Network Camera

User Manual

V3.0.0

Thank you for purchasing our product. If there are any questions, or requests, please do not hesitate to contact the dealer.

This manual applies to Network Cameras.

This manual may contain several technical incorrect statements or printing errors, and the content is subject to change without notice. The updates will be added to the new version of this manual. We will readily improve or update the products and procedures described in the manual.

DISCLAIMER STATEMENT

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Safety Instruction

These instructions are intended to ensure that the user can use the product correctly to avoid danger or property loss.

The precaution measure is divided into 'Warnings' and 'Cautions':

Warnings: Serious injury or death may be caused if any of these warnings are neglected.

Cautions: Injury or equipment damage may be caused if any of these cautions are neglected.

⚡	⚠
Warnings Follow these safeguards to prevent serious injury or death.	**Cautions** Follow these precautions to prevent potential injury or material damage.

⚡ **Warnings**：

1. In the use of the product, you must strictly comply with the electrical safety regulations of the nation and region.

2. Source with DC 12V or AC 24V (Whether supporting AC 24V lies on the specific camera model) according to the IEC60950－1 standard. Please refer to technical specifications for more details.

3. Do not connect several devices to one power adapter as an adapter overload may cause over-heating and can be a fire hazard. If use the POE as the power supply, please make sure that the POE Switch have the sufficient power .(Whether supporting PoE power supply lies on the specific camera model)

4. Please make sure that the plug is firmly inserted into the power socket.

5. When the product is installed on a wall or ceiling, the device should be firmly fixed.

6. If smoke, odor, or noise rise from the device, turn off the power at once and unplug the power cable, then contact the service center.

7. If the product does not work properly, please contact your dealer or the nearest service center. Never attempt to disassemble the camera yourself. (We shall not assume any responsibility for problems caused by unauthorized repair or maintenance.)

Notice:

1. Make sure the power supply voltage is correct before using the camera.

2. Do not drop the camera or subject it to physical shock.

3. Do not touch sensor modules with fingers. If cleaning is necessary, use a clean cloth with a bit of ethanol and wipe it gently. If the camera will not be used for an extended period of time, put on the lens cap to protect the sensor from dirt.

4. Do not aim the camera at the sun or extra bright places. A blooming or smear may occur otherwise (which is not a malfunction however), and affecting the endurance of sensor at the same time.

5. The sensor may be burned out by a laser beam, so when any laser equipment is being used, make sure that the surface of the sensor will not be exposed to the laser beam.

6. Do not place the camera in extremely hot or cold temperatures (the operating temperature should be between 14°F ~ 140°F, dusty or damp locations, and do not expose it to high electromagnetic radiation.

7. To avoid heat accumulation, good ventilation is required for a proper operating environment.

8. While shipping, the camera should be packed in its original packing, or packing of the same texture.

9. Regular part replacement: a few parts (e.g. electrolytic capacitor) of the equipment should be replaced regularly according to their average life time. The average time varies because of differences between operating environment and usage history, so regular checking is recommended for all users. Please contact with your dealer for more details.

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Chapter 1 Network Camera Connection

Two methods can be used to connect between network camera and PC, shown as below:
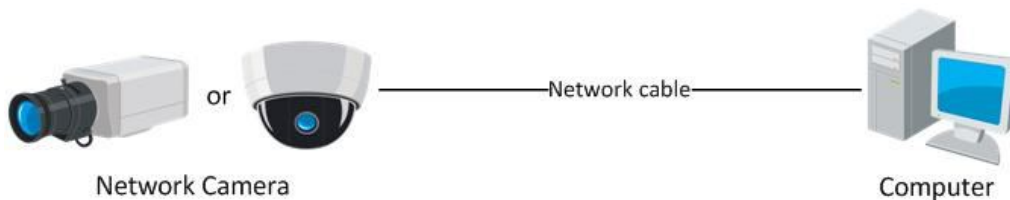
Fig. 1.1 Cross Line Connection
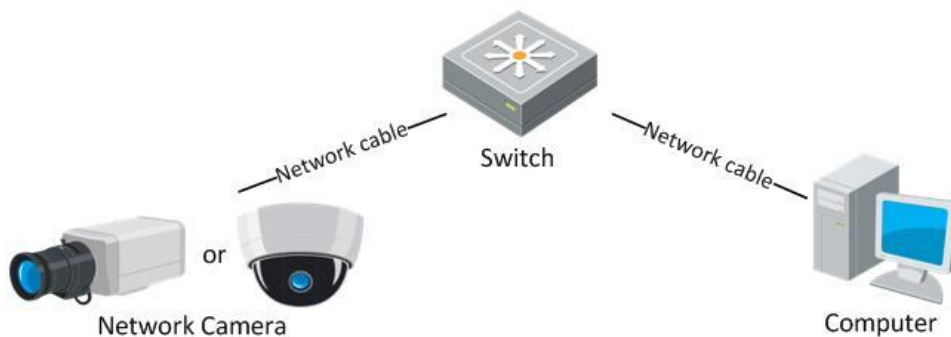
Fig. 1.2 Direct Line Connection

Before viewing network cameras over network, the user should acquire its IP address first. SADP is a software tool which can automatically detect Hikvision's network device on the LAN and give the device's information like IP address, mask, port number, device serial number, software version, etc., shown as Fig. 1.3.

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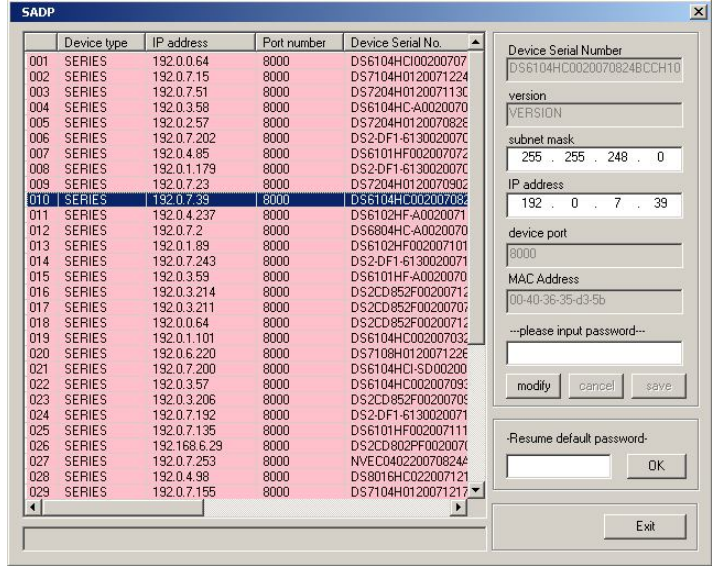
Fig. 1.3

Select the device, and set its IP address and mask at the same network segment with the PC.

For the detailed introduction of SADP, please refer to Appendix 1.

Note: The network camera is set with the factory default IP address of *"192.0.0.64"*, the port of *"8000"*, the super user name of *"admin"* and the password of *"12345"*.

Chapter 2 Network Access

After hardware installation, the user can view live video and configure parameters for the network camera, including IP address, subnet mask and port number, etc. The following two methods can be used to access the camera:

1.   View live video and configure parameters over IE browser.

2.   View live video and configure parameters over client software.

2.1 Access over IE Browser

Before access to the camera over IE browser, user should adjust the security level.

Open the IE browser, and set the security level to [Low] in [Tools/ InternetOptions/Security/Custom Level. . .], and enable Activex Control and Plug-in directly as well.
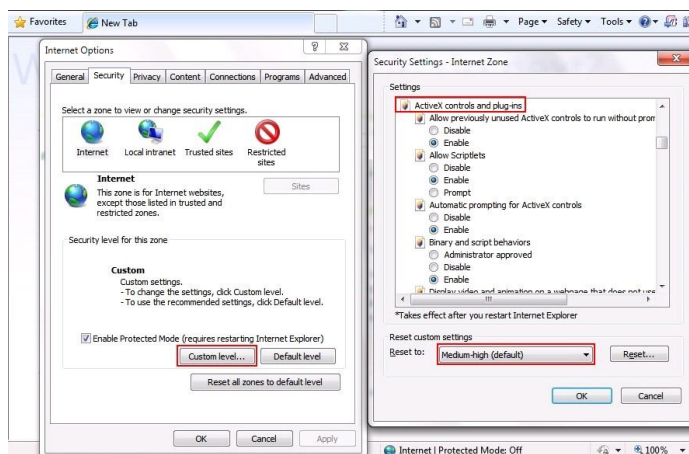
Fig. 2.1.1 Adjust the Security Level

2.1.1 Live View

Step 1: Install Active-X Control and Plug-in.
Input the IP address of the network camera and press [Enter], then click the mention box that pop up.
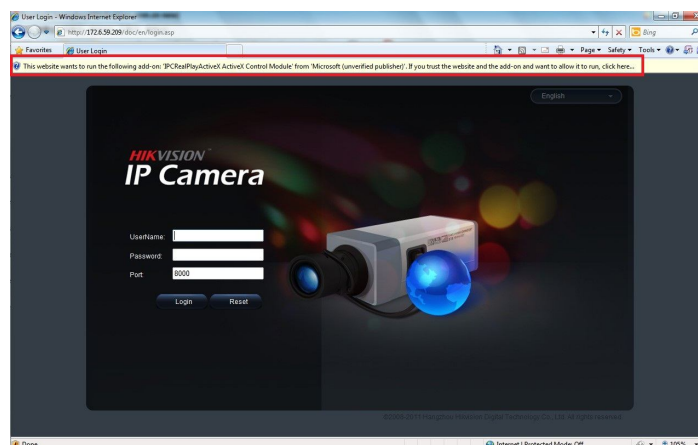
Figure 2.1.2 Tips of ActiveX Control Installation

Step 2:
Click [Run] to install the ActiveX control.
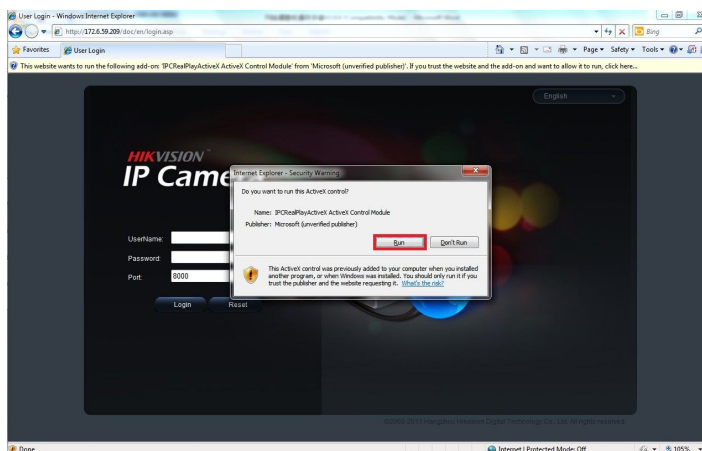
Fig. 2.1.3 Install the ActiveX Control

Step 3:
Input the "Username" (default: admin), "Password" (default: 12345) and "Port" (default: 8000) of the camera, and then click [Login].

Fig. 2.1.4 Login Interface

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Step 4:

After successful login, user is allowed to view the live video. Refer to Figure 2.1.5.
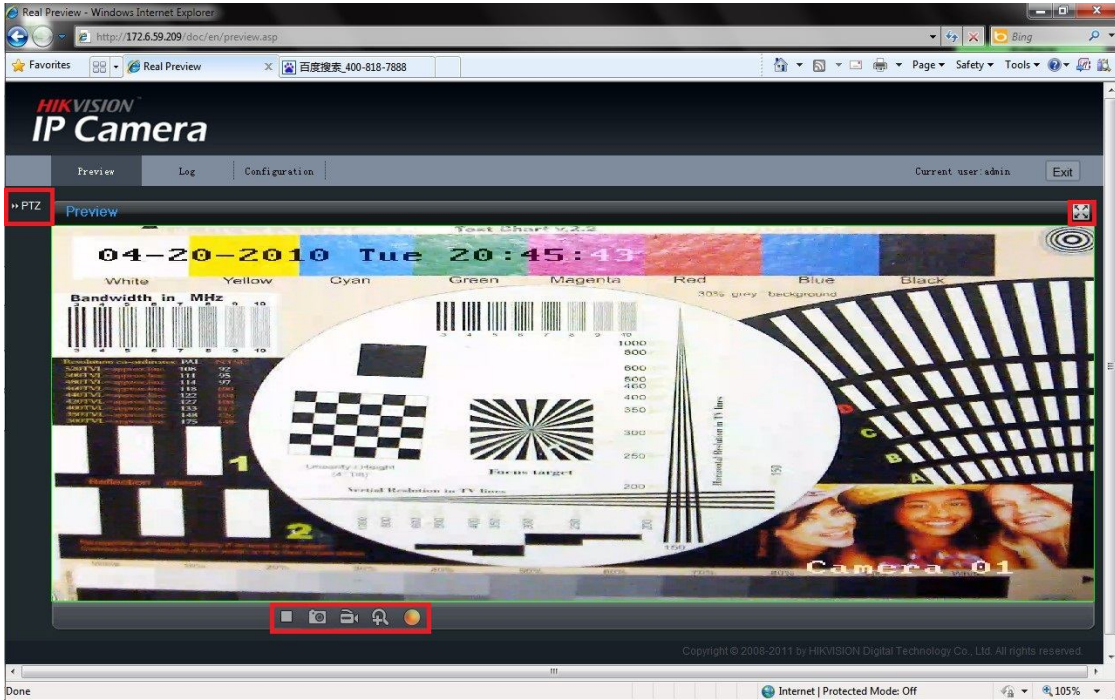
Fig. 2.1.5 Live View Page

Icons on Live View Page:

Icon	Description
	Full-screen display mode
	Exit full-screen display mode
	Start Preview
	Stop Preview
	Capture Picture
	Start/Stop Record
	Digital Zoom
	Video Parameters

Digital Zoom：

Click mouse in the desired position of live video image and scroll the mouse to realize zoom in and zoom out function.

