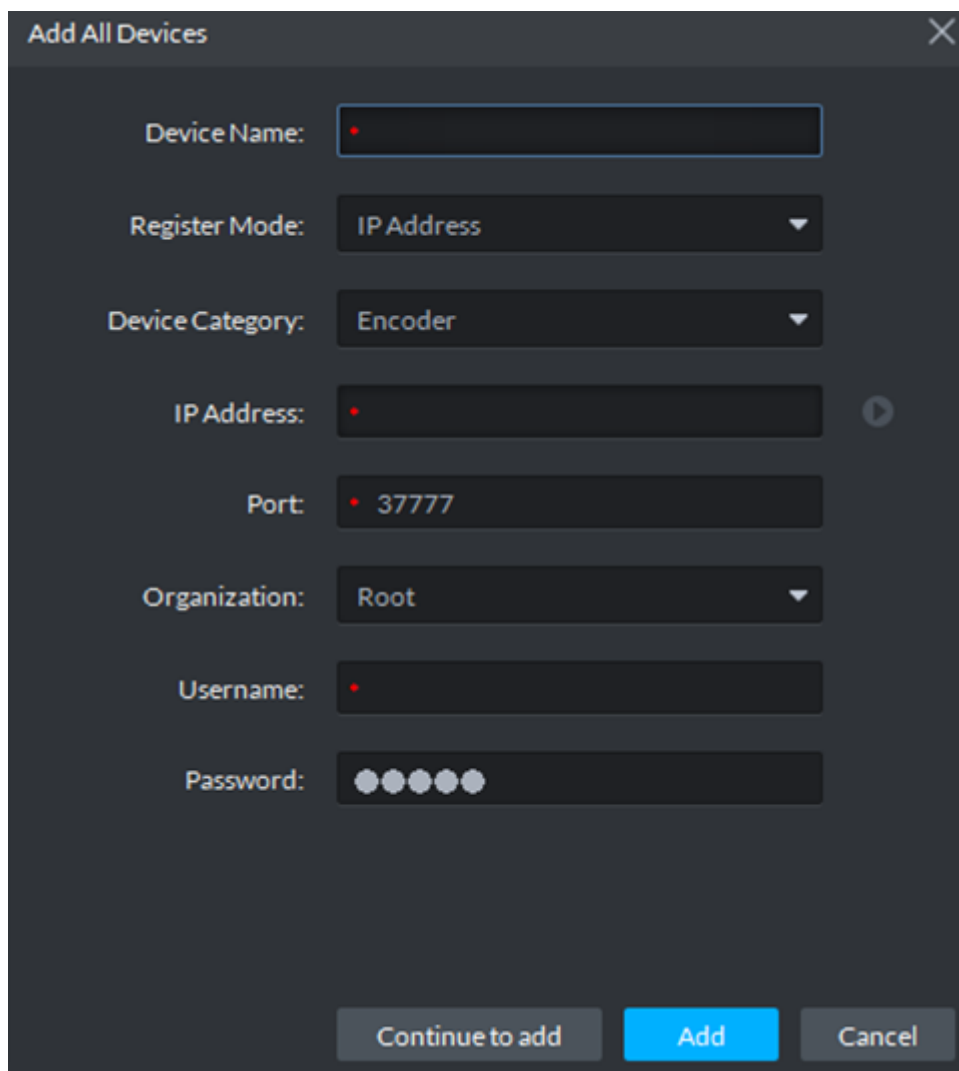
5.2.1.2 Adding Manually

Add single device, or the username and password of the added device are different, or the added device is not in the same segment.

Step 1 Click **Device** on the client homepage.

Step 2 Click **Add**.

Figure 5-27 Adding manually



Step 3 Set parameters.




- The item with * is required to be filled in. You need to set different parameters if different device are connected.
- Add encoder, set correct parameters, and click  to view device video.

Table 5-7 Parameter description

Parameter	Description
Device Category	Select NVR or camera.

Parameter	Description
Register Mode	<p>Support registration by following method:</p> <ul style="list-style-type: none"> IP address Add device to platform by adding device IP. Serial number (Device with P2P function) If device supports P2P function, then you can add device to platform by adding device serial number. Onvif If device enables Onvif protocol, then you can add device to platform by Onvif protocol. Generally it can be used when adding third-party device.
Port	TCP protocol communication provides service port, and keeps it in accordance with added device.
Organization	Select organization node of added device.
IP Address	When register by IP address or Onvif mode, set the IP address of added device.
SN	When register by serial number mode, set the serial number of added device.
Username	Enter login username and password of added device.
Password	
Decode mode	<p>Select according to the decode mode of added device:</p> <ul style="list-style-type: none"> Pull Decoder extracts stream from platform by url address, the decode mode of device is pull. Direct Decoder extracts stream directly from encoder, the decode mode is direct for device, under this mode; you need to add decoder IP address when trusted list is added by device. Push VMS (Video Management Service) pushes stream directly to decoder, currently only support NVD without combination screen, the mode is not supported by matrix, video wall or NVD under combination mode.
Support Combination	Select when added device supports combination.
Picture Server	Select storage location of picture reported by ANPR.
LED Type	Support added LED including general screen and free parking screen, select corresponding device type according to the accessed device.

Step 4 Click **Add**.

Click **Continue to add** if necessary, then you can add more devices.

5.2.2 Enabling TPC Features on Express

TPC needs to rely on its intelligent video surveillance (IVS) functions to measure human body temperature. To receive data by TPC, you need to enable TPC features on Express.

Step 1 Click **Device** on the client homepage.

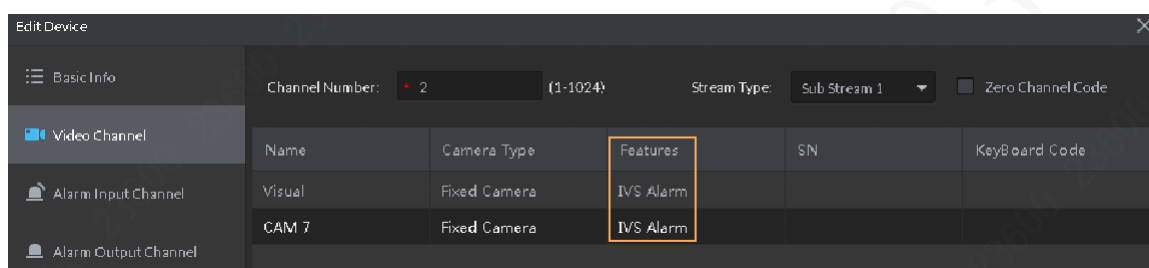
Step 2 Click  next to device list.

Step 3 Click **Video Channel** tab.

Step 4 Select visual channel and thermal channel of TPC camera.

Step 5 Select **IVS Alarm** from the **Features** list for the two channels.

Figure 5-28 Edit device



Step 6 Click **OK**.

5.2.3 Configuring Storage Space on Express

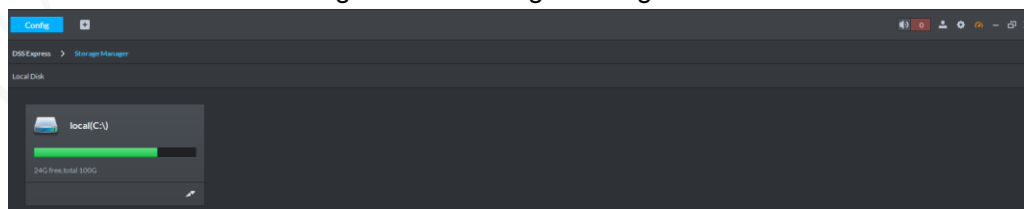
Configure the disks in the server of Express to store video and face pictures. Configure at least one disk for picture storage. When your scheme is TPC—Express, you need to configure both face image and video storage. When your scheme is TPC—IVSS/NVR—Express, you only need to configure face image storage (Video storage is optional).


Step 1 Enter configuration interface of **Storage Manager**.

- 1) Click **Config** on the client homepage.
- 2) Click **Storage**.

The system automatically detects disk info of server (Disk info of non PC client).

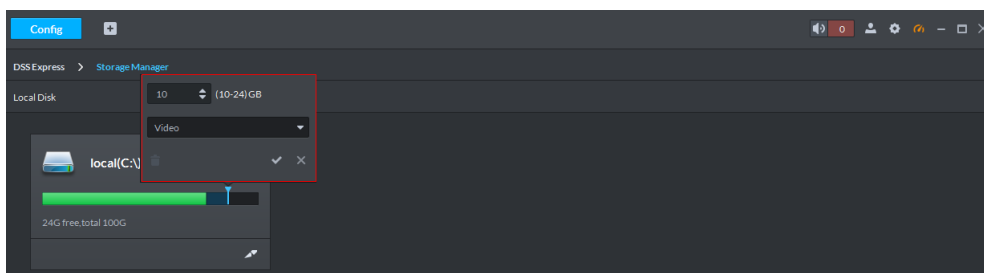
Figure 5-29 Storage manager



Step 2 Click .

The system pops out the dialog of setting storage space size and type.

Figure 5-30 Create storage space



Step 3 Set storage space size, select storage space type and click .

Platform exclusive storage space is created on the disk. The exclusive storage space is displayed in the red box.



- When your scheme is TPC—Express, you need to configure both face image and video storage. When your scheme is TPC—IVSS/NVR—Express, you only need to configure face image storage (Video storage is optional).
- The minimum storage space is 10GB.
- Storage space type includes video, general picture and ANPR picture. Video disk is used to store video, general picture is used to store all snapshots except ANPR pictures.
- One local disk can divide general pictures for once top, but it can also modify storage space of general pictures.
- If you want to delete the storage space, you can click the storage segment, and delete exclusive space setting according to system prompt.

Figure 5-31 Disk status change

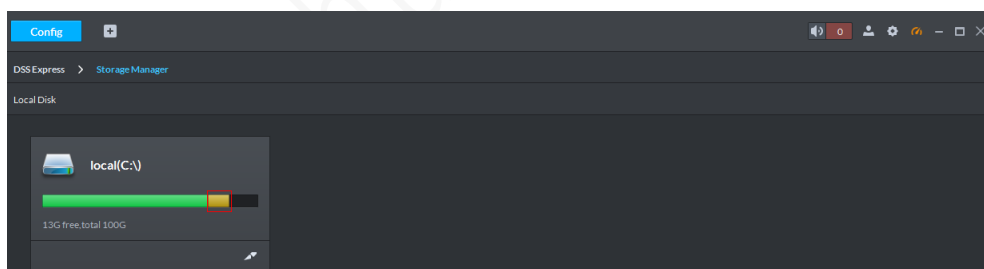
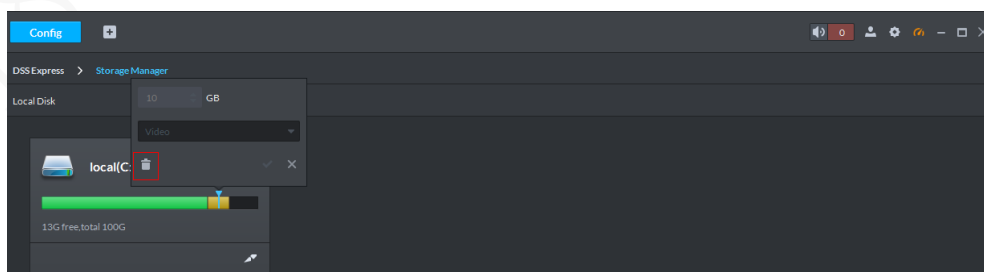


Figure 5-32 Delete exclusive storage space



5.2.4 Configuring TPC Recording Plan on Express

If IVSS/NVR is not included in your solution, you must configure recording plan on Express.

Step 1 Click **Config** on the client homepage.

Step 2 From the device tree on the left, select camera channel, click **Record Configuration**.