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Video Parameters:

Icon	Description
☀	Brightness: 0~100 configurable
◑	Contrast: 0~100 configurable
⫿	Saturation: 0~100 configurable
◈	Hue: 0~100 configurable
⚘	Gain: 0~100 configurable
⏱	Exposure time: 0~40000 configurable
⬅	Restore default
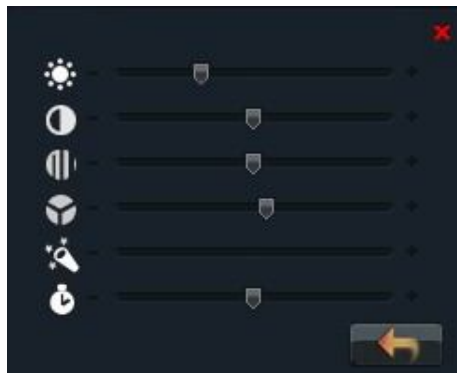
Fig. 2.1.6 Video Parameters

PTZ Control:

Click *PTZ* tag in the main interface of the live view page to enter the PTZ control panel shown in Fig. 2.1.7, and re-clicking *PTZ* tag again will hide the panel.

Use the directional buttons to control the pan/tilt movement, and drag the slide bar to adjust the speed from level 1 to 7, with the default speed of level 4.

Click [icon] button to start auto scan, and re-click it to stop scan.

Click the functional buttons to realize zoom, focus and iris control.

Select a preset number and click [icon] button to call preset.

Fig. 2.1.7 PTZ Control

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2.1.2 Parameters Configuration

Click **Configuration** to enter the Parameters Configuration interface.

2.1.2.1 Local Configuration
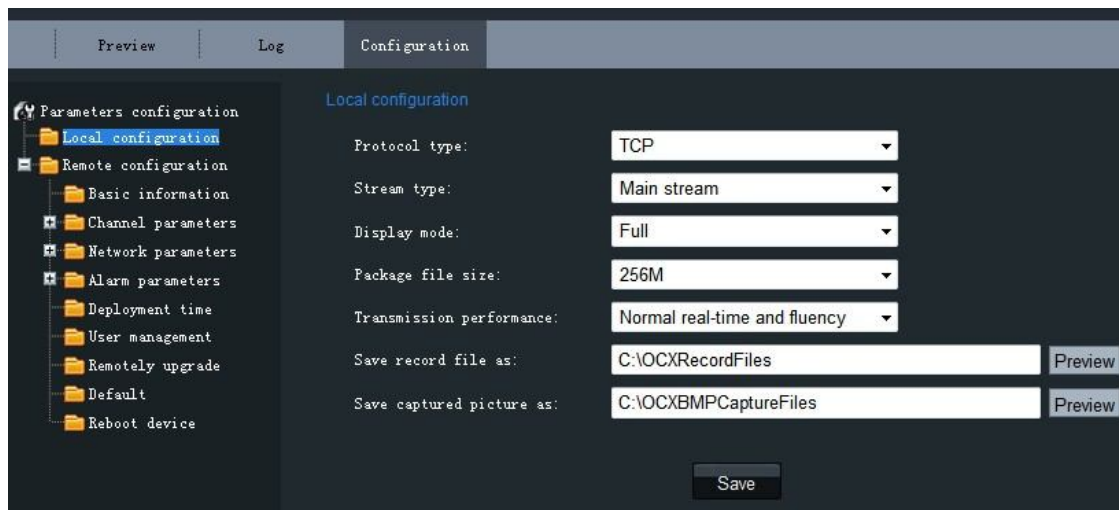
Fig. 2.1.8 Local Configuration

Local Configuration:

Parameters	Description
Protocol type	TCP and UTP selectable
Stream type	Main stream and Sub stream selectable
Display mode	Full-screen, 4:3 mode, 16:9 mode or adjustable to resolution
Package file size	128M, 256M, 512M selectable
Transmission performance	Shortest delay mode, good real-time, normal real-time and fluency and good fluency options selectable
Save record file as	The default directory for saving record files is C: \OCXRecordFiles, which can be modified by user
Save captured picture as	The default directory for saving captured files is C:\OCXBMPCaptureFiles, which can be modified by user

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2.1.2.2 Remote Configuration

Basic Information：
In the Basic Information settings interface, the user is allowed to set the Device Name and Device ID, as well as view the information of IP camera, including Device Description, Device Location, MAC address, Device Type, Device SN, Firmware Version, and U-boot Version.
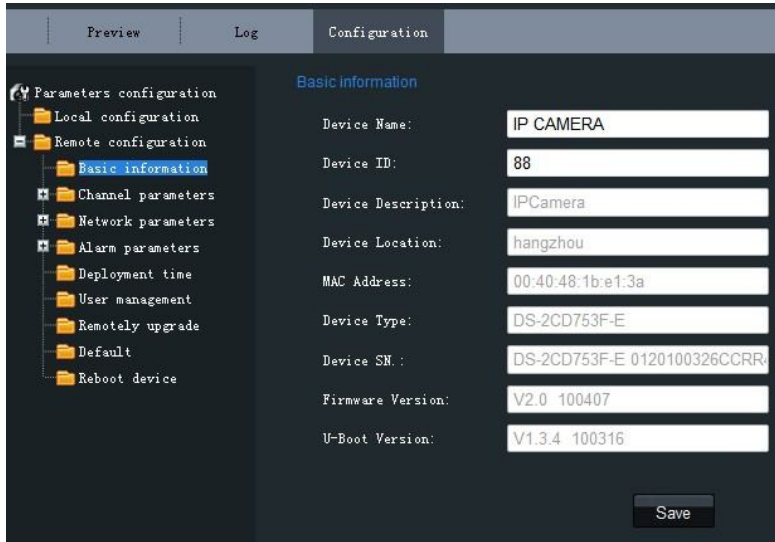
Fig. 2.1.9 Basic Information

Channel Parameters→Display Setting:
According to different requirements, enable the display of Date Time and Week by clicking the checkbox.
Different date formats can be selected.
The OSD Status can be set to transparent & flickering, transparent & un-flickering, nontransparent & flickering, or nontransparent & un-flickering.
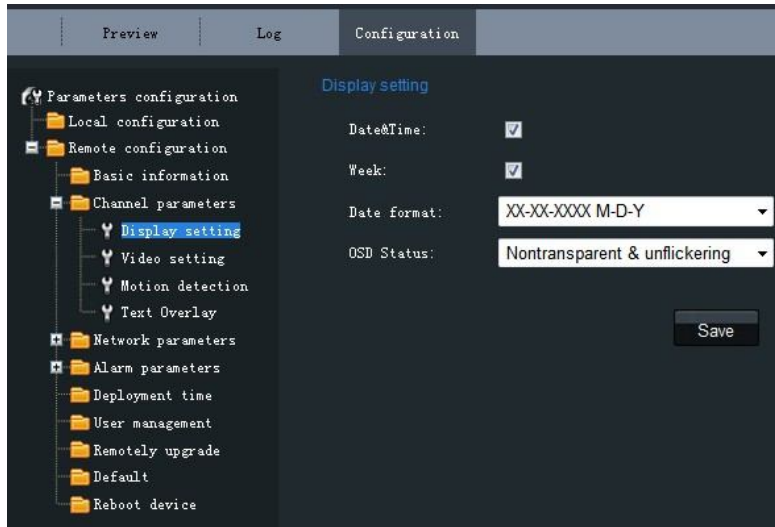
Fig. 2.1.10 Display Settings

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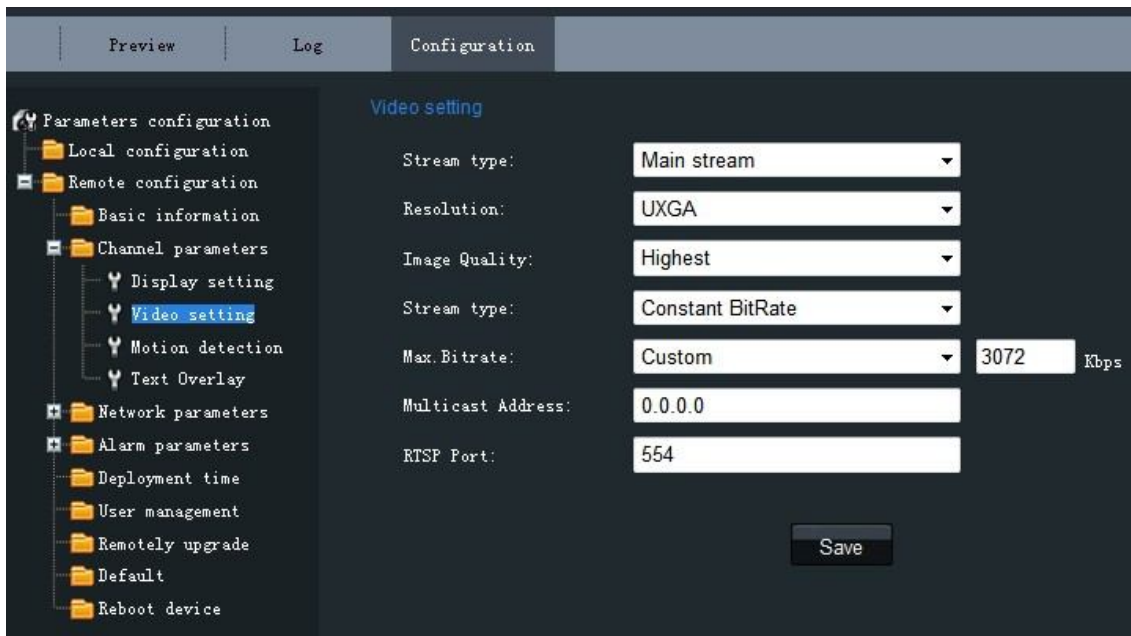
Fig. 2.1.11 Video Settings

Channel Parameters→Video Settings:

Parameter	Description
Stream type	Select stream type to Main stream or Sub stream
Resolution	Select the resolution for your need,
Image Quality	Select image quality to Highest, High, Medium, Low, Lower or Lowest
Stream Type	Select the bitrate type to Constant bitrate or Variable bitrate
Max. Bitrate	Select or custom bitrate according to the resolution
Multicast	Set the multicast address, with the default multicast of 0.0.0.0
RTSP Port	Set the RTSP port, with the default RTSP port of 554

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Channel Parameters→Motion Detection Setting:
Select the checkbox of *Enable motion detection* to enable this function.

Zone Settings:
Click *Start draw* button to draw motion detection zone by clicking and dragging the mouse in the live video image.
User is allowed to draw multiple motion detection zones in the same picture. When all zones have been set, click *Stop draw* to finish drawing.

Sensitivity:
The sensitivity level can be set to 0, 1, 2, 3, 4 and 5. When it is set to 0, the sensitivity is disabled.

Linkage:
The Linkage method can be selected to either *Email link* or *Trigger alarm output*.
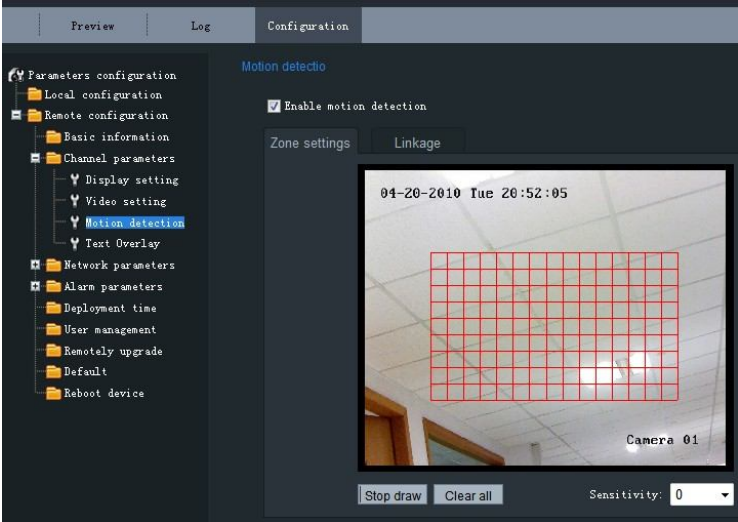
Fig. 2.1.12 Motion Detection Zone Settings
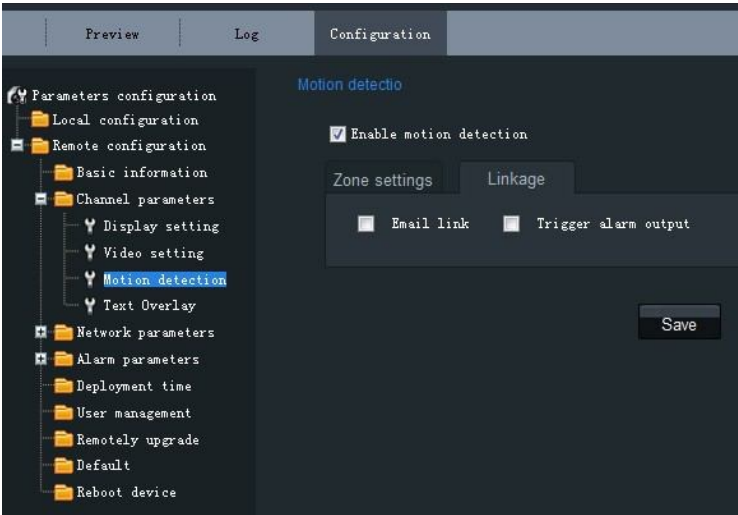
Fig. 2.1.13 Motion Detection Linkage Settings

Channel Parameters→Text Overlay Setting:
Input the characters in the *Text Information* box and define the OSD location in the image by setting the *XPosition* and *YPosition*, and then select the checkbox of *OSD Text*. After clicking *Save* to finish the settings, the defined title will be displayed on the image.
Note:
The values of XPosition and YPosition refer to the position relative to the origin as the upper left corner of the image.
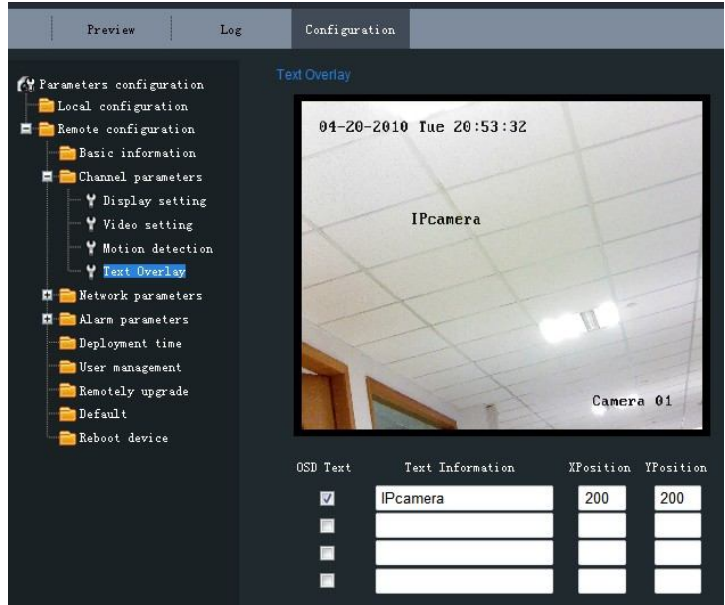
Fig. 2.1.14 Text Overlay Settings

Network Parameters→Network Setting:
Set the IP Address, Subnet Mask, Gateway and DNS Server of the network camera.
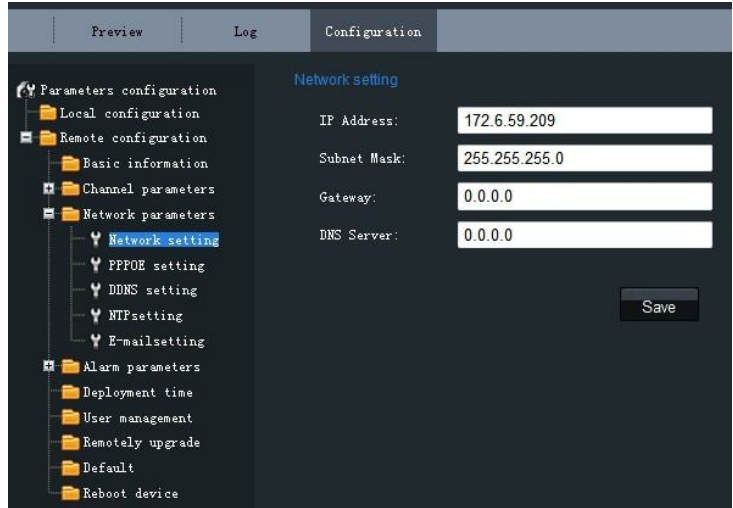
Fig. 2.1.15 Network Settings

Network Parameters→PPPOE Setting:
Click the checkbox of *Enable PPPOE* to enable this function.
Input the PPPOE user name and password in the text box and then click *Save* to finish settings. After reboot, the camera will obtain a public IP address.
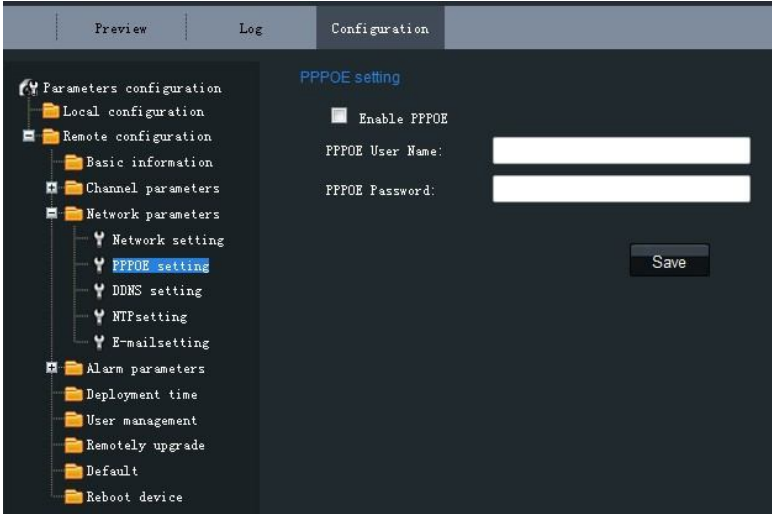
Fig. 2.1.16 PPPOE Settings

Network Parameters→DDNS Setting:
Click the checkbox of *Enable DDNS* to enable this function.
The protocol type can be set to DynDNS or IPServer.
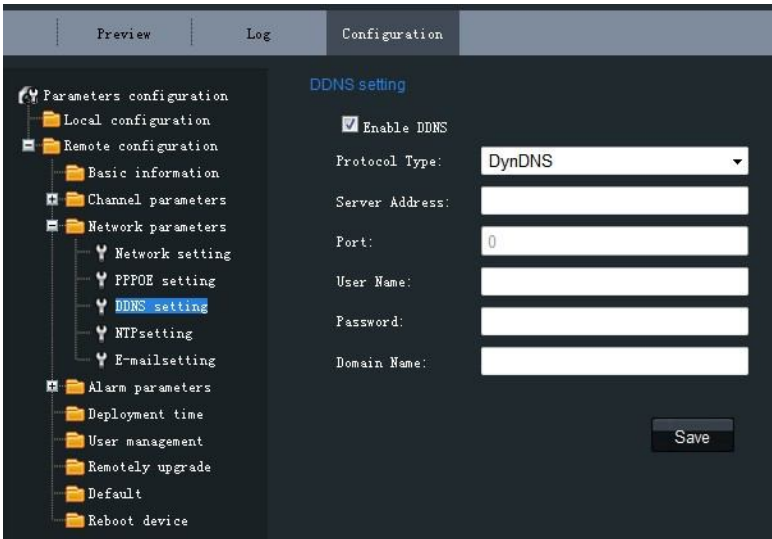
Fig. 2.1.17 DDNS Settings

If the protocol type is selected to DynDNS, please input the *Server Address*, e.g., members.dyn dns. org.

The *User Name* and *Password* refer to the user name and password registered in the DynDNS website.

The *Device Name* refers to the domain name applied in the DynDNS website.
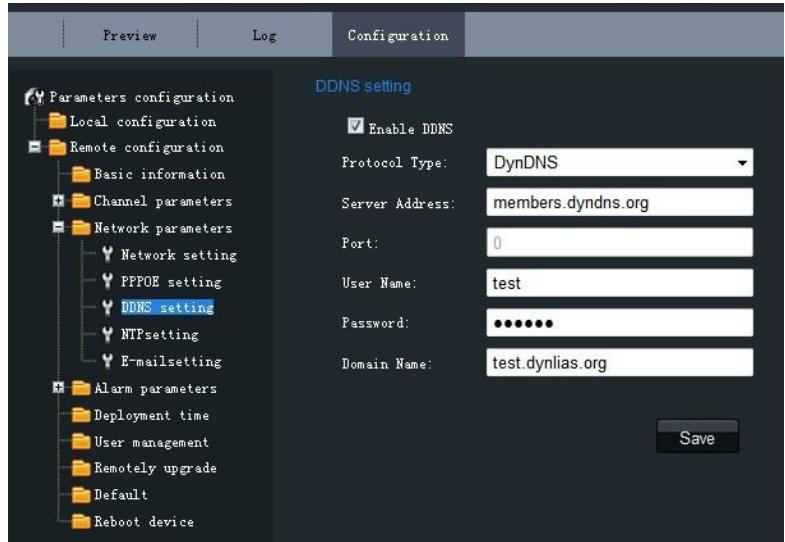
Fig. 2.1.18 DynDNS Settings

If the protocol type is selected to IPServer, please input the *Server Address* of the IPServer.
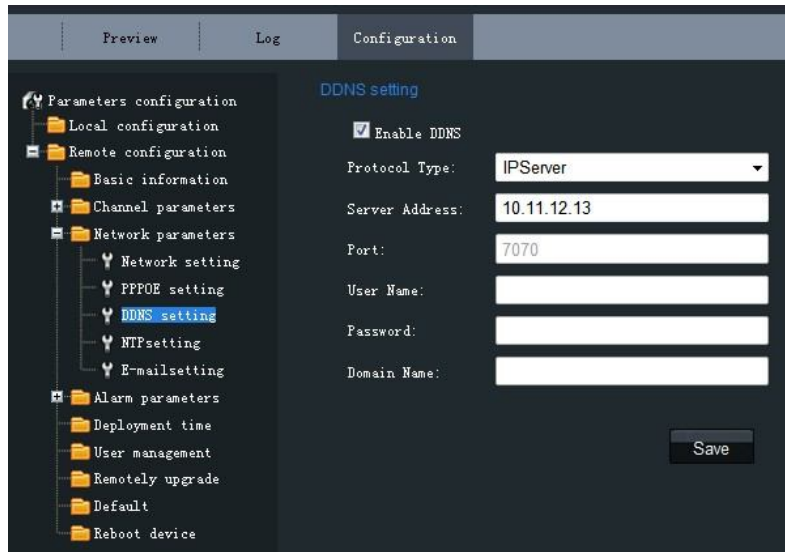
Fig. 2.1.19 IPServer Settings

Network Parameters→DDNS Setting:

Click the checkbox of *Enable NTP* to enable this function. Input the *Server Address* and *Port* of NTP.

If the public network is applied, please input the NTP *Server Address* with provision of time sync service, e.g., 210.72.145.44.

In the private network is applied, the NTP software can be used to establish NTP server to achieve time synchronization.
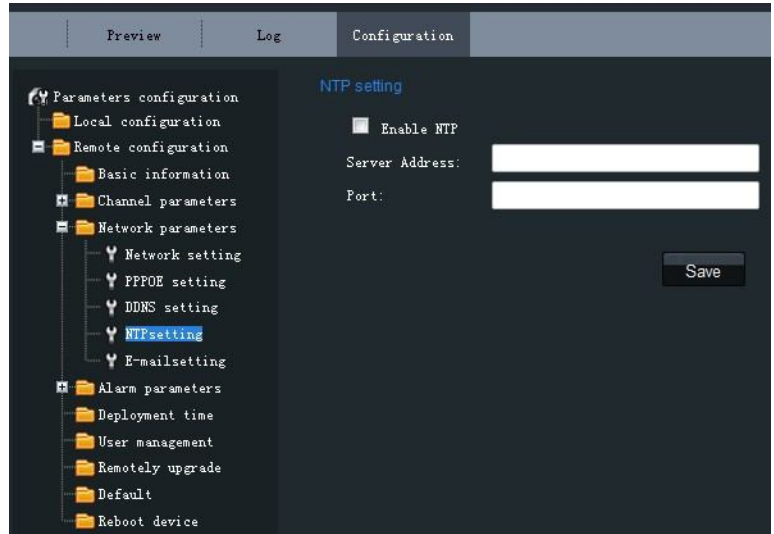
Fig.2.1.20 NTP Settings

Network Parameters→E-mail Setting:

Through E-mail settings, the alarm message can be sent to the designated E-mail address when alarm event occurs.