Figure 5-33 Enter record configuration interface

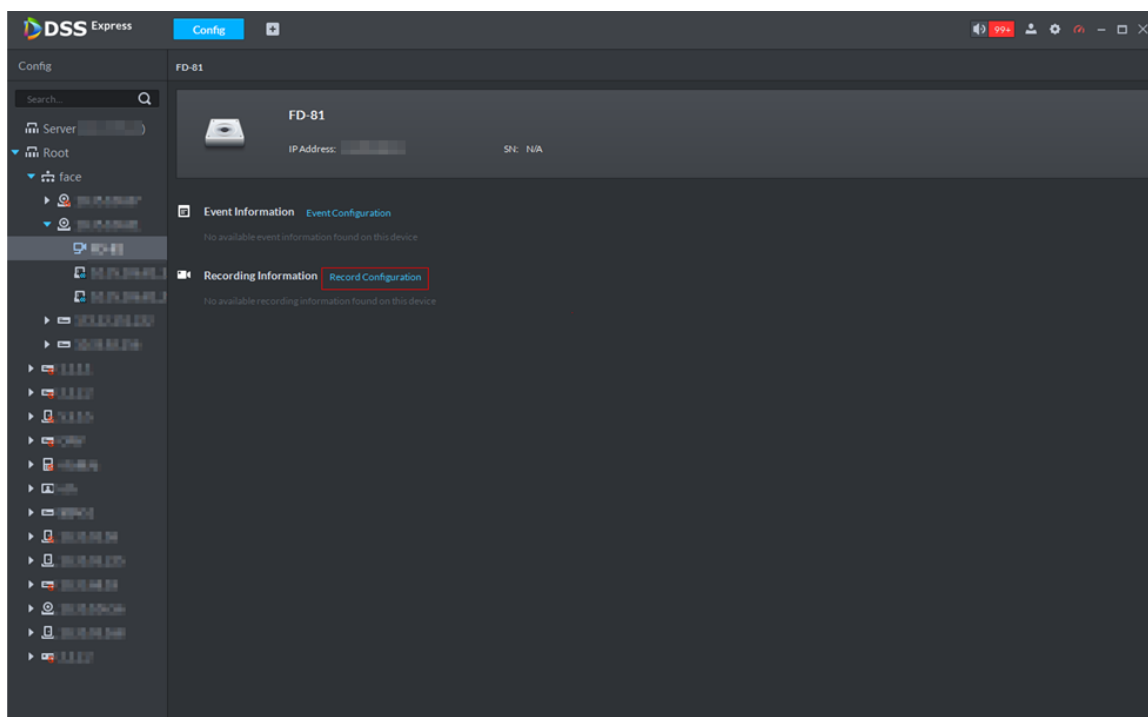
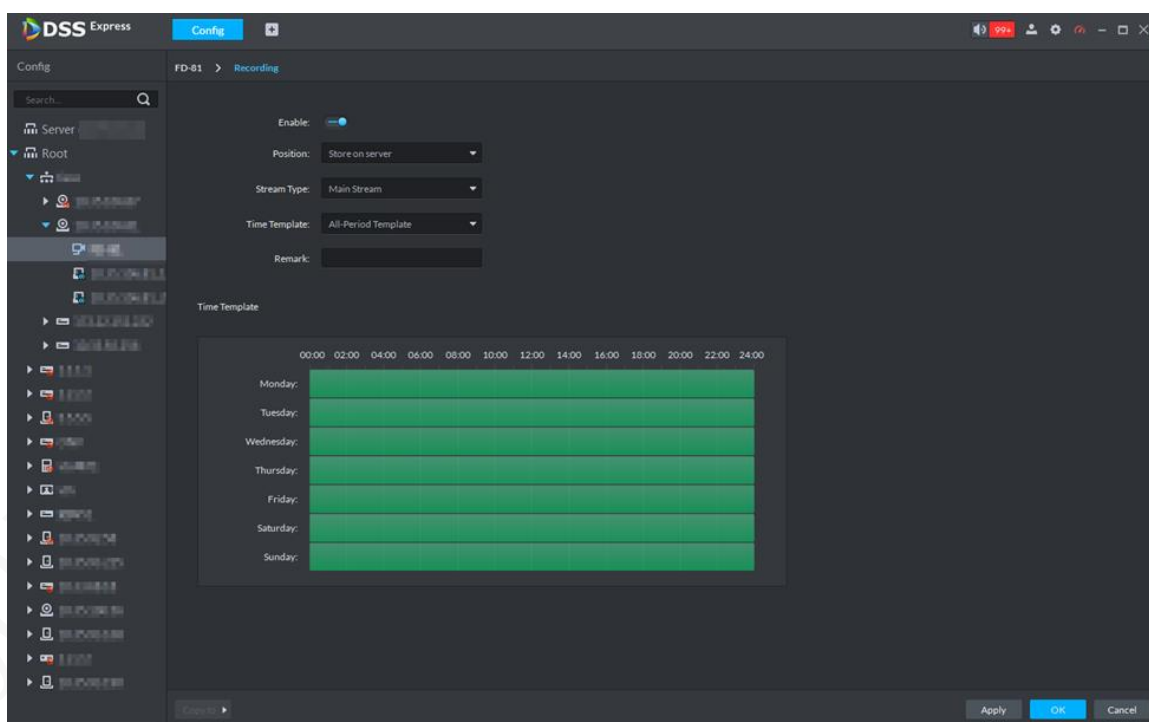


Figure 5-34 Record






Step 3 Click .

The icon is switched to , enable record plan.

Step 4 Select Position, Stream Type and Time Template. Select Store on Server for Position.

Step 5 Click **OK**.

Figure 5-35 Record info

Save Path	Time Template	Stream Type	Operation
Store on server	All-Period Template	Main Stream	  

5.2.5 Adding IVSS/NVR to Express

When your scheme is TPC–IVSS/NVR–Express, read this chapter. Otherwise, skip it.

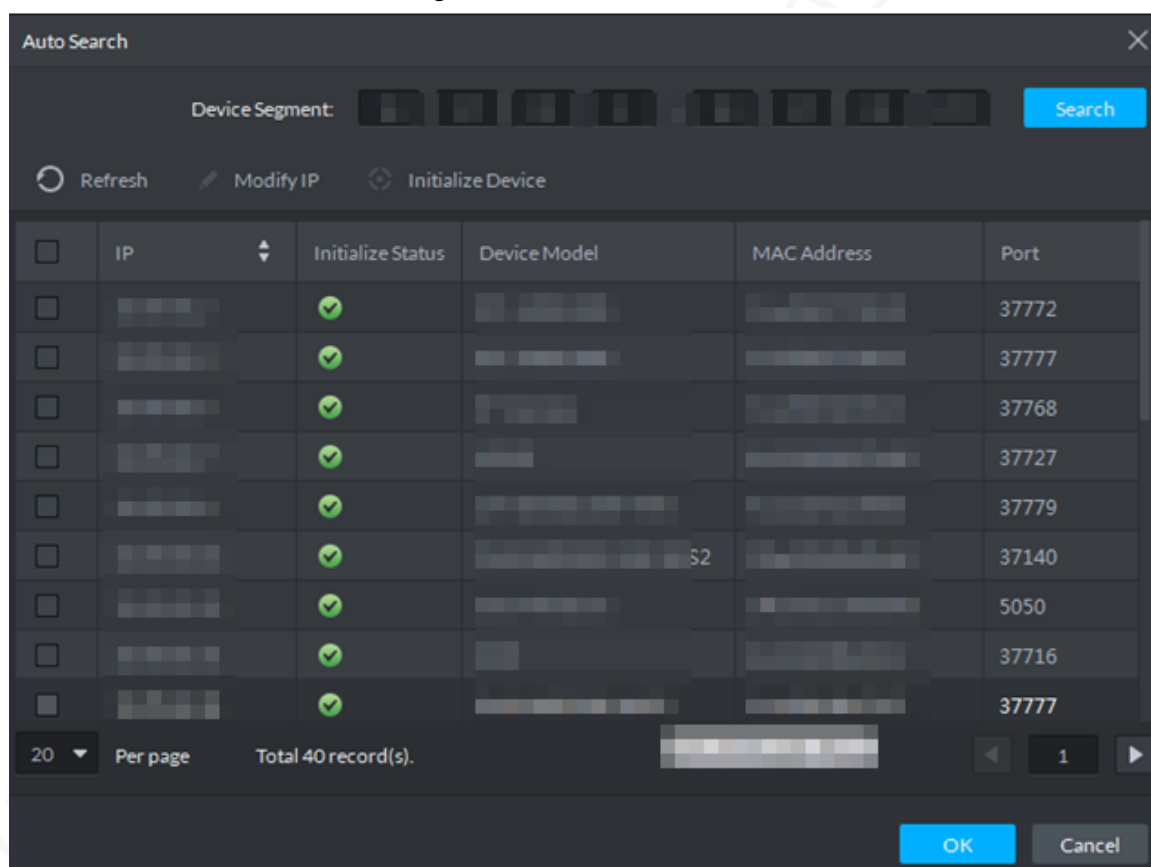
Searching and Adding TPC

Step 1 Click **Device** on the client homepage.

Step 2 Click **Auto Search**.

The system searches the device with the same segment as server by default.

Figure 5-36 Auto search



The Auto Search dialog box displays a table of search results. The table has columns for IP, Initialize Status, Device Model, MAC Address, and Port. The results show 10 devices, all with a green checkmark in the Initialize Status column. The Port column shows values: 37772, 37777, 37768, 37727, 37779, 37140, 5050, 37716, and 37777. The Device Model column shows 'S2' for the device with port 37140. The dialog box also includes a 'Device Segment' dropdown, a 'Search' button, and a 'Total 40 record(s)' indicator.

IP	Initialize Status	Device Model	MAC Address	Port
[Redacted]	✓	[Redacted]	[Redacted]	37772
[Redacted]	✓	[Redacted]	[Redacted]	37777
[Redacted]	✓	[Redacted]	[Redacted]	37768
[Redacted]	✓	[Redacted]	[Redacted]	37727
[Redacted]	✓	[Redacted]	[Redacted]	37779
[Redacted]	✓	[Redacted] S2	[Redacted]	37140
[Redacted]	✓	[Redacted]	[Redacted]	5050
[Redacted]	✓	[Redacted]	[Redacted]	37716
[Redacted]	✓	[Redacted]	[Redacted]	37777

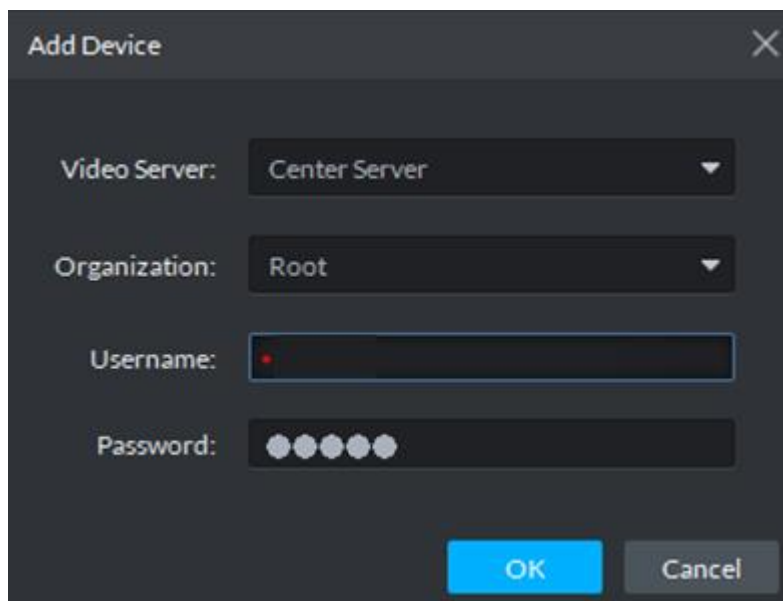
Step 3 Enter searched start IP and end IP, click **Search**.

The system displays search results.

Step 4 Select the device to be added, click **OK**.



The system displays the interface of **Add Device**.

Figure 5-37 Adding device



Step 5 Enter login username and password, click **OK**.



- The added device username is required to be the same as password when adding several devices.
- After device is added, the system continues to stay on the **Auto Search** interface, click **Cancel** or  to exit interface.
- After device is added, the platform logs in device automatically, the device is displayed as online after logging in successfully. If offline, please make sure if login username and password are correct, click  to modify username and password.

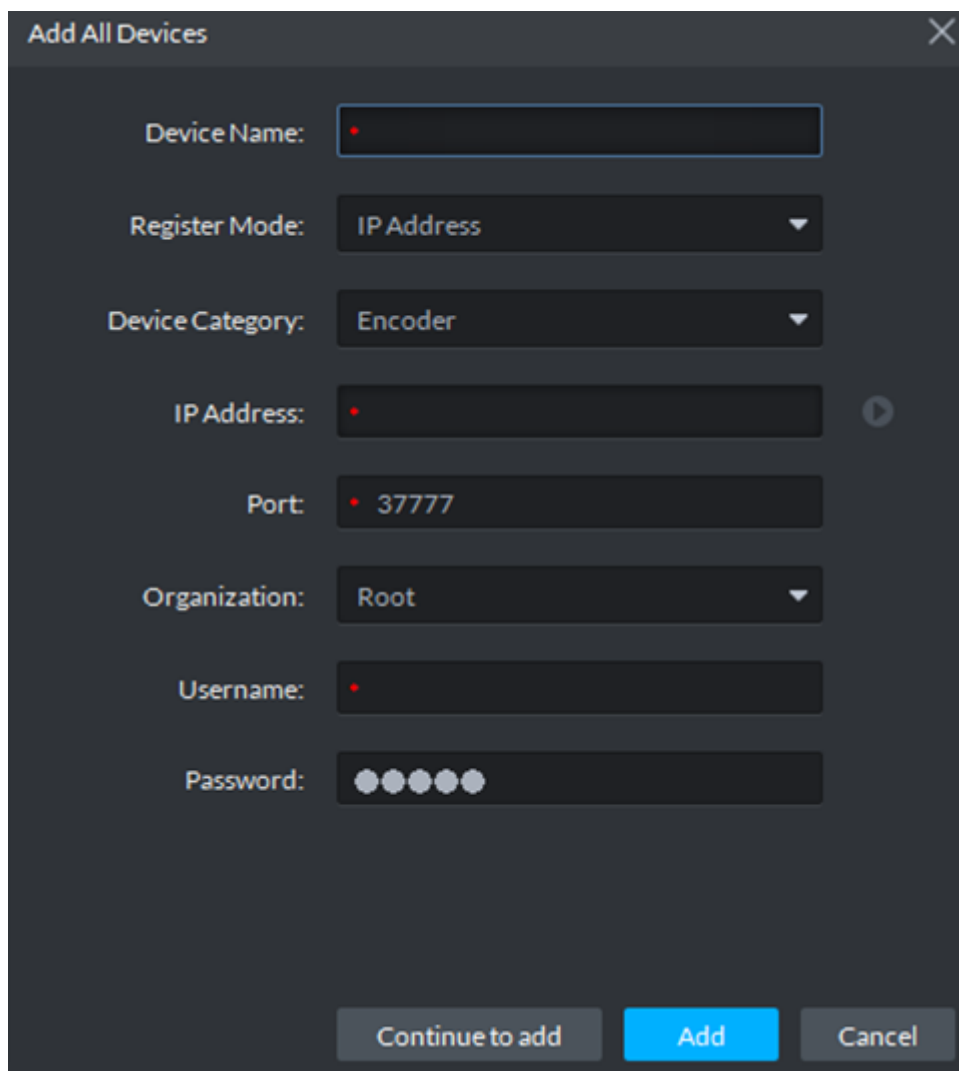
Adding TPC Manually

Add single device, or the username and password of the added device are different, or the added device is not in the same segment.

Step 1 Click **Device** on the client homepage.

Step 2 Click **Add**.

Figure 5-38 Adding TPC manually



Step 3 Set parameters.




- The item with * is required to be filled in. You need to set different parameters if different device are connected.
- Add encoder, set correct parameters, and click  to view device video.

Table 5-8 Parameter description

Parameter	Description
Device Category	Select NVR or camera.