Input the SMTP server, SMTP port, user name, password, E-mail sender and receiver, and finally click *Save* to finish E-mail settings.
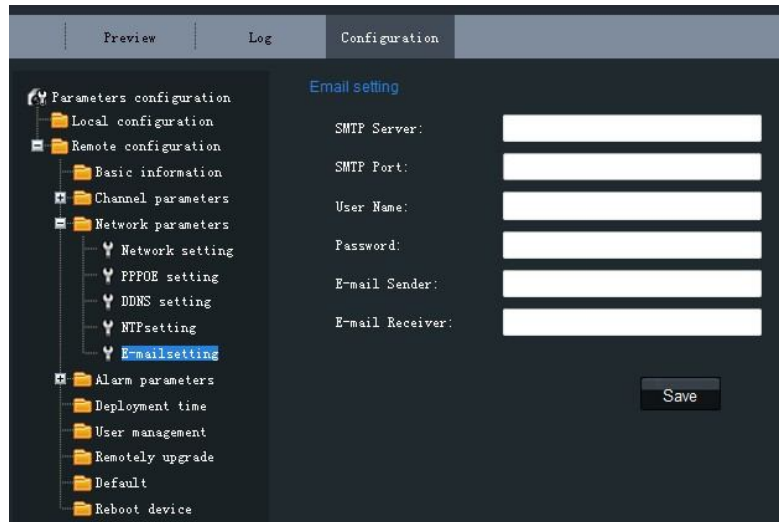
Fig. 2.1.21 E-mail Settings

Alarm Parameters➔Alarm Input Setting:
Set the type of *Relay Status* to NC or NO.
The *Linkage* method can be selected to *E-mail link* or *Trigger alarm output*.
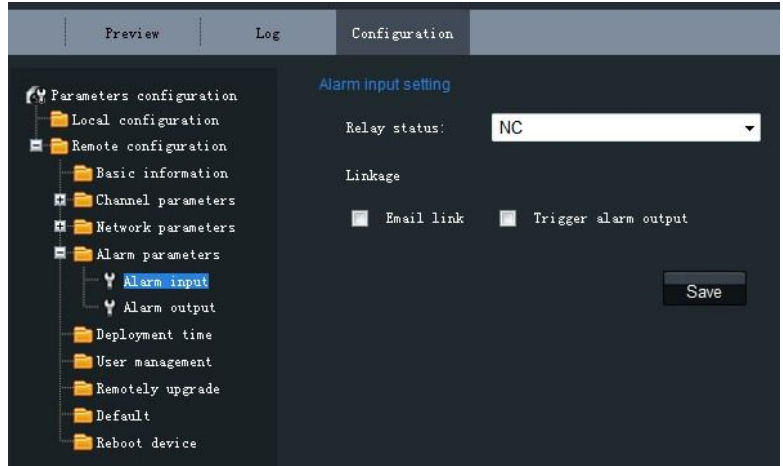
Fig. 2.1.22 Alarm Input Settings

Alarm Output➔Alarm Output Setting:
The *Output Delay* refers to the length of time that the relay remains in effect after alarm occurs. The output delay time can be set to *5sec*, *10sec*, *30sec*, *1min*, *2min*, *5min*, *10min* or *Manual* (manually disable).
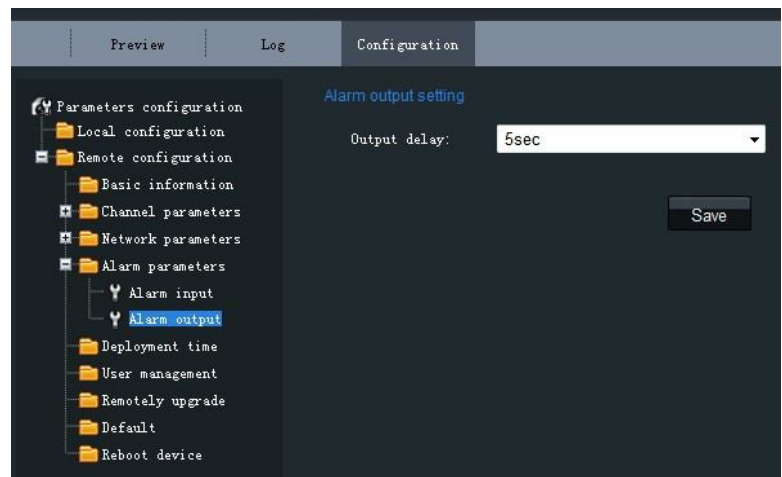
Fig. 2.1.23 Alarm Output Delay Settings

Alarm Deployment Time:
The *Deployment time* can be set to a day of the week or to all week, with a period configurable for each day.
Note: The alarm deployment time setting is valid only when the camera has already been configured with the motion detection, alarm input and alarm output functions.
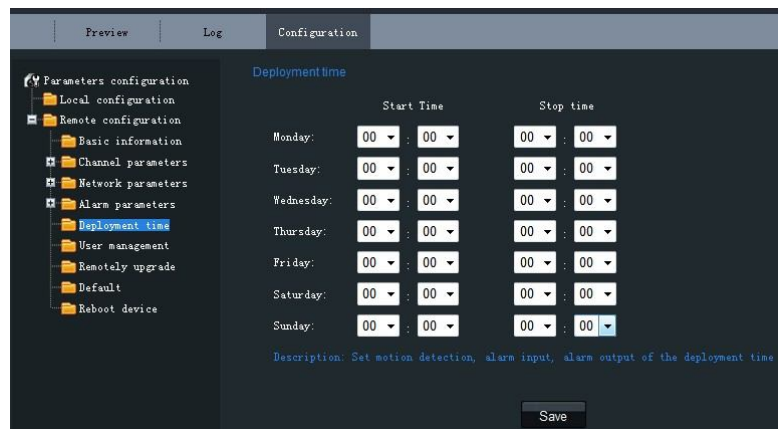
Fig. 2.1.24 Alarm Deployment Time Settings

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Fig. 2.1.25 User Management

User Management：

When the current login user is *admin*, it is allowed to create other users. Up to 15 users can be created. Refer to Fig. 2.1.25.

Add User:
Click *Add* to enter the settings interface as shown in Fig. 2.1.26.
Input the user name, password, IP address, MAC address, and then select user type. Finally, click *OK* to finish the user addition.
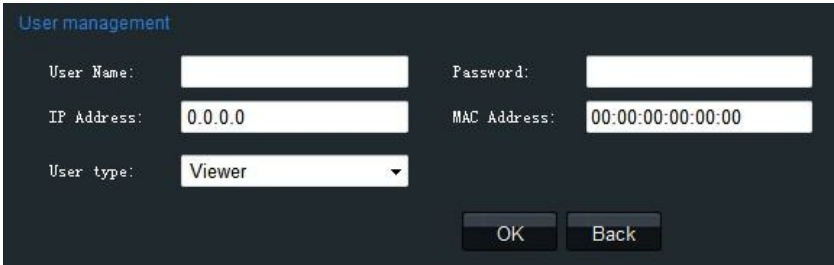
Fig. 2.1.26 Add User

Modify User:
Click *Modify* to enter the settings interface as shown in Fig. 2.1.27.
It is allowed to modify the user name, password, IP address, MAC address, and then select user type. Finally, click *OK* to finish the user modification.
Note: The user *admin* can only be modified with its password.
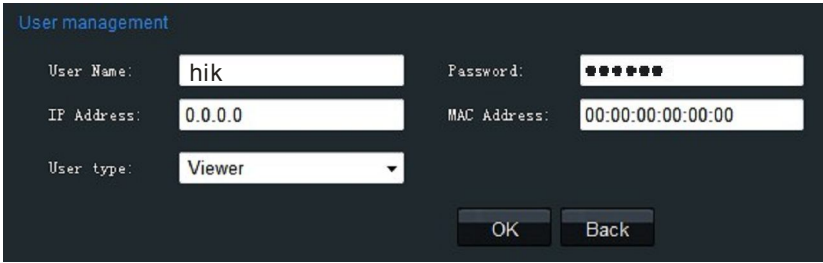
Fig. 2.1.27 Modify User

Remote Upgrade:

Click *Browse* to select the local update file and then click *Upgrade* to finish remote upgrade.
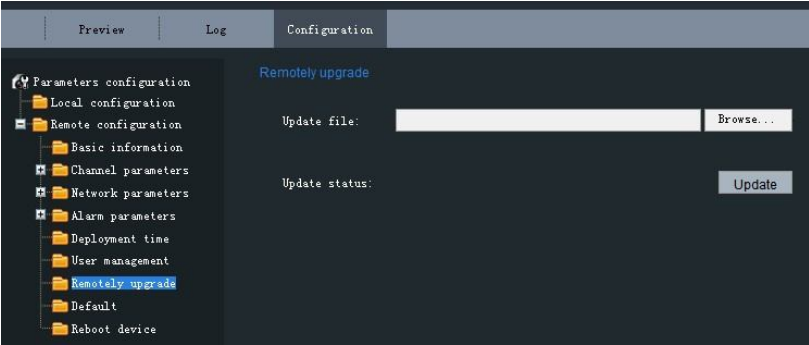
Fig. 2.1.28 Remote Upgrade

Restore Default:

Select *Full Mode* or *Basic Mode* to restore the default settings.

Note:

The *Full Mode* refers to restore all parameters to the factory default settings.

The *Basic Mode* refers to restore the parameters to factory default settings except IP address, subnet mask, gateway and port.
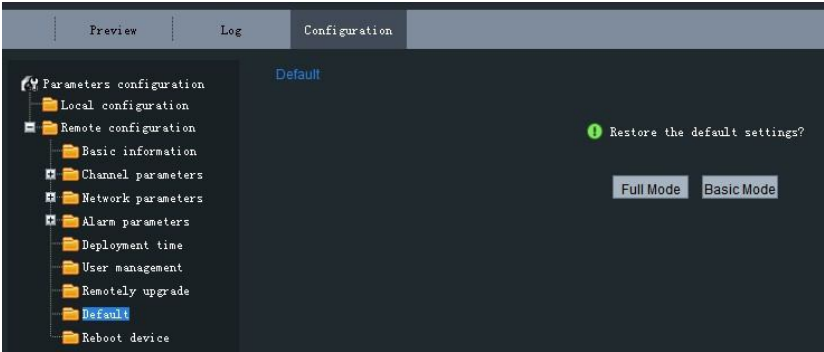
Fig. 2.1.29 Restore Default

Reboot Device:

Click *OK* to reboot the network camera.
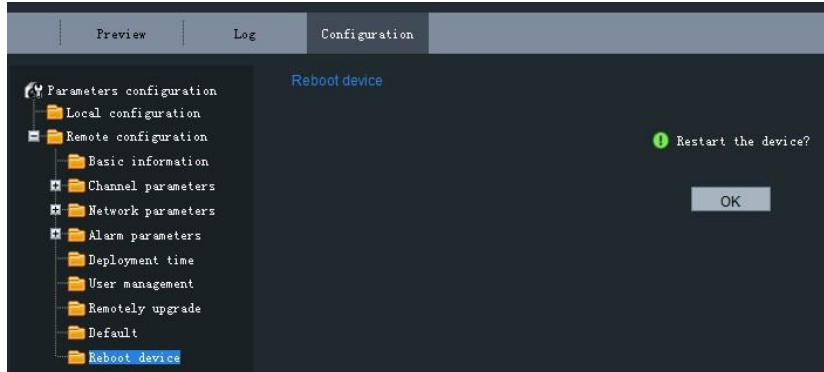
Fig. 2.1.29 Reboot Device

2.1.2.3 Advanced Configuration

Note: This chapter is applicable to professional configuration.

1: Input the IP address of the network camera and "config". (Such as http://192.0.0.64/config)

2: Input the "Username" (default: admin), "Password" (default: 12345) and "Port" (default: 8000) of the camera, and then click [Login].