Parameter	Description
Register Mode	<p>Support registration by following method:</p> <ul style="list-style-type: none"> IP address Add device to platform by adding device IP. Serial number (Device with P2P function) If device supports P2P function, then you can add device to platform by adding device serial number. Onvif If device enables Onvif protocol, then you can add device to platform by Onvif protocol. Generally it can be used when adding third-party device.
Port	TCP protocol communication provides service port, and keeps it in accordance with added device.
Organization	Select organization node of added device.
IP Address	When register by IP address or Onvif mode, set the IP address of added device.
SN	When register by serial number mode, set the serial number of added device.
Username	Enter login username and password of added device.
Password	
Decode mode	<p>Select according to the decode mode of added device:</p> <ul style="list-style-type: none"> Pull Decoder extracts stream from platform by url address, the decode mode of device is pull. Direct Decoder extracts stream directly from encoder, the decode mode is direct for device, under this mode; you need to add decoder IP address when trusted list is added by device. Push VMS (Video Management Service) pushes stream directly to decoder, currently only support NVD without combination screen, the mode is not supported by matrix, video wall or NVD under combination mode.
Support Combination	Select when added device supports combination.
Picture Server	Select storage location of picture reported by ANPR.
LED Type	Support added LED including general screen and free parking screen, select corresponding device type according to the accessed device.

Step 4 Click **Add**.

Click **Continue to add** if necessary, then you can add more devices.

5.3 Configuring IVSS

Skip this chapter if you don't use IVSS.

5.3.1 Adding TPC to IVSS

IVSS supports smart add, manual add and template add.

Table 5-9 Mode of adding TPC

Mode	Description
Smart Add	Search the remote devices on the same network and then filter to register. It is useful if you do not know the exact IP address.
Manual Add	Enter the IP address, user name and password of remote device. For some remote devices, you can enter IP address, user name, and password to register.
Batch add (by CSV template)	Fill in information about remote device in the template, import the template to add the device. For batch adding, when IP address, user name and other information of remote device is inconsistent, it is suggested to use this mode.

5.3.1.2 Adding by Search

Step 1 Click , and then select **DEVICE**.


Step 2 Click  or **Add**, and then select **Smart Add**.

Figure 5-39 Smart add

Add Device
×

Smart Add
Manual Add
RTSP
Batch Import

▶ Start Search

<input checked="" type="checkbox"/> (1)	Initialization State	Address	Product Model	Manufacturer	Port	Product Type	Sn	Operate
<input checked="" type="checkbox"/>	✓ Initialized	192.168.1.101	148S	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.102	148S	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.103	SR_2	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.104	SR_2	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.105	136S	Private	37777	4M04994YA...	4M04994YA...	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.106	136S	Private	37777	4M04994YA...	4M04994YA...	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.107	136S	Private	37777	4M04994YA...	4M04994YA...	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.108	0116	Private	37777	1.000.0000.0.R	1.000.0000.0.R	<input type="button" value="LIVE"/>

Total 8 Item(s) Show up to 50

1/1

Remaining Bandwidth/Total: 1024.00 Mbps/ 1024 Mbps

Step 3 Click **Start Search**.




To set search conditions, you can click .

Figure 5-40 Search results

Add Device
×

Smart Add
Manual Add
RTSP
Batch Import

▶ Start Search
☐ Password
☐ Initialize
☐ Modify IP


<input checked="" type="checkbox"/> (1)	Initialization State	Address	Product Model	Manufacturer	Port	Product Type	Sn	Operate
<input checked="" type="checkbox"/>	✓ Initialized	192.168.1.101	1485	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.102		Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.103	SR_2	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.104	SR_2	Onvif	80	--	--	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.105	1365	Private	37777		4M04994YA...	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.106	1365	Private	37777		4M04994YA...	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.107	1365	Private	37777		4M04994YA...	<input type="button" value="LIVE"/>
<input type="checkbox"/>	✓ Initialized	192.168.1.108	0116	Private	37777		1.000.0000.0.R	<input type="button" value="LIVE"/>

Total 8 Item(s) Show up to 50
<< < 1/1 > >>

Remaining Bandwidth/Total: 1024.00 Mbps/ 1024 Mbps

Table 5-10 Result description



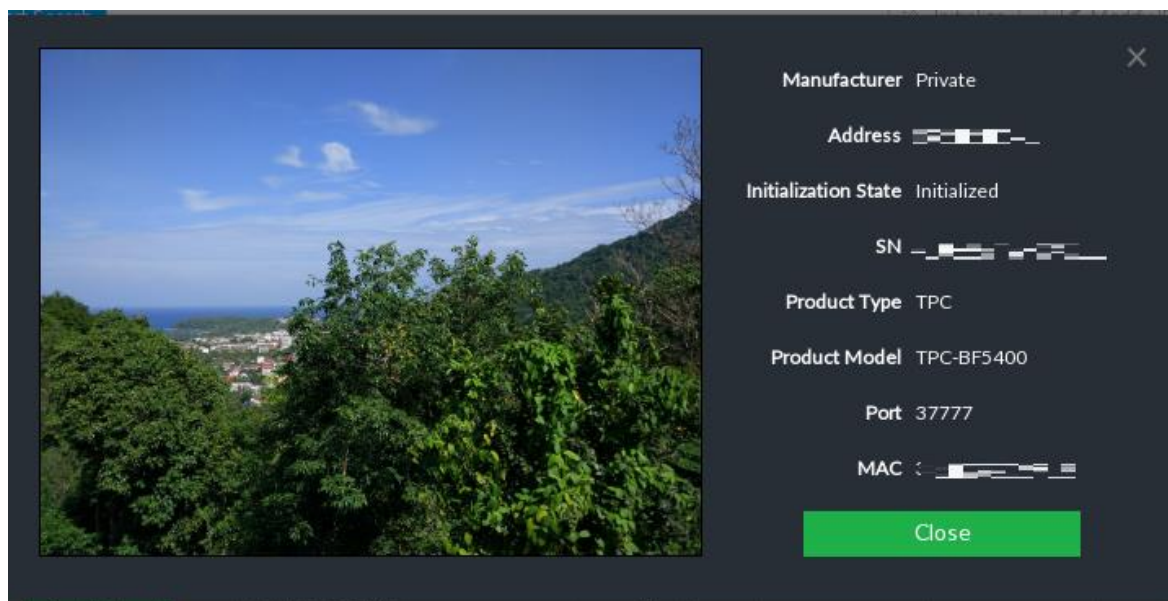
Parameters	Description
Start Search	Click Start Search to Start Searching remote device. Now it becomes StopSearch button. Click StopSearch button to stop searching remote device.
Password	Enter the username and password of the selected device.
Initialize	Select uninitialized remote device and then click Initialize button to initialize remote device.
Modify IP	Modify device IP address.
Initialization State	Displays remote device initialization status. Click ▼ to filter initialized or uninitialized remote device.
Operation	Click <input type="button" value="LIVE"/> to display real-time video from the remote device. Click  or Close to close the real-time preview window.  You can view the live video if admin password of the remote device is admin, or remote device admin password is the same as the system.
Bandwidth	Displays bandwidth remaining and the total bandwidth.

Figure 5-41 Live view



Step 4 Adding a remote device.

Select a remote device, click **Password**, and then enter the username and password of the selected device. Click **OK**.



- If you do not enter device username and password, the system will try to add the device by using the username and password of the current EVS.
- During the adding process, click **Cancel** button, you can cancel adding process. Click **Stop** button of the corresponding remote device to cancel add.

Step 5 Click **Add**.



- Double-click remote device IP address, user name, password, manufacturer, port to change corresponding information.
- If system fails to add the remote device, see the reason on the **Status** column to change the remote device information and then click **Retry** to try to add again.
- If a remote device is exception due to network disconnection other reasons, it can also be added. It comes online after the exception is resolved.

Figure 5-42 Confirm



The dialog box titled "Add Confirm" contains a table with the following data:


Address	Username	Password	Manufacturer	Port	Status	Operate
[Redacted]	admin	*****	Private	37777	Added	

At the bottom of the dialog, there is a status bar showing "Bandwidth : 12.552Mbps/768Mbps" and two buttons: "Continue to add" (highlighted in blue) and "Finish".

Step 6 Click **Continue to add** or **Finish**.

- Click **Continue to add**, device goes back to the **Smart Add** interface to add more remote device.
- Click **Finish** to complete adding remote device process. Device displays **Device** interface to view the newly added remote device information.

5.3.1.3 Adding Manually

Step 1 Click , and then select **DEVICE**.

Step 2 Click  and then select **Manual add**.

Figure 5-43 Adding manually

Add Device
×

Smart Add
Manual Add
RTSP
Import CSV File

+ Add Device
Delete

There are no rows in the table!

Add Offline
Add
Cancel

Step 3 Click **Add Device**.

Figure 5-44 Adding device

Add Device
×

Smart Add
Manual Add
RTSP
Import CSV File

+ Add Device
Delete

<input checked="" type="checkbox"/> (1)	Manufacturer	Address/Registra	User Name	Password	Port	Channel No	Remote CH No.	Operate
<input checked="" type="checkbox"/>	Private		admin	*****	37777	Auto Allocation		⚙ 🗑 +

Total 1 Item(s) Show up to 50
1/1
GO

Add Offline
Add
Cancel

Step 4 Set parameters.

Table 5-11 Parameters




Parameters	Description
Manufacturer	<p>Displays the connection protocol of the remote device. Default protocol of the system is Private. Double-click Private to select other protocols.</p> <p>To add stream media device, select RTSP protocol, and enter RTSP address of stream media device in the Address/Register column.</p> <ul style="list-style-type: none"> Port: Enter port number. The default setting is 554. Channel: Enter channel number of the stream media device to be added. Subtype: Set record bit stream type. It includes main stream 0 and sub stream 1. <p>For example: rtsp://admin:admin@192.168.20.25:554/cam/realmonitor?channel=1&subtype=0.</p>  <p>To add a stream media device, it is unnecessary to set user name, password, and port.</p>
Address/Registration IP	Double-click the empty cell in the Address/Registration IP column to enter the IP address or RTSP address of remote device.
Username	Double-click the empty cells in the User Name and Password columns to enter the username and password of remote device.
Password	
Port	Displays the default port number of remote device. If the port number has been modified, double-click the port cell to enter the current port number of the remote device.
Channel No.	<p>Double-click this column to select the channel number of the device in IVSS.</p> <p>If you select Auto Allocation, IVSS will provide a channel number automatically.</p>
Remote CH No.	Select the channel number of a remote device.
Others	<p>Delete current line or add a new line.</p> <ul style="list-style-type: none"> Click  to delete current line information. Select multiple lines of remote device information, and then click Delete to batch delete the selected information. Click  to add a new line. Enter remote device information to add several devices at the same time.

Figure 5-45 Setting

Setting

×

Link Type

☒ Self-Adaptive
☐ TCP
☐ UDP
☐ Multicast

Total Channels

1

Select

1

~

1

Selected

Clear

Channel

1~1

1

OK

Cancel

Step 5 Select the remote device and then click **Add**. Device begins adding remote device and pops up the confirmation interface.



- During the adding process, click **Cancel** button, you can cancel adding process. Click **Stop** button of the corresponding remote device to cancel.
- Double-click remote device IP address, user name, password, manufacturer, port to change corresponding information.
- If system fails to add the remote device, see the reason on the **Status** column to change the remote device information and then click **Retry** to try to add again.
- If a remote device is exception due to network disconnection other reasons, it can also be added. It comes online after the exception is resolved.

Figure 5-46 Confirm



The dialog box titled "Add Confirm" contains a table with the following data:


Address	Username	Password	Manufacturer	Port	Status	Operate
[Redacted]	admin	*****	Private	37777	Added	

At the bottom of the dialog, there is a bandwidth indicator: "Bandwidth : 12.552Mbps/768Mbps". On the right side, there are two buttons: "Continue to add" (highlighted in blue) and "Finish".

Step 6 Click **Continue to add** or **Finish**.


- Click **Continue to add**, device goes back to **Smart add** interface to add more remote device.
- Click **Finish** to complete adding remote device process. Device displays **Device** interface to view the newly added remote device information.

5.3.1.4 Adding in Batches

Step 1 Click , and then select **DEVICE**.

Step 2 Click , and then select **Import CSV file** tab.



- When information about remote device is incomplete, complement it according to your actual situation.
- Click  to delete current line information.

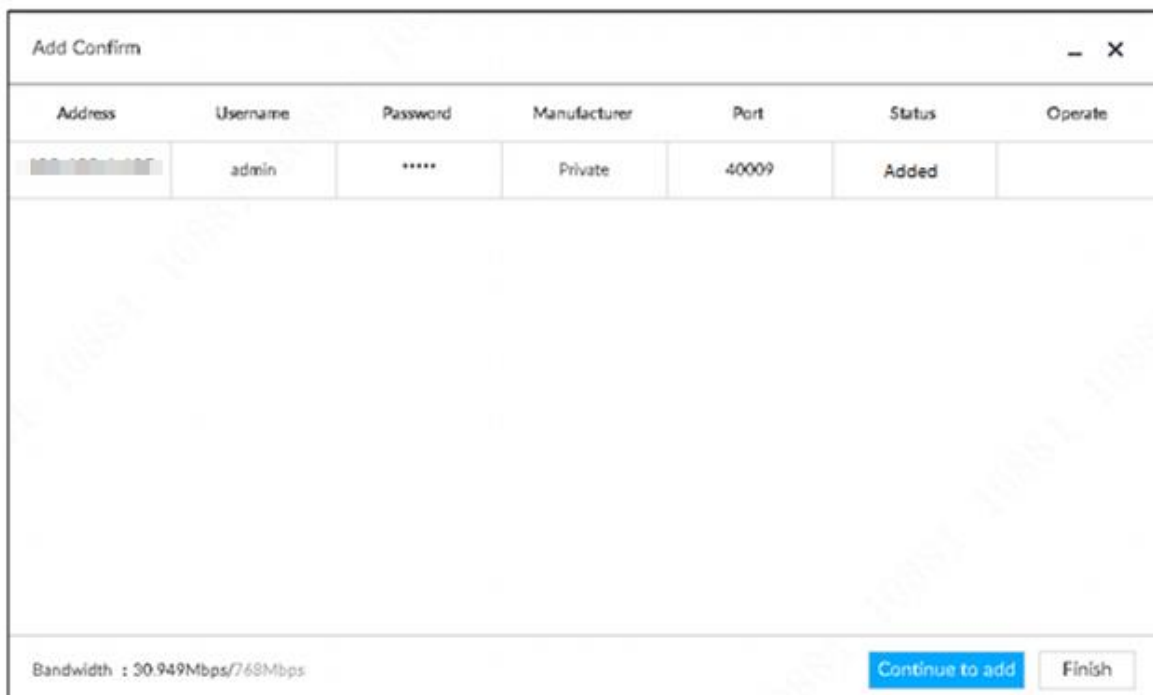
Step 5 Add remote devices.