3: Then there will show a "Remote config" dialog which has more advanced settings including schedule record and HDD settings and so on.
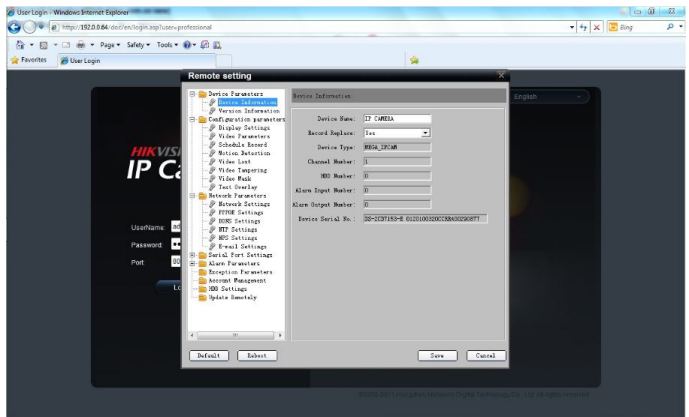
Please refer to "Client Software-4000(v2.0)_ENG.pdf" for a more detailed parameters configuration. You can find the document in the PC Operating System after the installation of client software 4000 v. 2.0 by selecting "Start"-> "All Programs"-> "client software 4000 v. 2.0".

2.2 Access over Client Software

2.2.1 Client Software Installation

Note:

It is recommended to use the computer adopting INTEL P3, P4, C4, Core4 CPU, and the Intel chipset motherboard of well-known brands (Asus, Gigabyte, MSI, ECS, and INTEL etc.) to ensure the stability of the system. After testing, the following models of the current graphics cards support the installation of the client software: ATIRadeonX1650, X1600, X1550, X1300, X800, X600, X550, HD2400, HD2600, NVIDIA GeForce 8600GT, 8500GT, 8400GS, 7600, 7300LE, 6600LE, 6200LE, and INTEL915/945G. And the graphics driver must support hardware scaling function.

Step 1:

Double click 'Client Software Setup.exe' in the Windows Operating System. The 'Preparing Setup' dialog box will automatically pop up as shown n Fig.2.6.
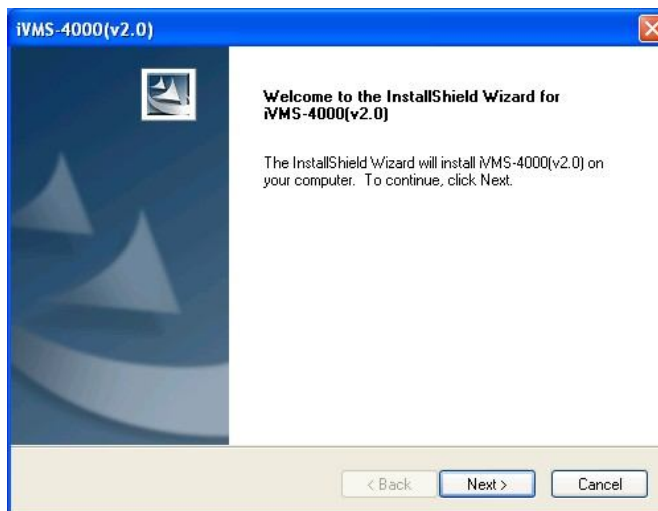
Fig. 2.6 Client Software Installation

Step 2:
Input the User Name and Company Name, and then click *Next*.
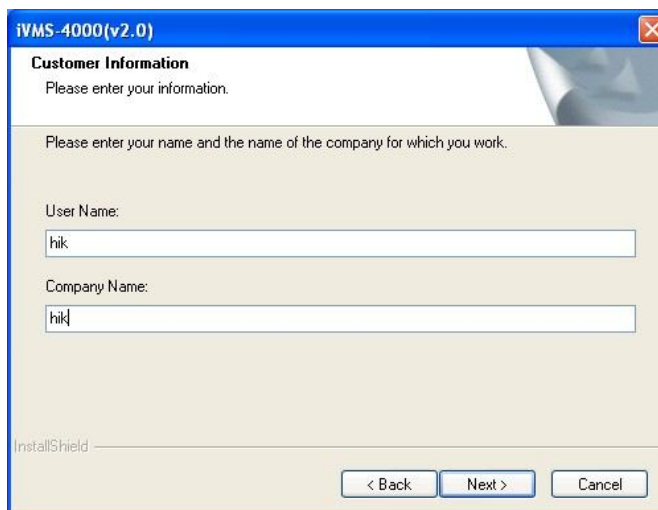
Fig.2.7 Customer Information

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Step 3:

Select the destination folder and click *Next* to enter the next step.
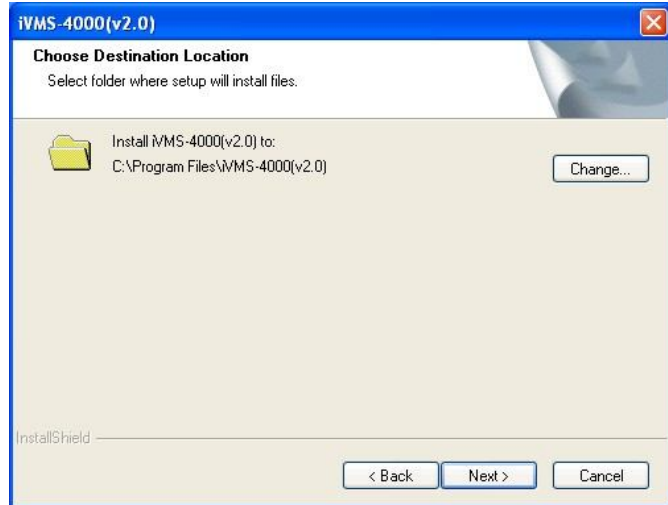
Fig. 2.8 Ready to Install the Program

Step 4:

Click *Install* to start installation till finishing the installation.
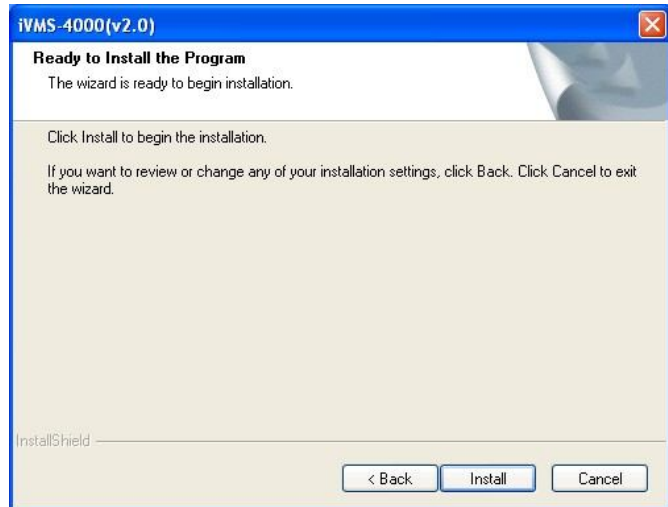
Fig. 2.9 Installation
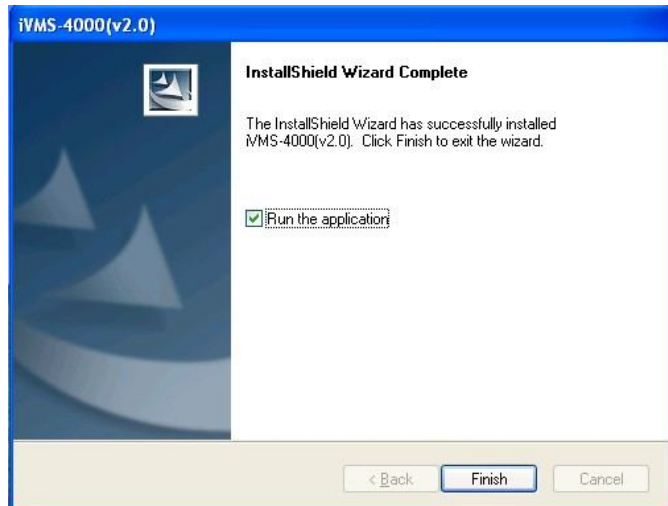
Step 5:

Click *Finish* to close the dialog box.

Fig. 2.10 Done

After the client software has been installed, you can find the remote client software through Start-> Programs from your PC.

2.2.2 Live View

After the installation of client software-iVMS-4000(v2.0), there is a short-cut icon named "iVMS - 4000(v2.0)" on computer's desktop. Please double click "iVMS-4000(v2.0)" to run the software.

Step 1:
Used for the first time:
User needs to register an *administrator* if the software is used for the first time.

Input "User name", "Password", "Verification", and click *OK*, then user can log in as the administrator.

Fig. 2.11 Register Administrator

User login:
Input "User", "Password" and click *Login* to enter the GUI window of the software.

Fig. 2.12 User Login
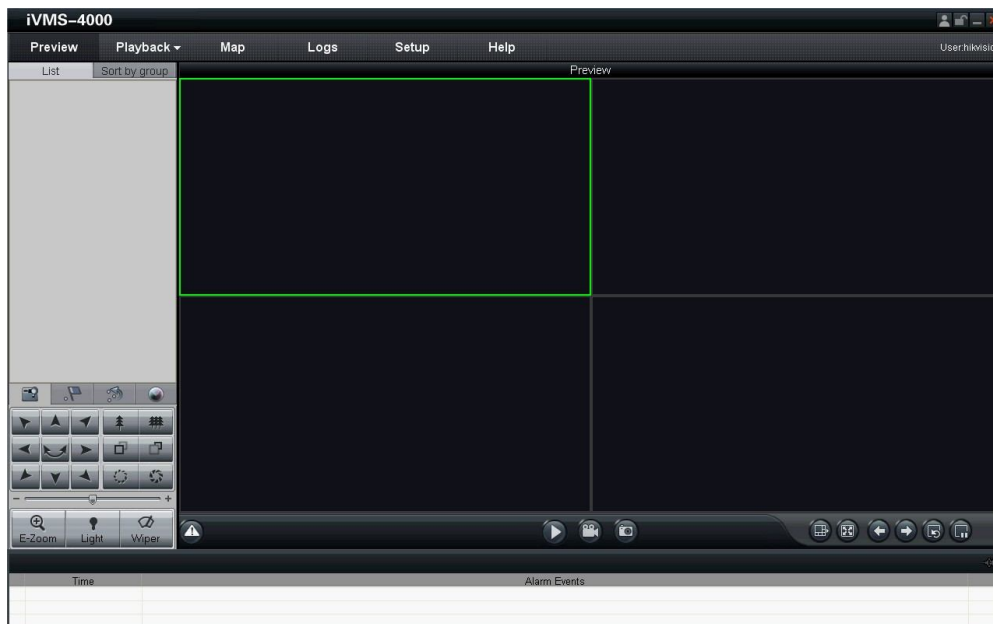
Fig. 2.13 GUI window of the software

Step 2:
Click *Setup* to enter the configure mode, and then click *Device Management*.
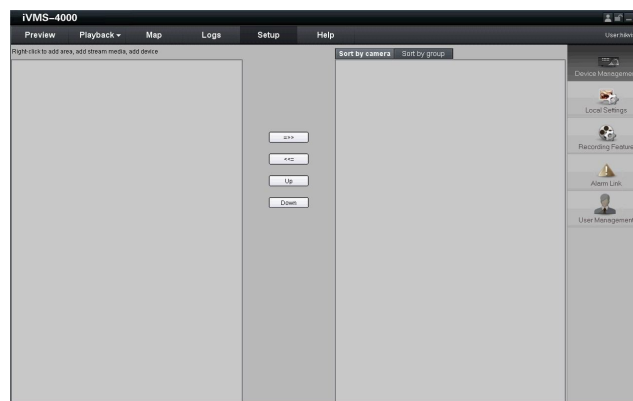
Fig. 2.14 Device Management

Step 3:
Right click the left area, and then click *Add Area*.

Input "Area Name" for your need, and then click *OK* to add area.

Fig. 2.15 Add Area

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Step 4:
Right click the area that you add, and then click *Add Device* to add network camera.

Input "Device Name" for your need.
Select "Normal IP" from Register Mode.
Input network camera's IP in *Device IP*, e.g. 192.0.0.64, *Port*: 8000, *User Name*: admin, *Password*: 12345.
Select "TCP", "UTP", "MCAST" or "RTP" in [Protocol] for your need.
Select "Main Stream" or "Sub Stream" in *Protocol* for your need.
Finally, click *OK* to finish settings.