Select the remote device and then click **Add**. Device begins adding remote device and pops up confirmation interface.



- During the adding process, click **Cancel** button, you can cancel adding process. Click **Stop** button of the corresponding remote device to cancel add.
- Double-click remote device IP address, user name, password, manufacturer, port to change corresponding information.
- If system fails to add the remote device, see the reason on the **Status** column to change the remote device information and then click **Retry** to try to add again.

Figure 5-49 Confirm



Address	Username	Password	Manufacturer	Port	Status	Operate
192.168.1.100	admin	*****	Private	40009	Added	

Bandwidth : 30.949Mbps/768Mbps

[Continue to add](#) [Finish](#)

Step 6 Click **Continue to add** or **Finish**.

- Click **Continue to add**, device goes back to **Smart add** interface to add more remote device.
- Click **Finish** to complete adding remote device process. Device displays **Device manager** interface to view the newly added remote device information.

Step 7 (Optional) You can add offline devices when the network is exception. When the network recovers, the added offline device will automatically come online.

Click  next to offline device to add an offline device.

Step 8 (Optional) Click next to **Overwrite** to enable the function. This function is used when the IP address of a new device is the same as that of a previously added device, the configuration of the new device will overwrite the old one.

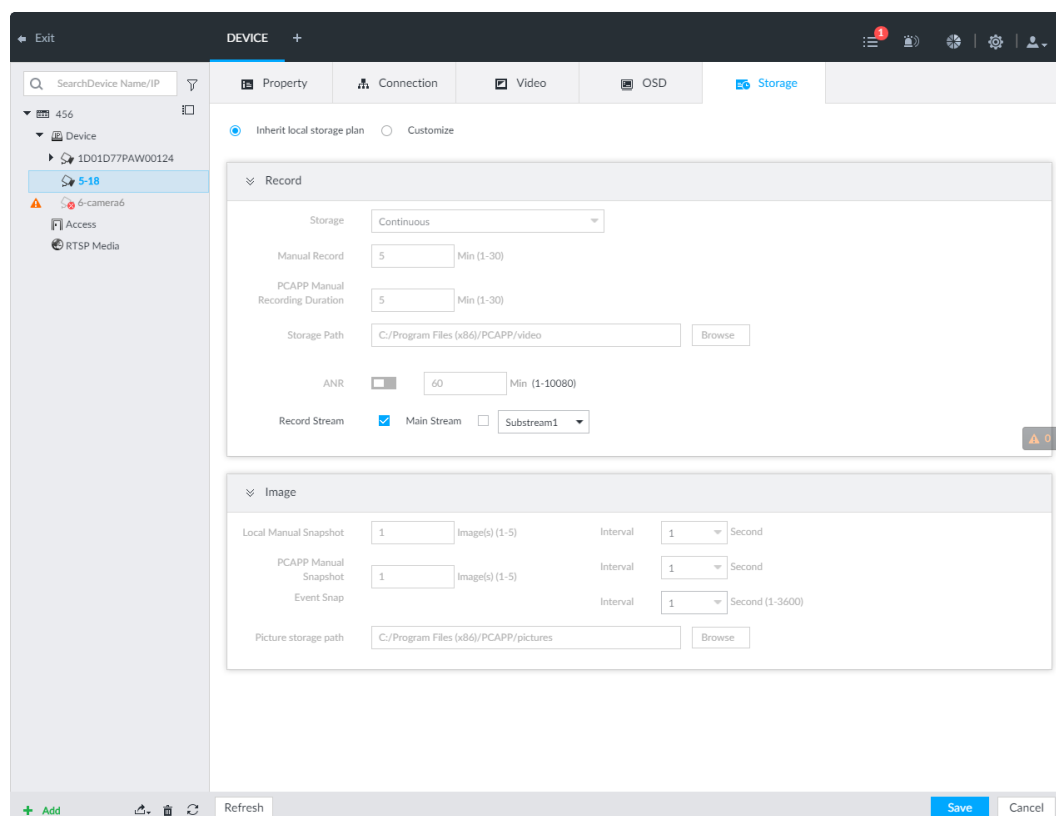
5.3.2 Configuring Storage Plan on IVSS

Set TPC video and image storage plan on IVSS according to the actual situation.

Step 1 Click , or click  on the configuration interface, and then select **DEVICE**.

Step 2 Select a remote device on the left panel and then click **Storage** tab.

Figure 5-50 Storage



Step 3 Select **Inherit local storage plan** or **Customize**.





- **Inherit local storage plan:** The remote device adopts global storage plan of the Device.
- **Customize:** Set customized storage plan.


Step 4 Set parameters.



Set record streams only if you select **Inherit local storage plan**.

Table 5-12 Storage parameters description

Parameters		Description
Record	Storage	<p>Set record strategy.</p> <ul style="list-style-type: none"> Continuous Recording: 24-hour continuous recording. Not Recording: Device is not recording. Event Recording: Device only records when there is corresponding alarm event. Scheduled: Record in the scheduled time. Scheduled & Event: Record in the scheduled time and also on the basis of event-triggering.
	ANR	<ul style="list-style-type: none"> When a camera gets disconnected with IVSS, it stores the recorded videos in its local SD card. When the camera is connected again, it will upload the video during the disconnection to IVSS. Set the maximum length of the to-be-uploaded video so that after getting reconnected, the camera will only upload video of the pre-defined length to IVSS. <p> Make sure that the camera has an SD card.</p>
	Manual Record (length)	<p>Set manual record file length.</p> <p>On the LIVE interface, click  to start record. If you do not click the icon to stop record, system stops recording automatically according to the record length here.</p>
	PCAPP Manual Recording Duration	<p>Set the time length of manual recording performed on the PCAPP client.</p> <p>Click  to start manual recording on the PCAPP client. The manual recording automatically finishes at the end of the pre-defined time period.</p>
	Storage Path	<p>Click Browser to set manual record storage path.</p> <p> Only PCAPP supports this function.</p>
Image	Local Manual Snapshot	<p>It is to set manual snapshot amount and snapshot speed.</p>
	Event Snap	<p>It is to set event snapshot interval.</p> <p>Select Customize to set customized interval. The maximum interval is 3600 seconds.</p>

Parameters		Description
	Picture storage path	Click Browser to set snapshot image storage path.  Only PCAPP supports this function.

Step 5 Click **Save**.

5.4 Configuring NVR

Skip this chapter if you do not use NVR.

5.4.1 Adding TPC to NVR

You can add cameras to NVR and manage them remotely.

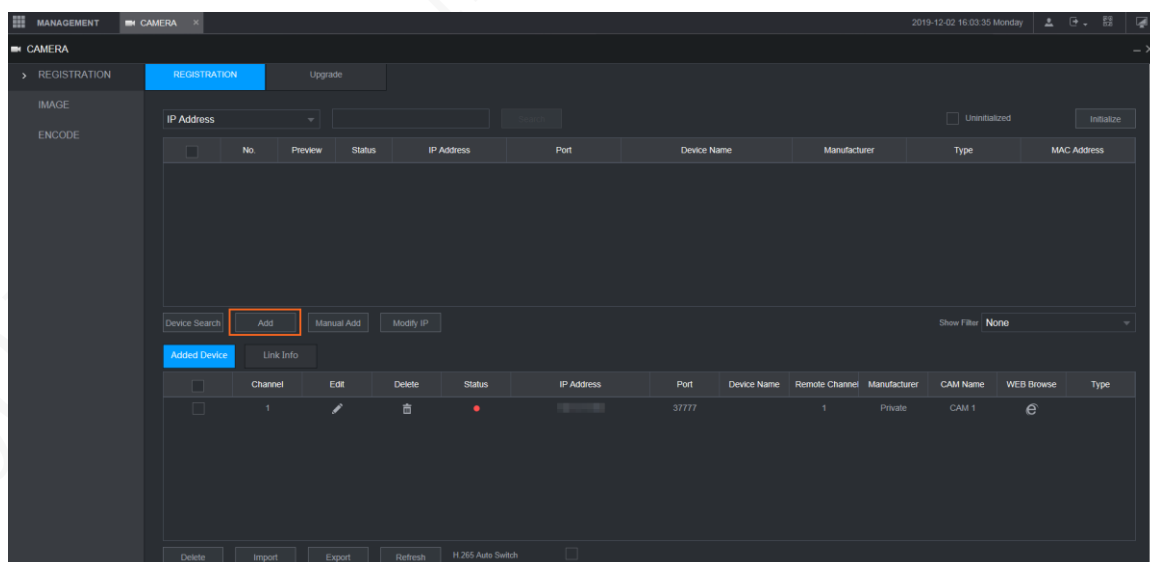
Preparation

- For brand new NVR, see the quick start guide or user's manual to initialize it and modify IP address.
- For NVR that are properly configured, be sure to update the system to the latest version.

Procedure

Step 1 Log in to the NVR web interface, and then select **MANAGEMENT > CAMERA > REGISTRATION**.

Figure 5-51 Camera (1)



Step 2 Add devices.

You can add cameras with auto scan and manual add.



The target camera cannot have the same IP address or TCP port with any existing camera.

- Auto scan
- 1) Click Device Search.
The devices searched will be displayed.
- 2) Double-click the device information or select the check box before it, and then click **Add**, the device will be added to the list of added devices.



You can refresh the list of added devices to avoid adding the same camera repeatedly.

Figure 5-52 Camera (2)

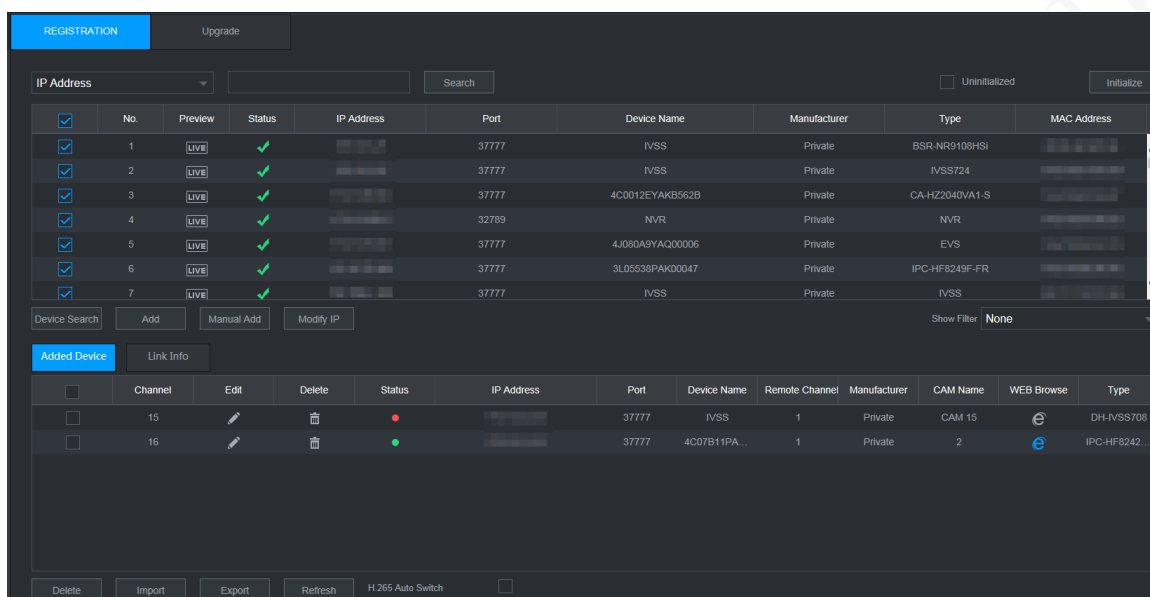







Table 5-13 Parameter description

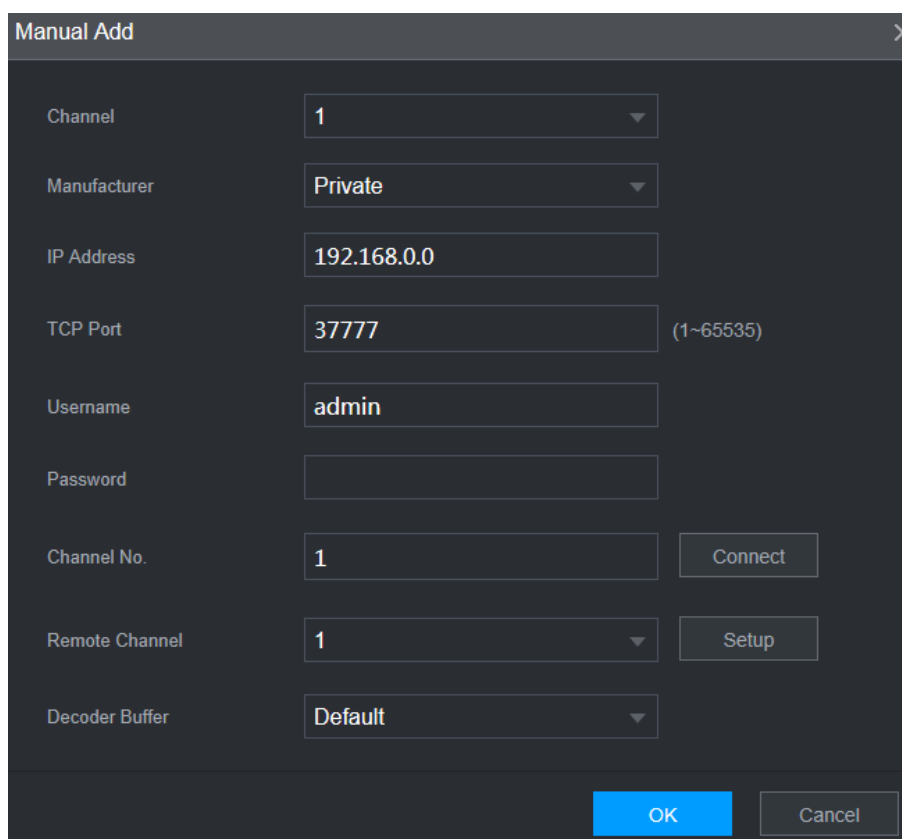
Icon/Parameter	Description
Channel	Displays the channel No. on your NVR to which you connect the target camera to.
Edit	Click  , or double-click the line corresponding to the device to modify device information, such as channel, manufacturer, IP address, TCP port, user name, password, remote channel No., and decode buffer.
Delete	Click  to delete the corresponding device.
Status	Shows whether a device is initialized.  means it is initialized;  means it is uninitialized.
IP Address	Shows device information such as IP address, port number, device name, channel number of camera, manufacturer, and camera name.
Port	
Device Name	
Remote Channel	
Manufacturer	
CAM Name	
Type	

Icon/Parameter	Description
Web Browse	Click  to go to the web interface of corresponding device.

- Manual add

1) Click Manual Add.

Figure 5-53 Manual add




The 'Manual Add' dialog box contains the following fields and controls:

- Channel:** A dropdown menu with '1' selected.
- Manufacturer:** A dropdown menu with 'Private' selected.
- IP Address:** A text input field containing '192.168.0.0'.
- TCP Port:** A text input field containing '37777' with a range '(1~65535)' to its right.
- Username:** A text input field containing 'admin'.
- Password:** An empty text input field.
- Channel No.:** A text input field containing '1' next to a 'Connect' button.
- Remote Channel:** A dropdown menu with '1' selected next to a 'Setup' button.
- Decoder Buffer:** A dropdown menu with 'Default' selected.
- Buttons:** 'OK' (blue) and 'Cancel' (grey) buttons at the bottom right.

2) Configure parameters.

Table 5-14 Manual add parameters

Parameter	Description
Channel	Displays the channel No. on your NVR to which you connect the target camera to.
Manufacturer	Select Private .  Supported protocol might vary with different models, and the actual product shall prevail.
IP Address	Enter the IP address of the target camera.
TCP Port	Transmission control protocol port, the value is 37777 by default.
Username/Password	Enter the user name/password of the camera you need.
Channel No.	If the target camera has already connected to another NVR, then its channel No. on that NVR is displayed here.

Parameter	Description
Decode Buffer	You can select from Default , Real time , and Fluent . Real time provides best live video quality, but also requires network with fast speed to respond to IVS detection, Default is medium, and Fluent is the safest choice.

3) Click **OK**.

5.4.2 Configuring Recording Plan on NVR

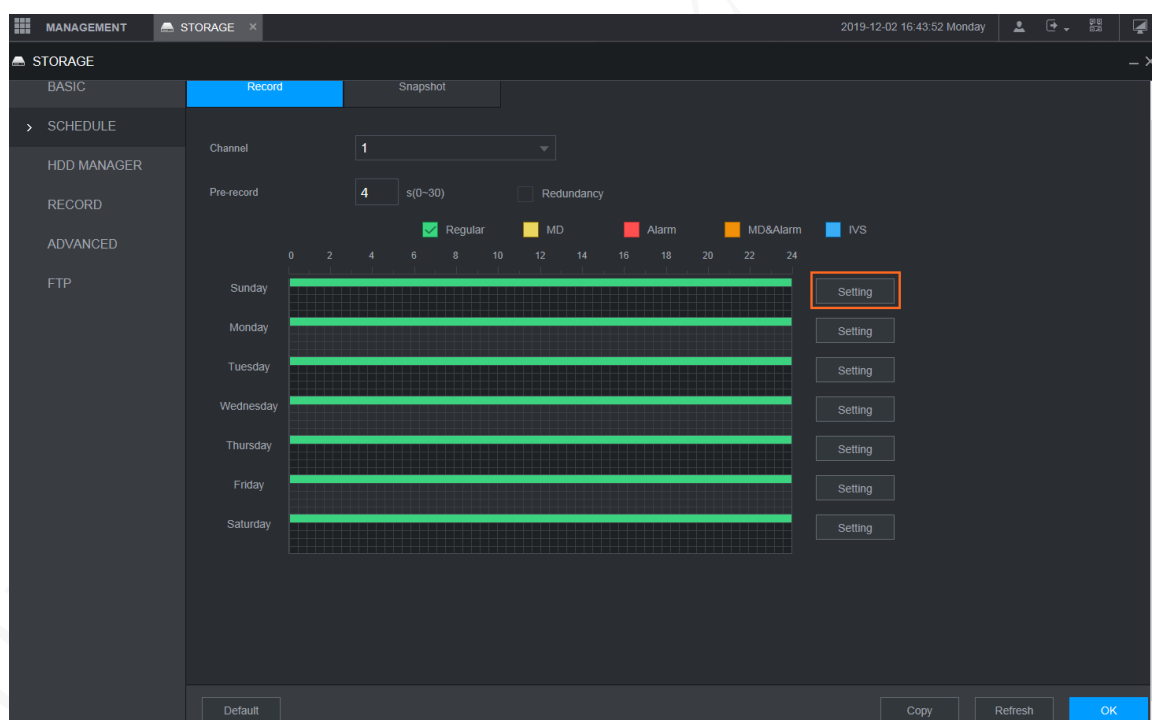
After properly configuring TPC parameters, you can save the clear videos and snapshots from the network cameras to the NVR.



Before configuring video storage, make sure that your NVR is well deployed, and HDDs are well installed and configured. For details, see NVR quick start guide and user's manual.

Step 1 Log in to the web interface of NVR, and then select **MANAGEMENT** > **STORAGE** > **SCHEDULE** > **Record**.

Figure 5-54 Record



Step 2 Select the **Channel** that you need to record, and then click **Setting** corresponding to the day that you need to configure time period.

Figure 5-55 Period

Step 3 Select the days you need, and if you select **All**, the defined time period would apply to the whole week. You can configure 6 time periods at most for each day.

Step 4 Select the record type for the corresponding time period, and then click **OK**.

Figure 5-56 Record plan

Each color matches with a different record schedule. Green means normal videos, yellow means motion detection videos, and red means alarm videos.

Step 5 Configure **Pre-record** duration, and then the system saves videos before any event as well. For example, if the value is 4, then the system saves videos from 5 seconds before any event starts.

Step 6 Click **OK**.

6 Configuration and Commissioning

Based on your scheme (refer to "2 Network Diagram"), partially follow this chapter. TPC-IVSS-Express works also for TPC-IVSS; TPC-NVR-Express works also for TPC-NVR.

6.1 Selecting TPC-Express

6.1.1 Configuring TPC

6.1.1.1 Enabling Body Temperature Measurement Scheme



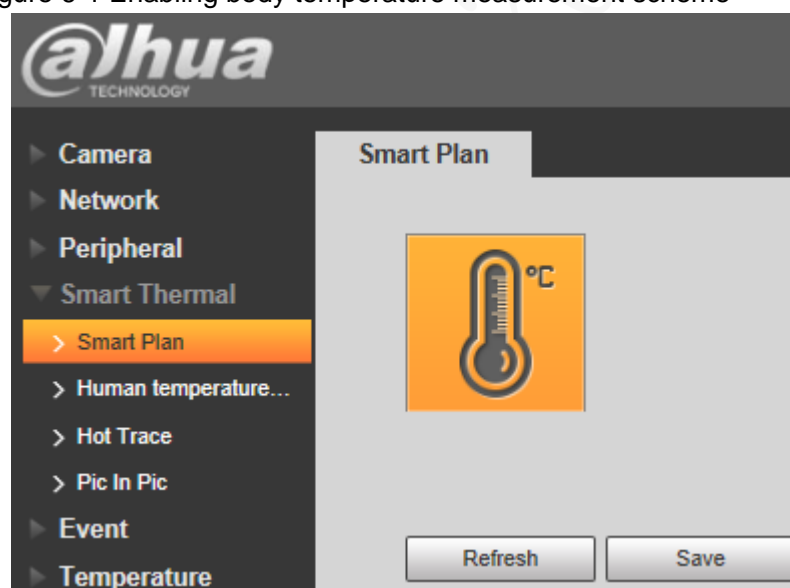
To use body temperature measurement scheme, select **Setting > Smart Thermal > Smart Plan** and click  (the scheme on/off switch) to lighten it.  represents that the scheme is enabled.

Figure 6-1 Enabling body temperature measurement scheme



6.1.1.2 Configuring Human Temperature Alarm

Configure a maximum normal human body temperature. When body temperature is larger than the set value, linked audio and white light alarm will be triggered.

Step 1 On thermal web, select **Setting > Smart Thermal > Human Temperature Measurement**.

Step 2 Draw a detection area to detect people you need. The detection area requires its lower border near people shoulders (Its upper border can be the image upper edge). Confirm detection area first and then click **Draw Rule** to draw the area.

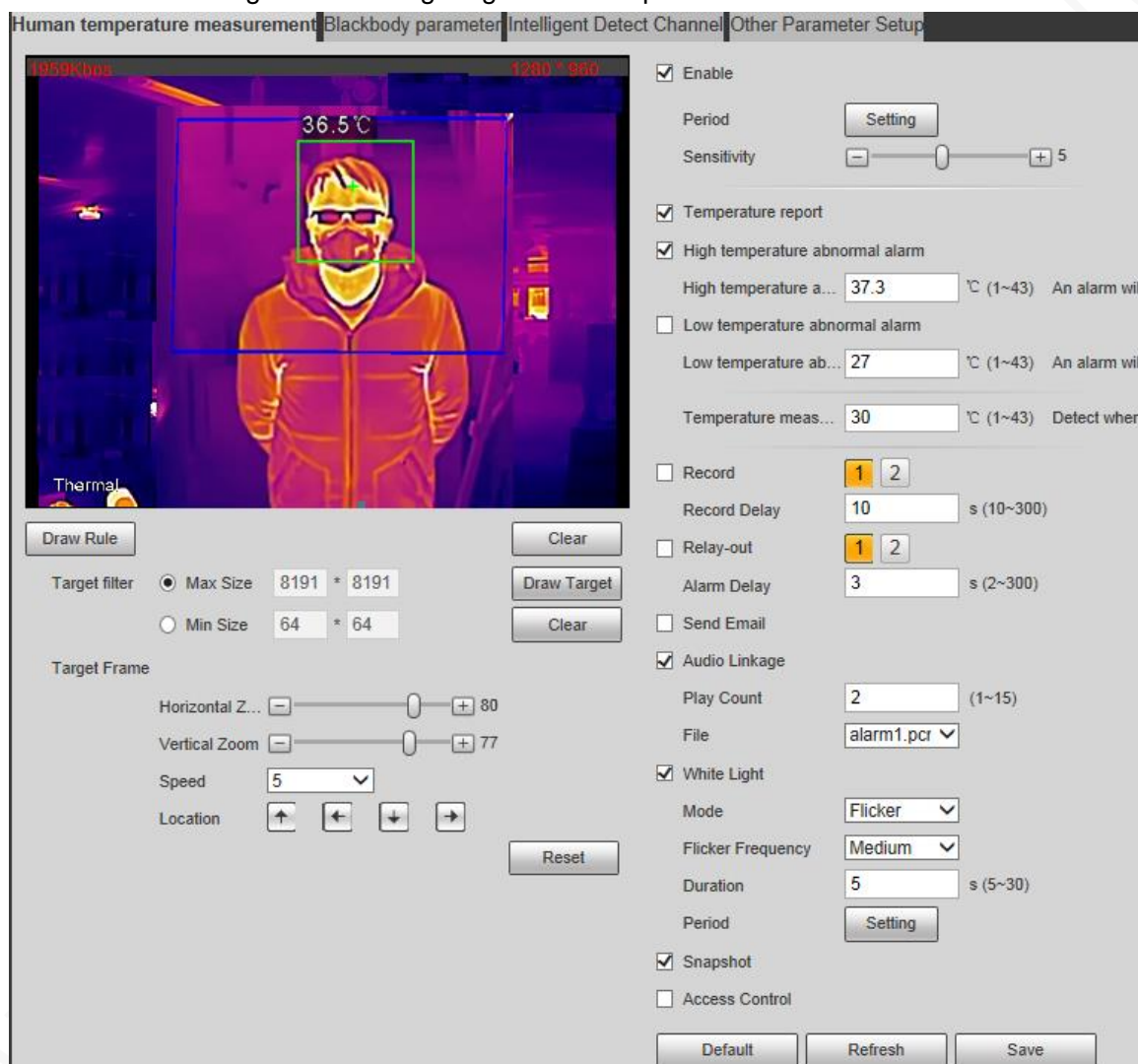
Step 3 Select **High temperature abnormal alarm** and enter a value.

Step 4 To enable audio alarm, select **Audio Linkage**. To set audio alarm lasting time, enter **Play Count** value.

Step 5 (White light alarm can be used at night or at dark condition). Select **White Light** to enable.

- 1) To set alarm period (only at night, for example), click **Setting**.
- 2) To decide white light lasting time, enter **Duration**.
- 3) To decide white light showing method (flicker or normally on), click **Mode**. If you select **flicker**, you can decide its frequency from **High**, **Medium** and **Low**.

Figure 6-2 Configuring human temperature alarm



Step 6 Click **Save**.

6.1.1.3 Configuring Blackbody Parameters

Step 1 On the blackbody rear panel, set blackbody temperature to 35 °C (recommended). Press the bottom '∧' '∨' to adjust the blackbody temperature value.