Fig. 2.16 Add Device
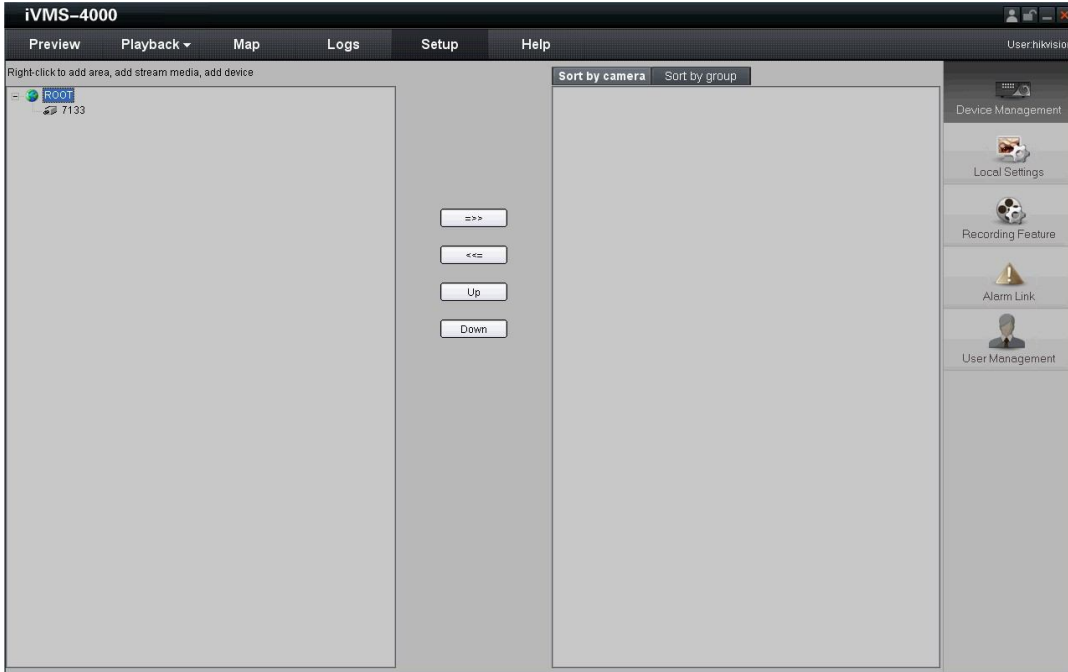
Fig. 2.17 Camera Adding Completed

Step 5: Click the *Preview*, and then double click the device name in the left tree to view the live video.
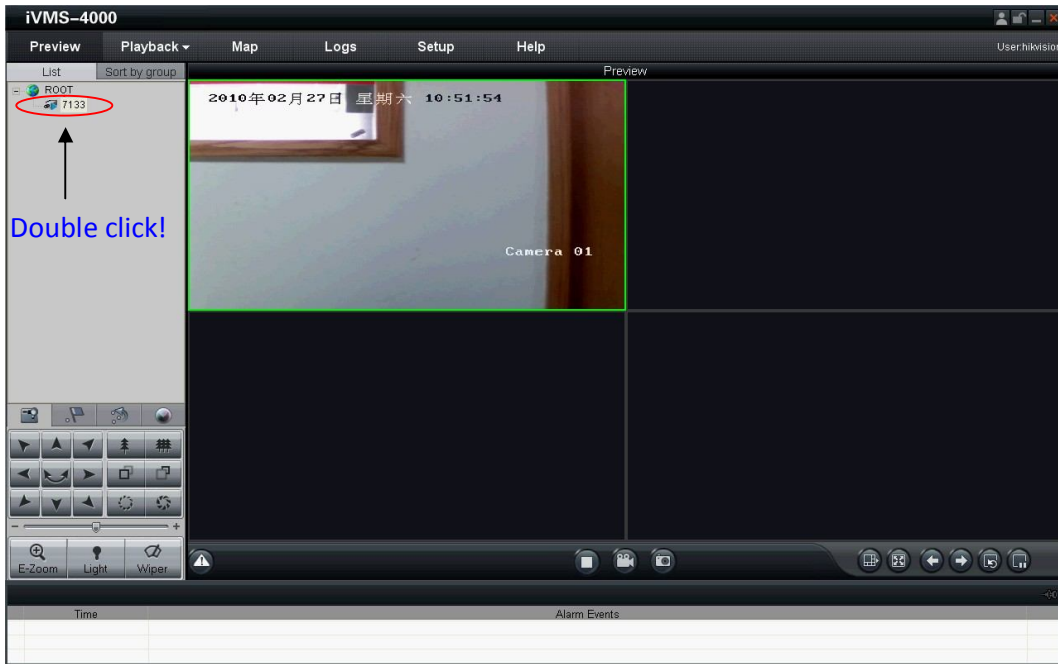
Fig. 2.18 Preview

2.2.3 Camera Parameters Configuration

For viewing better image, you can set the parameters of the camera, and operate as following:

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Fig. 2.19 Sensor Parameters

Step 1:
Right click in the preview window, and click [Config Sensor Parameters…], then the [Config Sensor Parameters…] box will pop up.

Step 2: Video Parameters Configuration
Adjust the value of "Brightness", "Contrast", "Saturation", "Hue", "Sharpness" and "Gain" for your need, which can be set from 1 to 100.
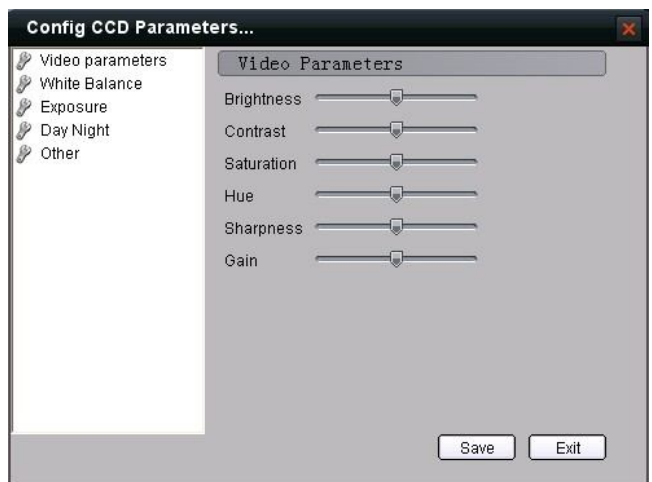
Fig. 2.20 Video Parameters

Step 3: White Balance Configuration
Select the mode to *Auto1* or *Off for your* need.

Fig. 2.21 White Balance

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Step 4: Exposure Configuration
Select "Exposure time" and "Iris mode" for your need.
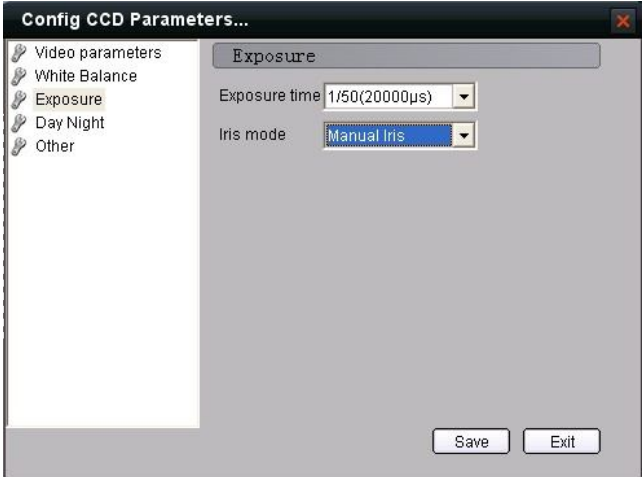
Fig. 2.22 Exposure

Step 5: Day/Night Mode Configuration
Select "Day", "Night" or "Auto" mode in *Mode* and adjust the value of "Day->Night", "Night->Day", and "Filter time" for your need.
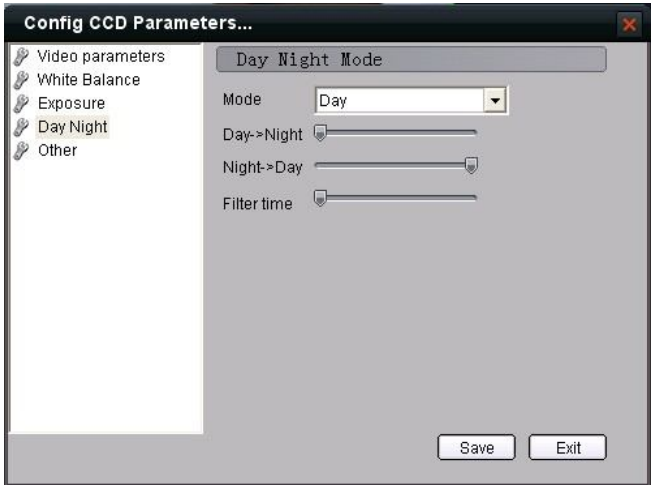
Fig. 2.23 Day/ Night Mode

Step 6: Other Parameters Configuration
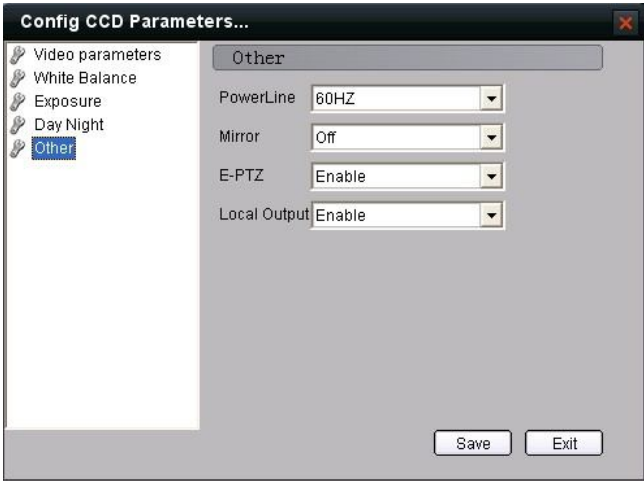Select the value of "Power Line", "Mirror", "E-PTZ" and "Local Output".

Fig. 2.24 Other Parameters

Please refer to "iVMS-4000(v2.0) introductor.pdf" for more detailed parameters configuration. You can find the document in the PC Operating System after the installation of client software 4000 v. 2.0 by selecting "Start"-> "All Programs"-> "iVMS 4000(v. 2.0)" -> "iVMS 4000(v. 2.0)".

Chapter 3 Access over Internet

3.1 Access network camera with static IP

When there is a static IP from an ISP, open some ports (such as 80 and 8000 ports) in the router. Then a user can visit it through a web browser or client software via the internet. The steps for port forwarding are different for each model of router. Please call the router manufacturer for assistance with port forwarding or visit www.portforward.com.

Note: Refer to Appendix 2 for a detailed explanation about Port Map.

Users can directly connect the network camera to the internet without using a router.
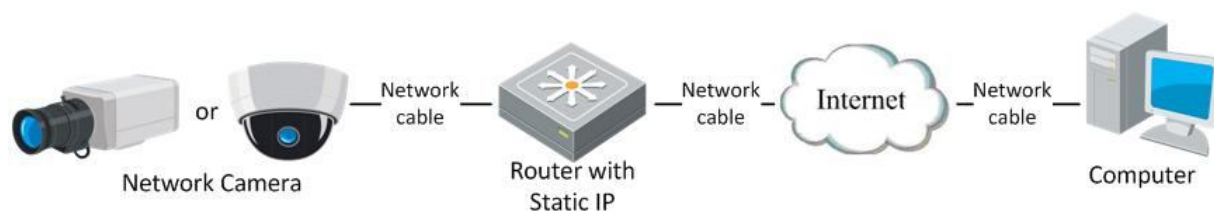
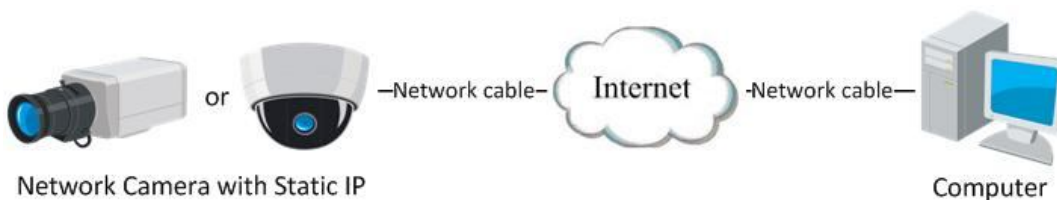Fig. 3.1 Access IPC through Router with Static IP