Step 2 Follow "4 Installation and Connection" to install blackbody.

Step 3 Go to TPC web, select **Setting > Smart Thermal > Human Temperature Measurement > Blackbody Parameter**.

Make sure blackbody is put at the top left or top right of thermal image.

Step 4 Select **Enable** to enable the parameters configured on this interface.

Step 5 Click **Draw Area** and then draw a box around the blackbody. The smaller the selection box, the higher the measurement accuracy.

Then TPC can recognize blackbody temperature as a reference to help detect human body temperature.

Step 6 Configure other parameters.

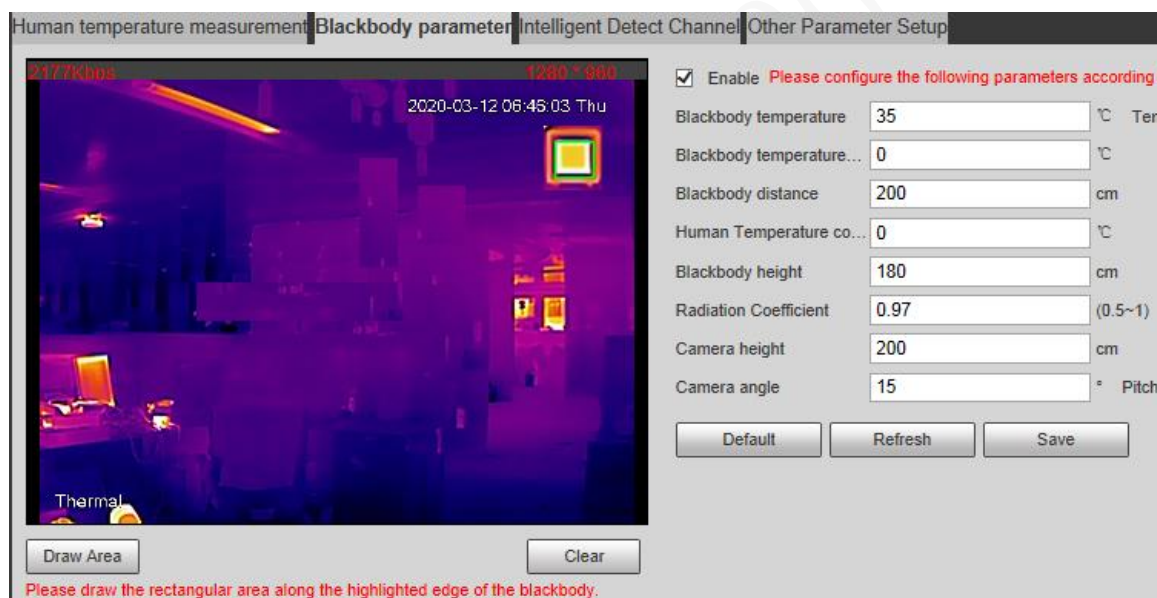
- Blackbody temperature: 35°C recommended.
- Blackbody height and camera height: For general scenario, 180 cm for blackbody and 200 cm for TPC.



For scenarios such as junior school, students might generally be shorter than 180 cm, so in this case you need to adjust blackbody height first and then TPC height. For details, consult technical support.

- Others: Leave them to default.

Figure 6-3 Setting blackbody parameters



Step 7 Click **Save**.

6.1.1.4 Configuring Temperature Correction

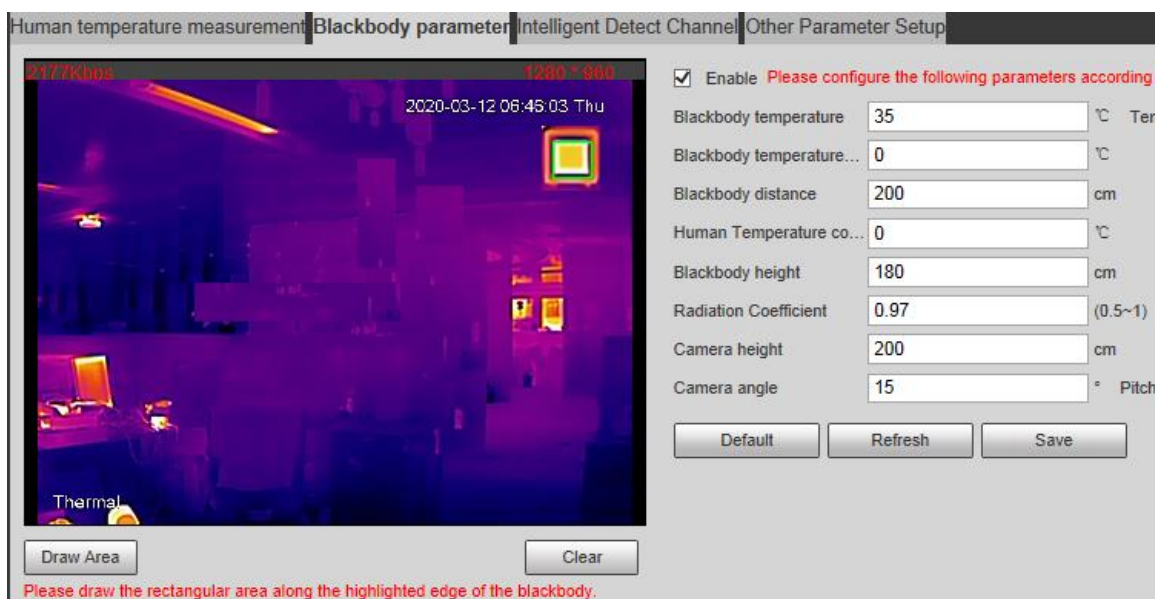
TPC uses blackbody to help measure body temperature. Still, there might be various factors to influence measurement accuracy such as environment temperature. So, after you have configured "6.1.1.1–6.1.1.3", you still need to verify and calibrate measurement accuracy.

Step 1 Calibrate measurement accuracy.

- 1) Choose a group of people (5, for example) and use TPC to measure their temperature. Write down and calculate their temperature average value (A).
- 2) Use high measurement accuracy devices (a point thermometer, for example) to measure the group temperature and calculate its average value (B).
- 3) Use A to minus B to get the error value (C).
 - ◇ If C is 0, it proves no temperature error and you can ignore Step 2.
 - ◇ If C is not 0, go to Step 2.

Step 2 On TPC web, select **Setting > Smart Thermal > Human Temperature Measurement > Blackbody Parameter** and then enter C in the **Blackbody Temperature Correction** box. Then click **Save**.

Figure 6-4 Setting alarm temperature correction



6.1.1.5 Adjusting Face Detection Box

Within body temperature detection box you have drawn, TPC face detection box might not fit face well. You can select **Setting > Camera > Conditions > Conditions** and adjust up, down, left and right arrows (and set step length) to make the face detection box accurate.

Figure 6-5 Adjusting TPC face box (1)

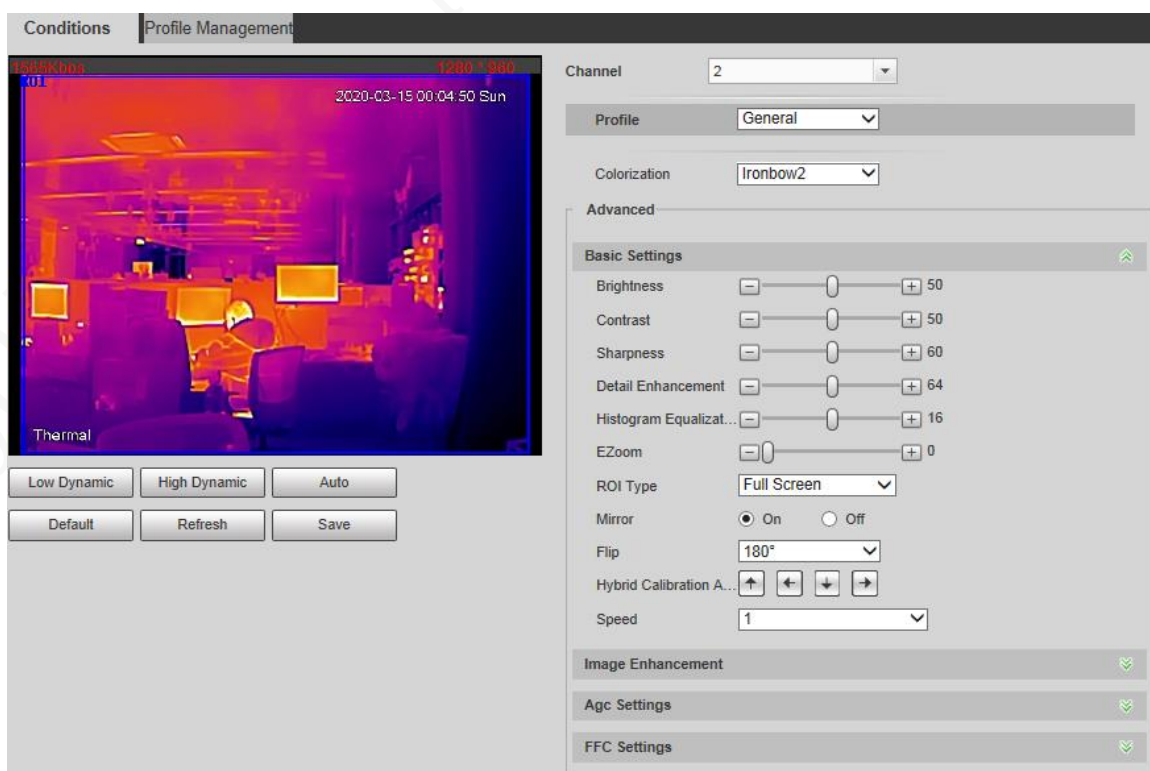


Figure 6-6 Adjusting TPC face detection box (2)



The green box around face is face detection box and the larger blue box around body is body temperature detection area.

6.1.2 Configuring Express

To be notified timely on Express when there is high temperature alarm or blackbody working abnormality alarm, configure those alarm settings.

Step 1 Log in to Express client.

Step 2 Click **Config** on the client homepage.

Step 3 Select the visual or thermal channel of the TPC from left device tree, click **Event Config**.


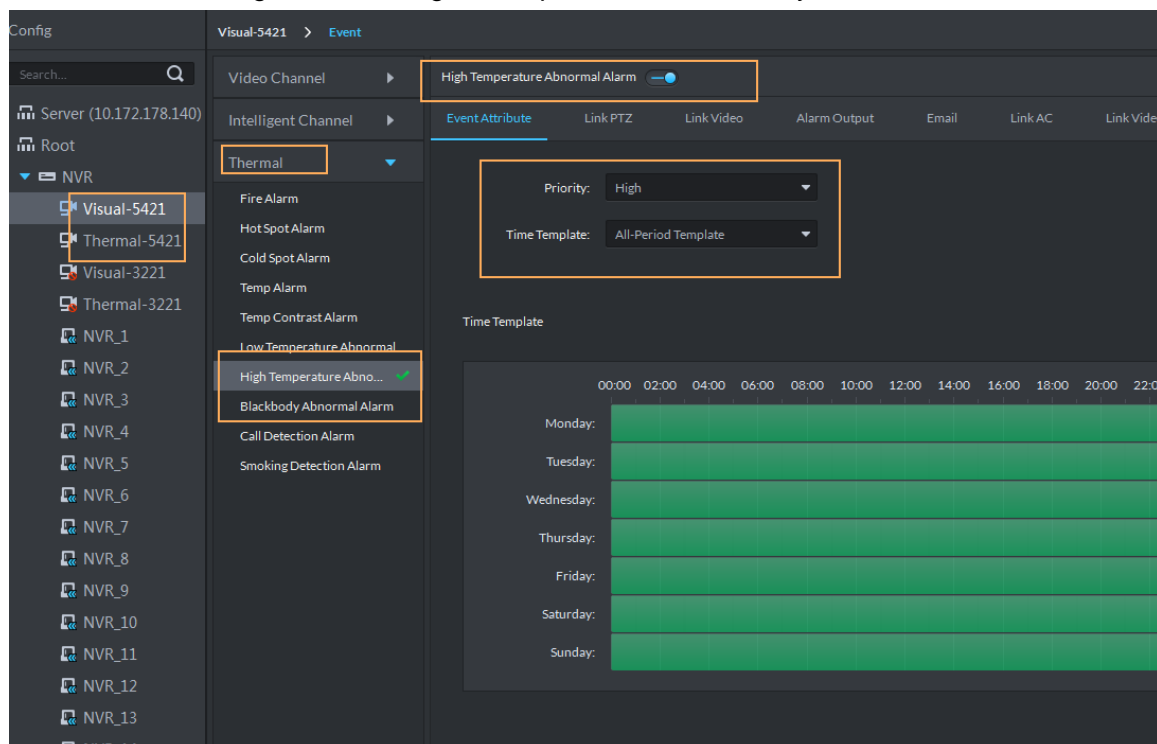
Step 4 Click the Thermal tab, select the **High Temperature Abnormal Alarm** or **Blackbody Abnormal Alarm**, and then click .

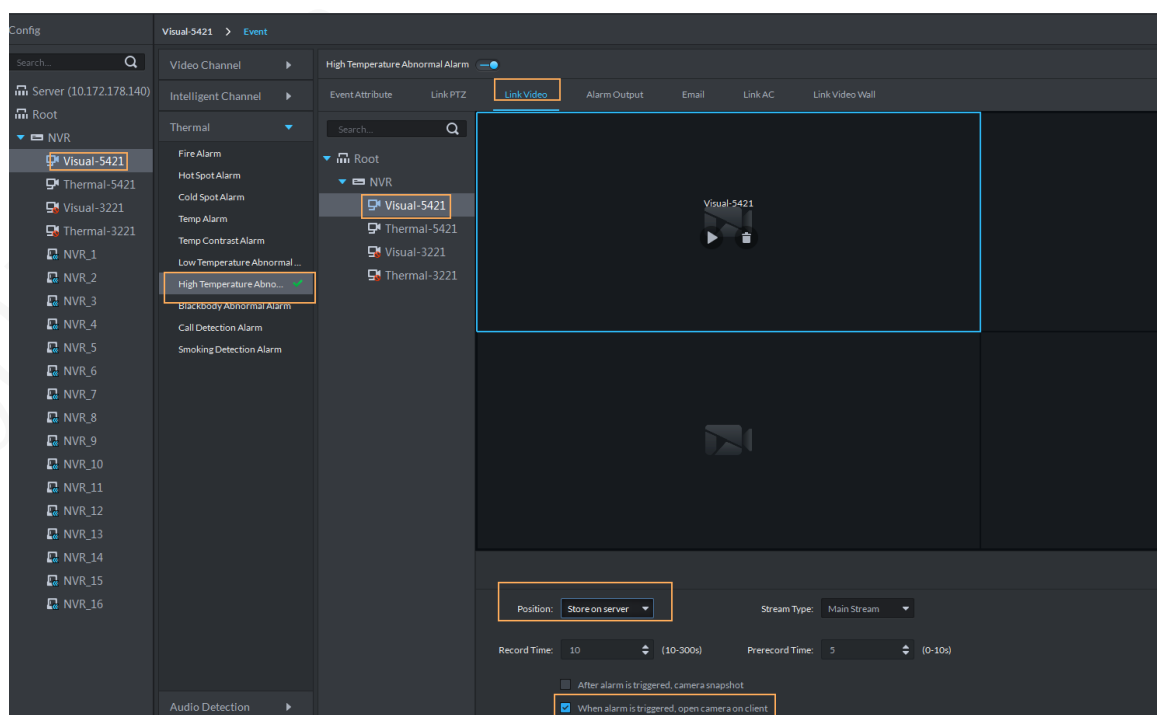
Figure 6-7 Configure temperature or blackbody alarm



Step 5 Set alarm event priority and effective period of event.

- 1) Click Event Attribute tab.
- 2) Select priority.
- 3) Select time template, you need to configure again if default time template fails to meet requirement.
- 4) Click the **Link Video** tab to configure video linkage for the alarm.
- 5) Select window, drag the linked channel to the window.

Figure 6-8 Link video




- 6) Set parameters.

Table 6-1 Link video parameter

Parameter	Description
Storage Position	Set storage position of videos and snapshots. Support storing on the server.
Stream Type	Select stream type for alarm video. Main stream has higher quality than sub stream, but consumes more storage and bandwidth than sub stream.
Record Time	Set time of linking record after alarm event is triggered.
Prerecord Time	Set prerecord duration. A pre-record is started seconds or minutes (as configured) before the event video.
After alarm is triggered, camera snapshot	Link corresponding camera snapshot after alarm event is triggered.
When alarm is triggered, open camera on client	After alarm output is triggered, you can open camera's real-time video on client.

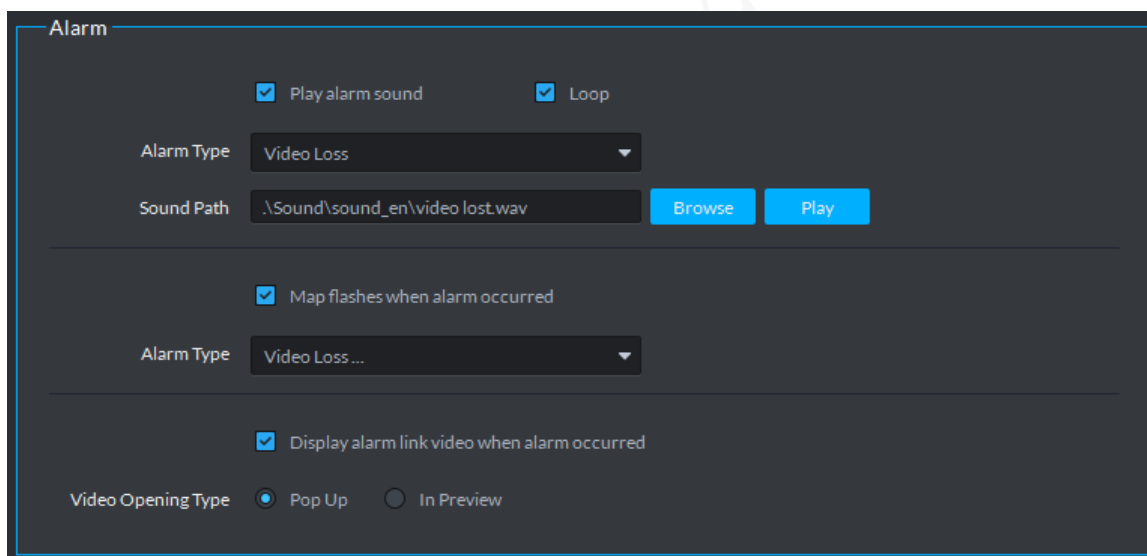
Step 6 Click **OK** and complete setting.

Step 7 Click  on upper-right corner of client interface.

The system displays **Local Config** interface.

Step 8 Click **Alarm** tab, set client alarm type.

Figure 6-9 Alarm



Step 9 Select the **Display alarm link video when alarm occurred** check box. System automatically opens linkage video when an alarm occurs.

Step 10 Select the **Pop Up** check box. System automatically opens linked video in a pop-up window when an alarm occurs.

6.2 Selecting TPC–IVSS–Express

This selection also works for TPC—IVSS. If you select TPC—IVSS, skip "6.2.2 Configuring Express."

6.2.1 Configuring TPC

See "6.1.1 Configuring TPC."

6.2.2 Configuring Express

6.2.2.1 See "6.1.1.5 Adjusting Face Detection Box

Within body temperature detection box you have drawn, TPC face detection box might not fit face well. You can select **Setting > Camera > Conditions > Conditions** and adjust up, down, left and right arrows (and set step length) to make the face detection box accurate.

Figure 6-10 Adjusting TPC face box (1)

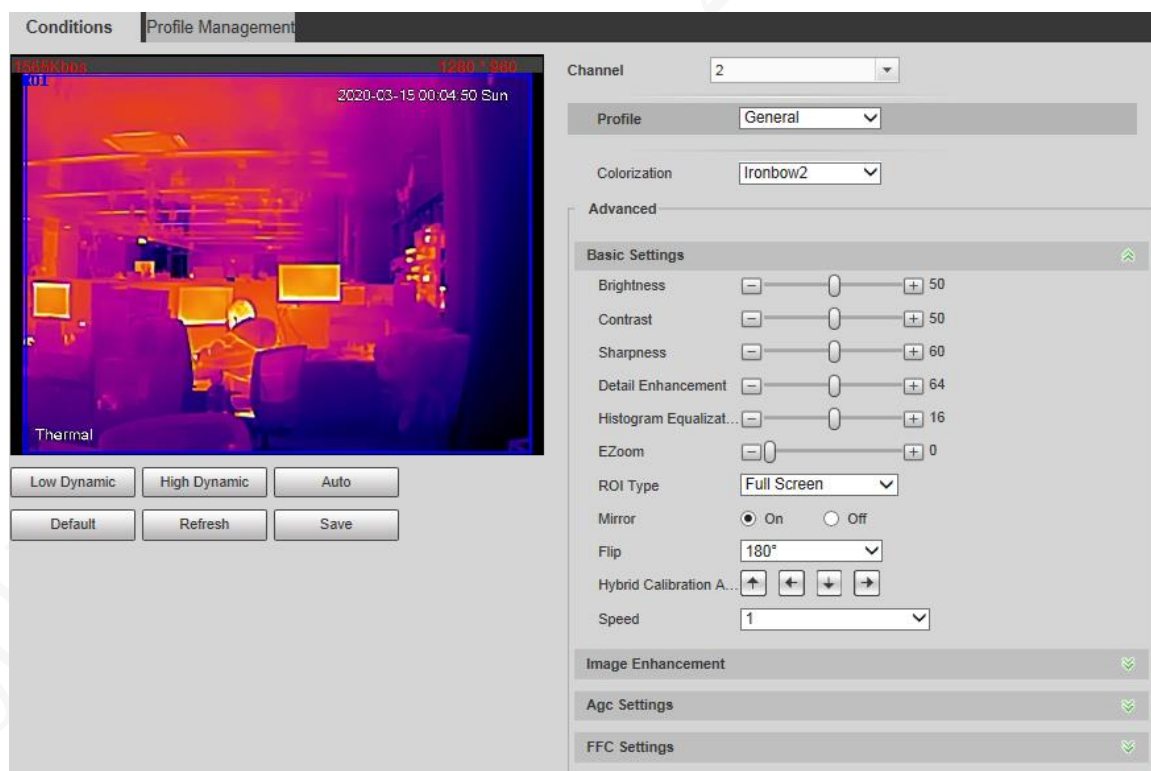


Figure 6-11 Adjusting TPC face detection box (2)



The green box around face is face detection box and the larger blue box around body is body temperature detection area.

Configuring Express."

6.3 Selecting TPC–NVR–Express

This selection also works for TPC–NVR. If you select TPC–NVR, skip "6.3.2 Configuring Express."

6.3.1 Configuring TPC

See "6.1.1 Configuring TPC."

6.3.2 Configuring Express

6.3.2.1 See "6.1.1.5 Adjusting Face Detection Box

Within body temperature detection box you have drawn, TPC face detection box might not fit face well. You can select **Setting > Camera > Conditions > Conditions** and adjust up, down, left and right arrows (and set step length) to make the face detection box accurate.

Figure 6-12 Adjusting TPC face box (1)

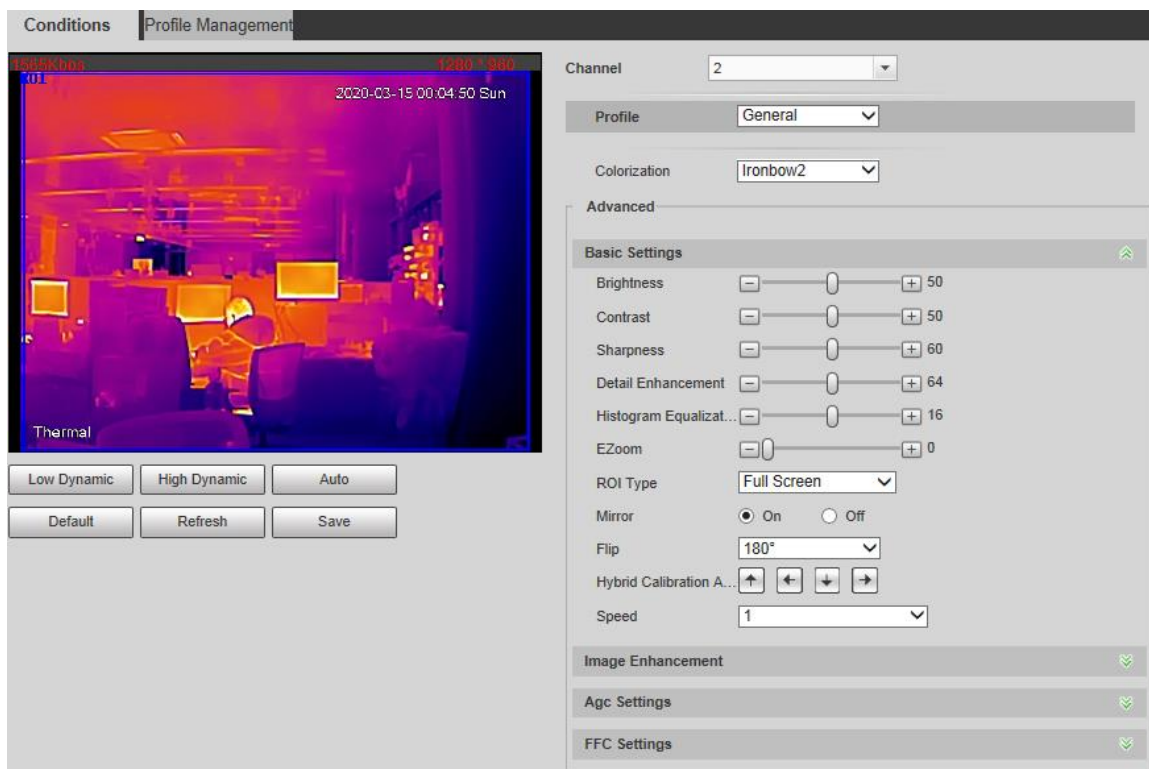


Figure 6-13 Adjusting TPC face detection box (2)



The green box around face is face detection box and the larger blue box around body is body temperature detection area.

Configuring Express."