Fig.3. 2 Access IPC with Static IP directly

For the client software to view the camera, in the adding equipment column, select the normal model, and then fill in the IP info.
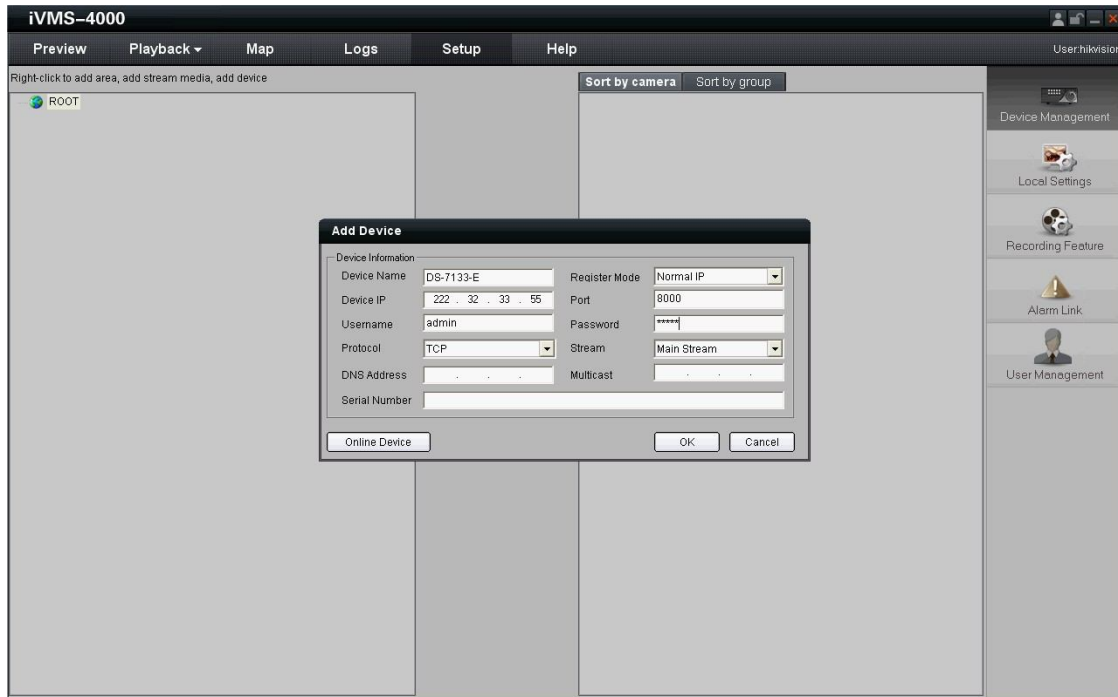
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Fig. 3.3 Selecting Normal Mode
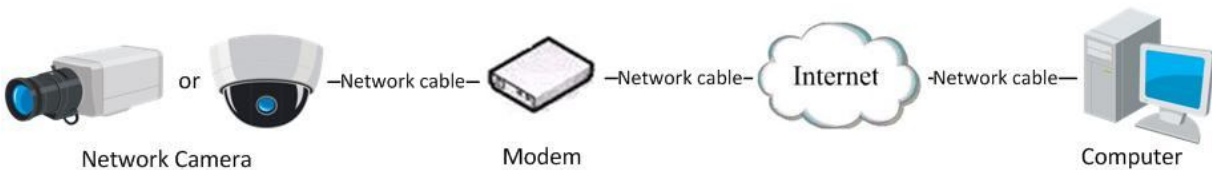
3.2 Access network camera with dynamic IP

Fig. 3.4 Access IPC through PPPoE Dail-up

This camera supports the PPPoE auto dial-up function, connecting the camera to a Modem for dial-up access to an ADSL network to get a public IP address; First, through local network access to the network camera, select "Configure"→"Right Click the Device", "Remote Configuration", and finally select "PPPoE Settings" under "Network Parameters" to fill in the PPPoE user name and password and confirm the password. Please restart the network camera after completion of configuration. Then the network camera can obtain a dynamic IP from an ISP operation business. However, the obtained IP address is dynamically assigned via PPPoE, so the IP address always changes accompanied with modem rebooting.

Fig. 3.5 PPPoE configuration Dialog box

It is inconvenient to view a network camera with a dynamic IP, therefore, users should register with a dynamic DNS service provider. (Such as DynDns.com)

Domain name resolution contains normal domain name resolution and private domain name resolution. First, we will introduce normal domain name resolution.
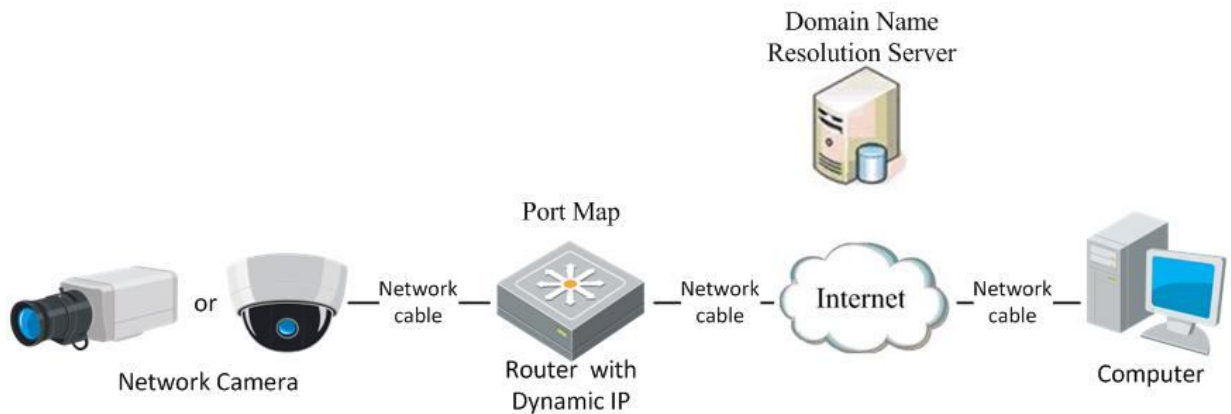
1. **Normal Domain Name Resolution**

Fig. 3.6 Normal Domain Name Resolution

Apply a domain name from a domain name provider, then view the camera via the applied domain name. If the camera connects to the internet via a router, users should port forward the router. Please refer to Appendix 2.

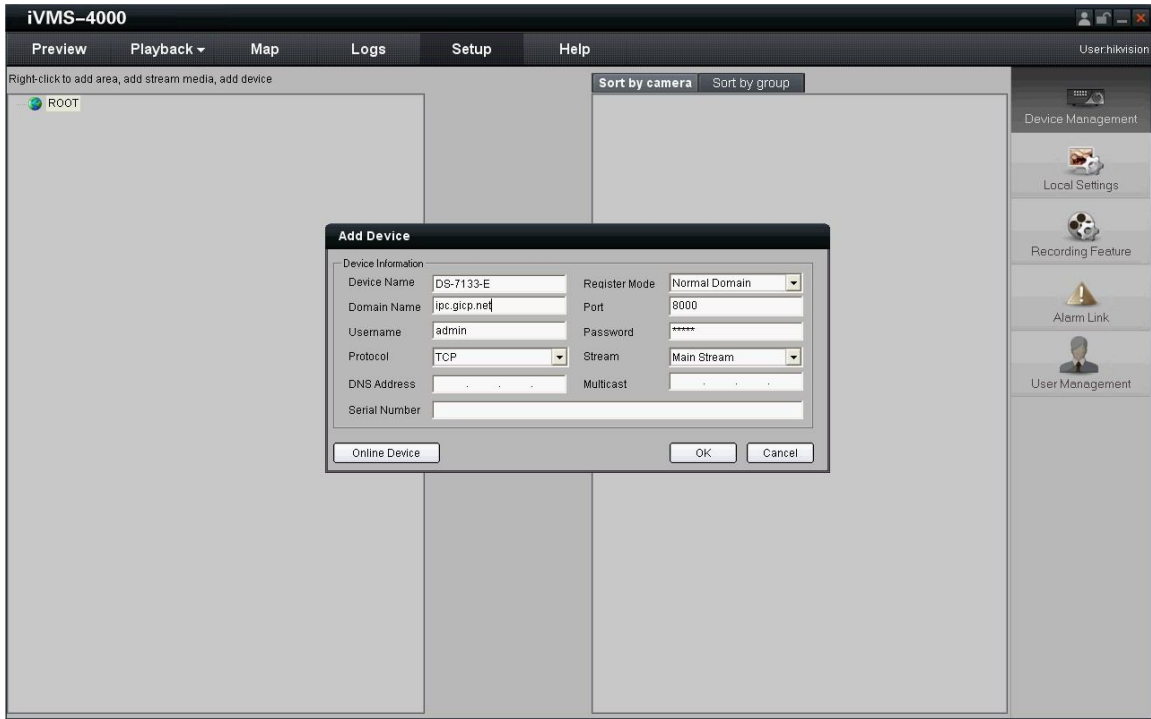Input domain names in the client software or IE to view the network cameras. Take the client

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software configuration as an example.

Fig. 3.7 Selecting Normal Domain Mode

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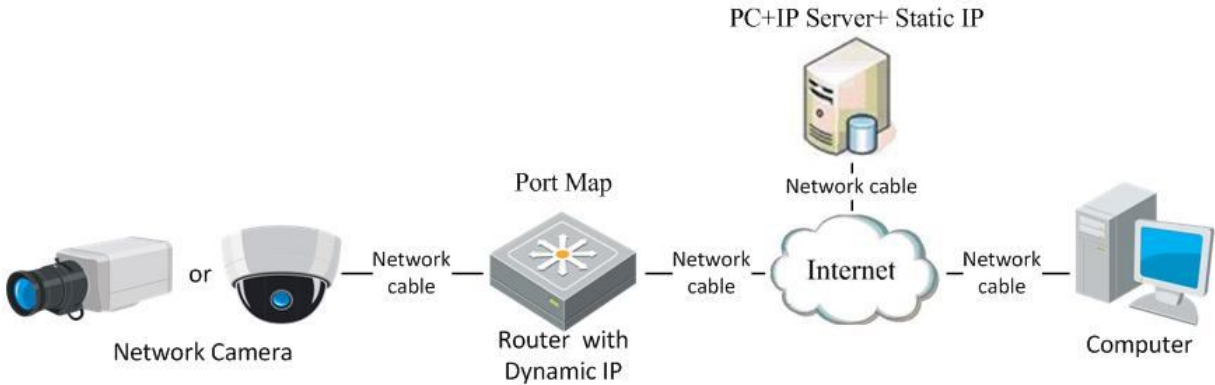2. **Private Domain Name Resolution**

Fig. 3.8 Private Domain Name Resolution

A PC with a static IP which is running the domain name resolution service is necessary.

When the network camera connects to the internet through PPPoE and obtains an IP address, it will send its name and IP address to the resolution server. When the client software connects to the network camera, it will connect to the resolution server and tell the resolution server the expected camera's name. And the server will find the camera from all the registered cameras and send its IP address to the client software. Once the client software gets the IP address, it can connect the network camera.
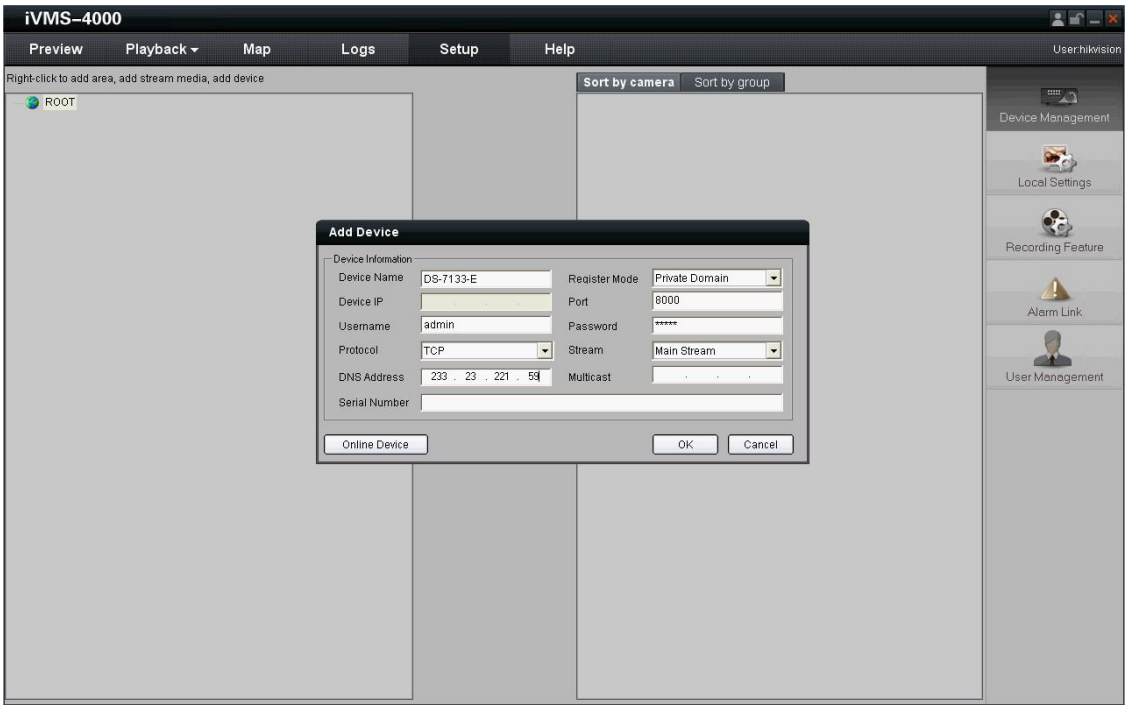

Fig. 3.9 Selecting Private Domain Mode

Appendix 1 SADP Introduction

1. Brief introduction

SADP (Search Active Devices Protocol) is a kind of software which can automatically search network speed dome in LAN. User can modify the IP address, subnet mask and port of the device without visiting IP address of the device. Additionally, password of the super user in this device can be recovered as default.