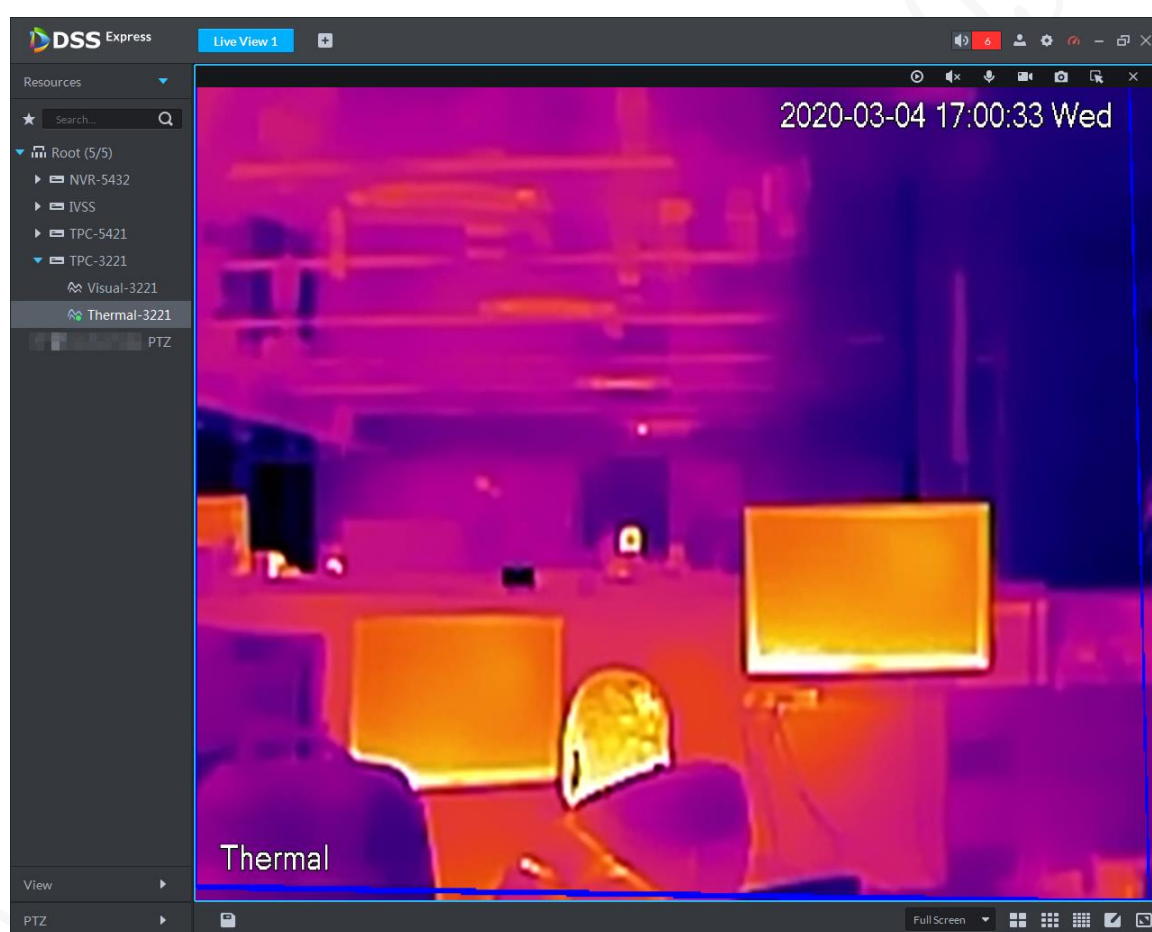
6.4 Commissioning

6.4.1 Commissioning Express

6.4.1.1 Viewing Live View on Express

Select the TPC camera from device list on the **Live View** interface, double-click or drag to the video window. The system plays real-time video.

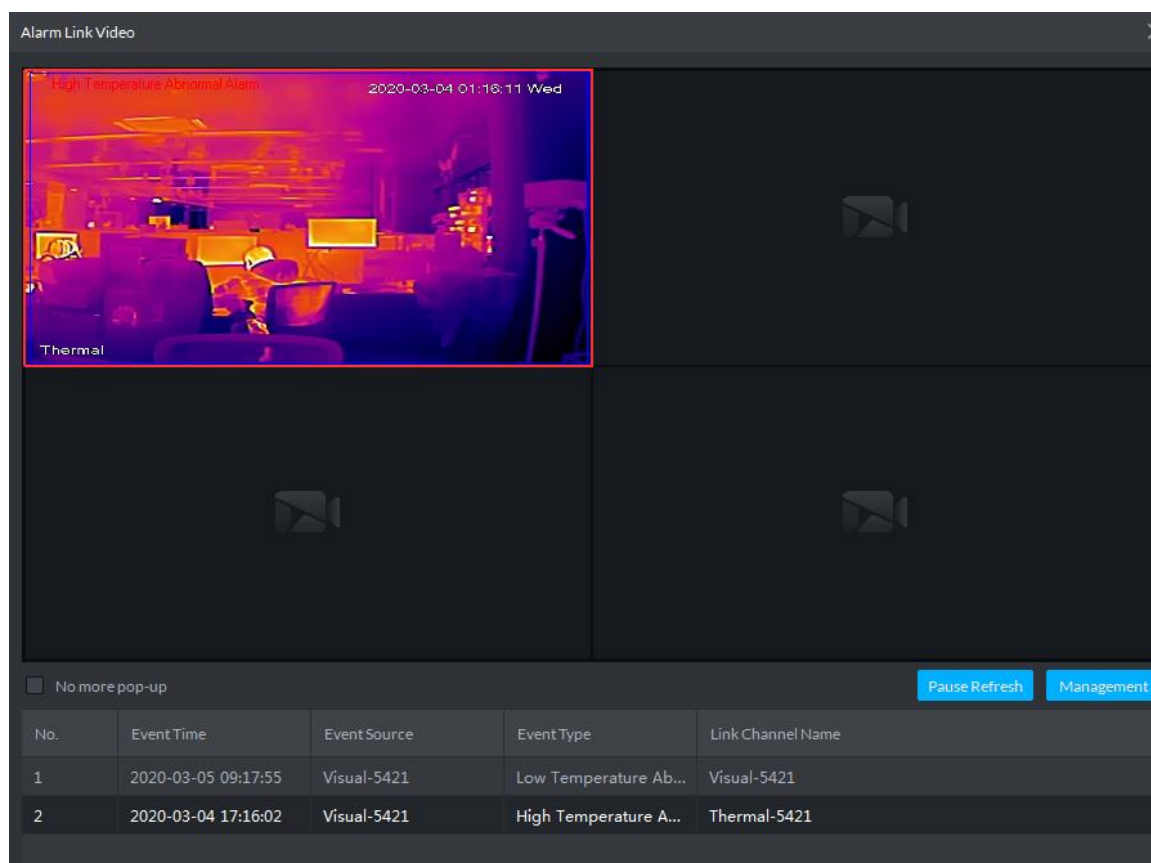
Figure 6-14 Live view



6.4.1.2 Temperature and Blackbody Alarm on Express

- Human body temperature alarm
 - Trigger a human body temperature alarm, and then check:
 - ◇ Whether the sound and light warnings are triggered on the camera.
 - ◇ Whether the Express displays the alarm correctly in a pop-up window.

Figure 6-15 High temperature alarm



- Black body abnormality alarm

Trigger a blackbody abnormal alarm, and then check:


- ◇ Whether the sound and light warnings are triggered on the camera.
- ◇ Whether the Express displays the alarm correctly in a pop-up window.

Figure 6-16 Blackbody abnormality alarm

Alarm Link Video


Blackbody Abnormal Alarm

2020-03-04 01:20:45 Wed



Blackbody Abnormal Alarm

2020-03-04 01:20:45 Wed



Thermal

☐ No more pop-up

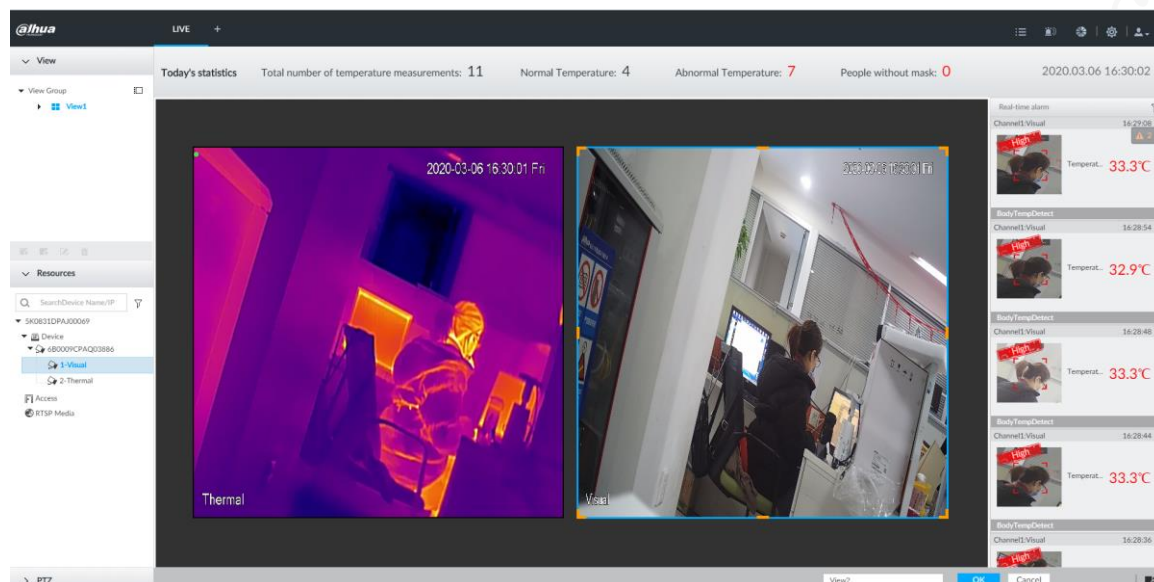
[Pause Refresh](#) [Management](#)

No.	Event Time	Event Source	Event Type	Link Channel Name
4	2020-03-04 17:20:16	5Visual-IVSS-5	Low Temperature Abnormal Alarm	5Visual-IVSS-5, 5ThermalIVSS-5
5	2020-03-04 17:20:21	5ThermalIVSS-5	Blackbody Abnormal Alarm	5Visual-IVSS-5, 5ThermalIVSS-5
6	2020-03-04 17:20:36	3Thermal-IVSS-3	Blackbody Abnormal Alarm	5Visual-IVSS-5, 5ThermalIVSS-5

6.4.2 Viewing Live View on IVSS

Select the TPC camera from device list on the **Live View** interface, double-click or drag to the video window. The system plays real-time video.

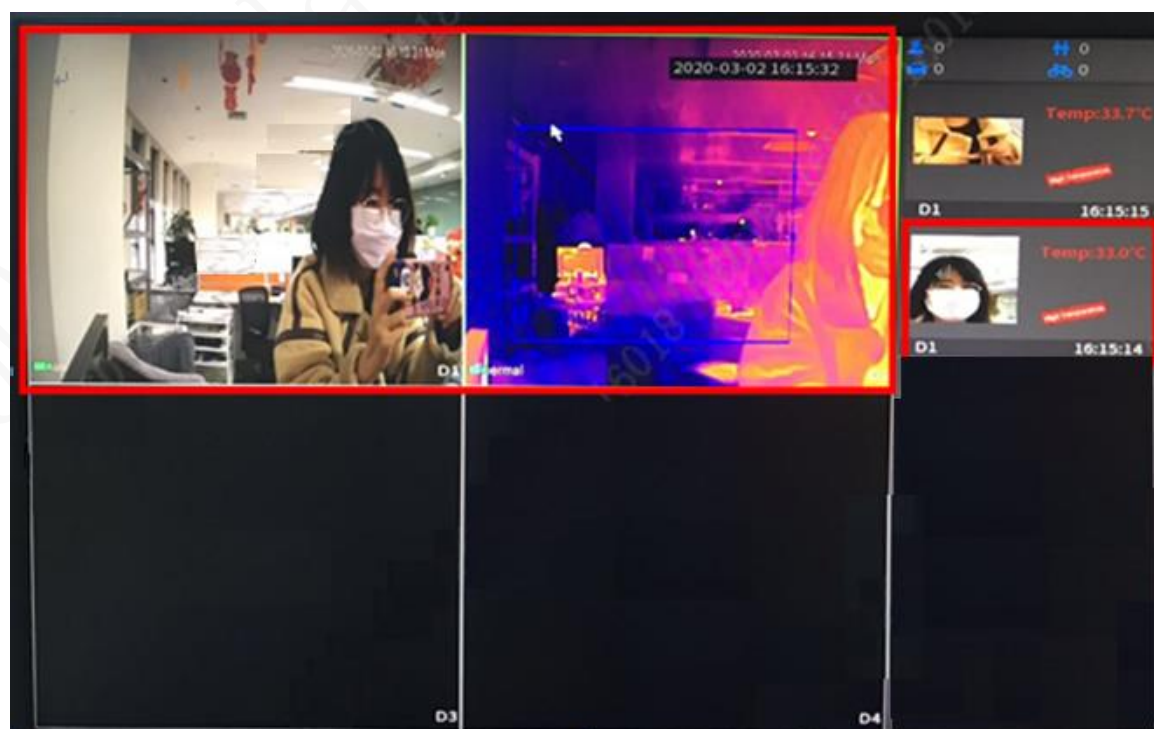
Figure 6-17 Live view



6.4.3 Viewing Live View on NVR

Select the TPC camera from device list on the **Live View** interface, double-click or drag to the video window. The system plays real-time video.

Figure 6-18 Live view



Appendix 1 Cybersecurity Recommendations

Cybersecurity is more than just a buzzword: it's something that pertains to every device that is connected to the internet. IP video surveillance is not immune to cyber risks, but taking basic steps toward protecting and strengthening networks and networked appliances will make them less susceptible to attacks. Below are some tips and recommendations from Dahua on how to create a more secured security system.

Mandatory actions to be taken for basic equipment network security:

1. Use Strong Passwords

Please refer to the following suggestions to set passwords:

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

2. Update Firmware and Client Software in Time

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

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

1. Physical Protection

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

2. Change Passwords Regularly

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

3. Set and Update Passwords Reset Information Timely

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

4. Enable Account Lock

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

5. Change Default HTTP and Other Service Ports

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

6. Enable HTTPS

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

7. Enable Whitelist

We suggest you to enable whitelist function to prevent everyone, except those with specified IP addresses, from accessing the system. Therefore, please be sure to add your computer's IP address and the accompanying equipment's IP address to the whitelist.

8. MAC Address Binding

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

9. Assign Accounts and Privileges Reasonably

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

10. Disable Unnecessary Services and Choose Secure Modes

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

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

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

11. Audio and Video Encrypted Transmission

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

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

12. Secure Auditing

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

13. Network Log

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

14. Construct a Safe Network Environment

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

- Disable the port mapping function of the router to avoid direct access to the intranet devices from external network.
- The network should be partitioned and isolated according to the actual network needs. If there are no communication requirements between two sub networks, it is suggested to use VLAN, network GAP and other technologies to partition the network, so as to achieve the network isolation effect.
- Establish the 802.1x access authentication system to reduce the risk of unauthorized access to private network.
- It is recommended that you enable your device's firewall or blacklist and whitelist feature to reduce the risk that your device might be attacked.

ENABLING A SAFER SOCIETY AND SMARTER LIVING