SADP software needs to support SADP, so we should install WinPcap at first, which is placed at the directory of SADP software.

## 2. Search active devices online

After installing WinPcap, double click sadpdlg.exe. The software will start to search active devices in LAN, and device type, IP address, Port number, Device Serial No., subnet mask, MAC address, the number of channels, main control and encoding version and device initiating time are showed in the list, as following:
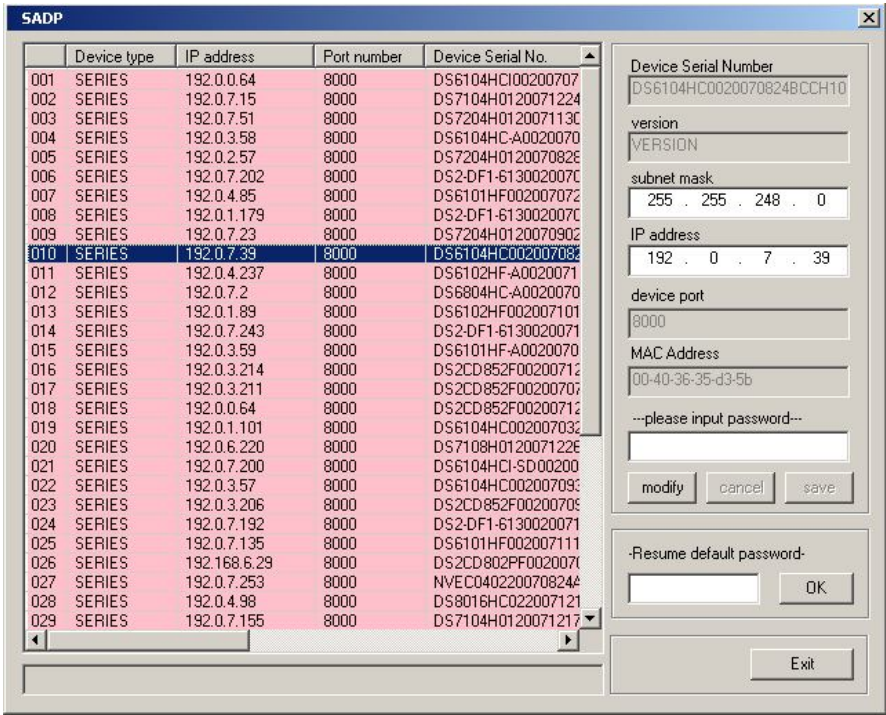
3. Modify device information

Select the device that needs modification in the device list, then basic information of the device will be demonstrated in the information column on the right. Click "modify" button to activate IP address, subnet mask, device port editing and password validating box, as follows:

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Select the device that needs modification in the device list, then basic information of the device will be demonstrated in the information column on the right. Click "modify" button to activate IP address, subnet mask, device port editing and password validating box, as following:
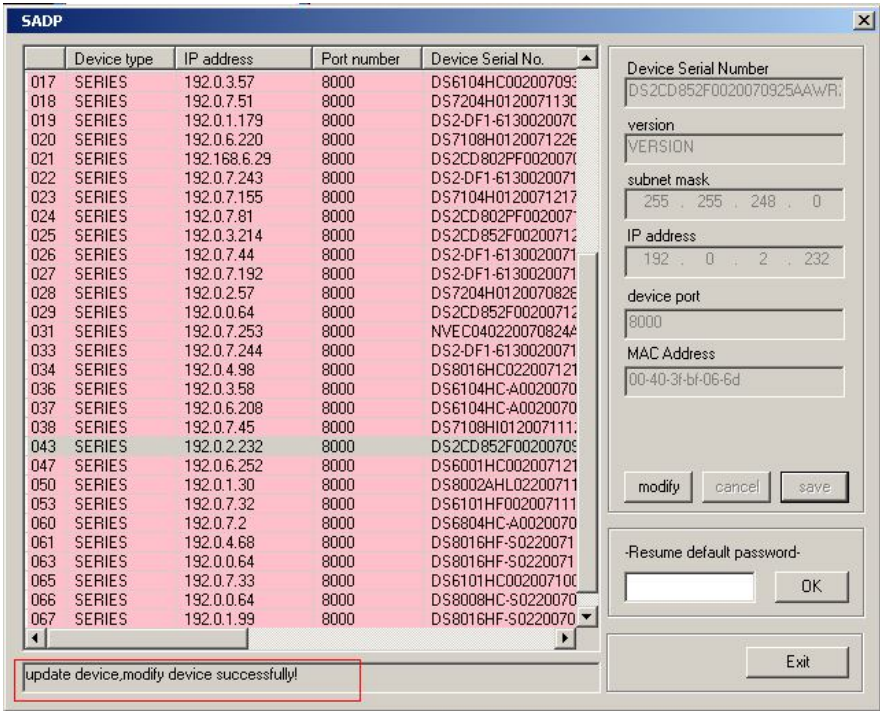
Input new IP address, subnet mask, and port number, and click "save" button. If a dialog pops up, showing "saved successfully", that means you have modified the configuration information; if "saving failed" turns up, click the "cancel" button to quit it.

4. Recover default password

You can reset the password of the super user as "12345" in the case of a lost password.
Input certain validation code into the 'Resume default password' box, and click 'OK' to finish the administrator's password initiating.
Note: Password reset code can be obtained by the technicians from Hikvision after you provide the device Serial NO.
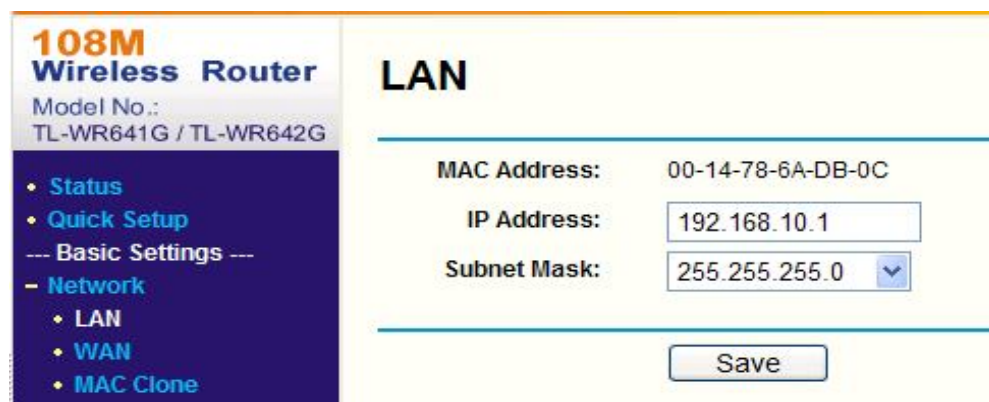
Appendix 2 Port Map

Note: The following setting is about TP-LINK router (TL-R410), which is maybe distinct from other router's setting.

1. Firstly, select the router's WAN connection Type. As the following Fig. shows:
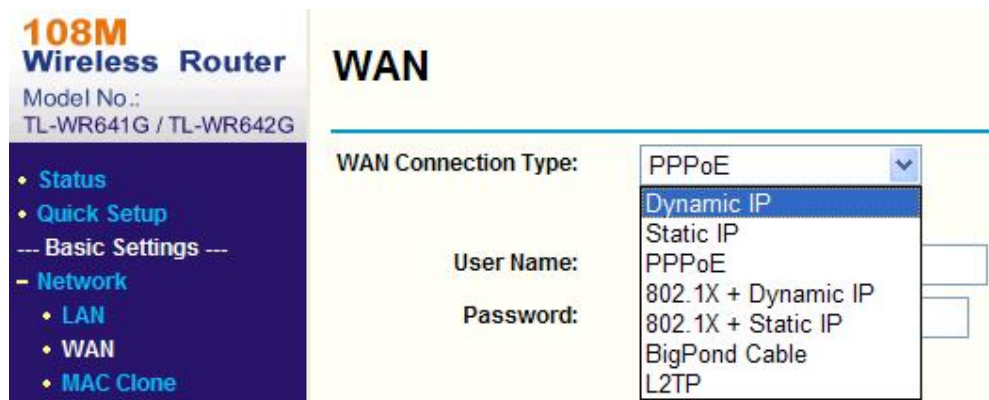
2. Set the "network parameter" of the router as the below figure. The setting includes subnet mask and gateway.

3. Set the port map in the virtual severs of Forwarding. By default, camera uses port 80, 8000, 554 and 8200. You can change these ports value with IE or client software.

The following figure gives the illustration. One camera's ports are 80, 8000, 554, 8200 and its IP address is 192.168.1.23. The other camera's ports are 81, 8001, 555, 8201 and IP is 192.168.1.24. Afterwards, enable all or TCP protocols. Enable the port map after pressing the 'Save'.

As the settings mentioned above, map the router's port 80 and 8000 to the network camera at 192.168.1.23; and port 81 and 8001 to the network camera at 192.168.1.24. In this way, user can access the 192.168.1.23 through accessing the router's port 80 and 8000.

Note: The port of the network camera cannot conflict with other ports. For example, some router's web management port is 80. User can amend the router's or the camera's port to solve this problem.
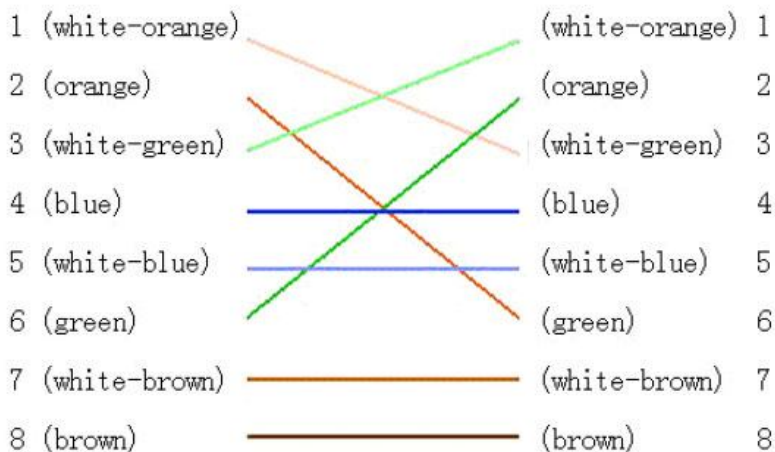
Appendix 3 Pin Definition

(1)UTP between the network port of camera and HUB (Direct Cable)

```
1 (white-orange) ——————————— (white-orange) 1
2 (Orange)        ——————————— (Orange)        2
3 (white-green)   ——————————— (white-green)   3
4 (blue)          ——————————— (blue)          4
5 (white-blue)    ——————————— (white-blue)    5
6 (green)         ——————————— (green)         6
7 (white-brown)   ——————————— (white-brown)   7
8 (brown)         ——————————— (brown)         8
```
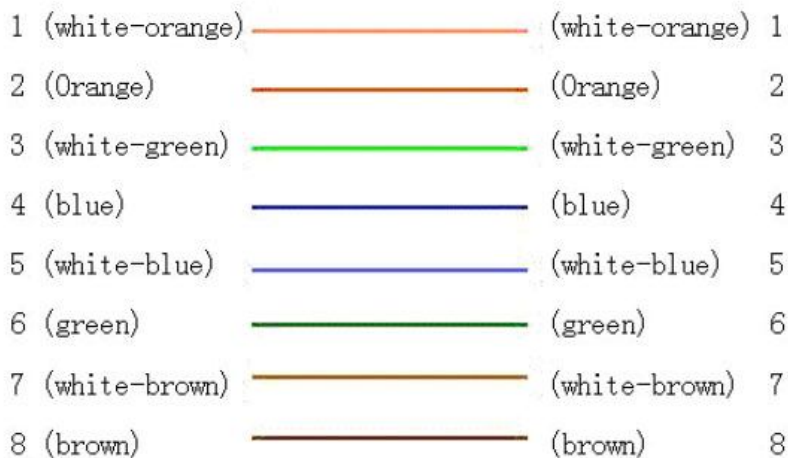
(2)UTP between the network port of camera and PC (Cross Cable):

```
1 (white-orange)                 (white-orange) 1
2 (orange)                       (orange)        2
3 (white-green)                  (white-green)   3
4 (blue)          ——————————— (blue)          4
5 (white-blue)    ——————————— (white-blue)    5
6 (green)                        (green)         6
7 (white-brown)   ——————————— (white-brown)   7
8 (brown)         ——————————— (brown)         8
```

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