H.264 Main Profile RTSP Steaming

Stand Alone

Video Server

MANUAL

Firmware 2.2.1.8 Version

Revision Date: 2010.06.01

WARNING: If the actions indicated in a "WARNING" are not complied with, injury or major equipment damage could result. A warning statement typically describes the hazard, its possible effect, and the measures that must be taken to reduce the hazard.

CAUTION: If the action specified in the "CAUTION" is not complied with, damage to your equipment could result.

NOTE: A "NOTE" provides supplementary information, emphasizes a point or procedure, or gives a tip for easier operation.

CAUTION:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a class digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Disposal of Old Electrical & Electronic Equipment
(Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Must read all the safety and operating instructions listed below before operating the unit.

- Make sure not to connect the power before you have read this manual.
- There is great chance to damage your equipment if it is opened by an unqualified service engineer or installer.
- Avoid using the device under direct sunlight (tropical area, Middle East), or near to any source of heat. Sun shielding recommended.
- Avoid exposing the device to violent movement or vibration.
- Must use proper "Relay" that will match with alarm output devices (High power spot light, pump/ motors), never connect alarm output load > 0.5A directly to alarm out.
- Please use power adapter equipped with the device, foreign power adapter with wrong voltage may permanent damage your device.
- Wireless link distance is depend on both Wi-Fi client and Access Point, unbalanced transmit power won't help extend the wireless link range.

WARNING:

Never put the 12V DC power adapter far away from your video server by prolonged wire.

C2190E won't boot up or even permanent damage may result due to voltage drop caused by longer wires. Larger current (due to lower voltage) will eventually burn your video server

Never try to use centralized power supply (high capacity, large current) for multiple video servers, serious consequence may result, >50% equipments may burn due to unstable power supply.

Online UPS or AVR is recommended to protect the device from unstable electricity

Table of Contents

Chapter 1 Features

H.264 4 channels D1/CIF dual streaming A/ V Encoder/ Server

Network Video server of MWR is an embedded Audio/ Video Encoder designed for network applications. It uses the most mature and high reliability DSP solution in the industry together with powerful RTOS operating system to realize industry grade MTBF (Mean Time Between Failure). Most advanced H.264 main profile @ Level 3 video compression algorithm assures clearer and more fluent Audio & Video transmission. Built-in Web Server allows users to conveniently carry out remote control via Microsoft™ Internet Explorer. Furthermore, Central Management Software (CMS) can be used for integrated control and management of multiple video servers; it is very easy to build large Audio/ Video surveillance system with Clairvoyant 2190E.

Features:

1. SOC single chip solution, equipped with two processors, ARM9 and DSP, super powerful RTOS, realize industrial grade MTBF.
2. Support dual compression and dual video output streams, more adaptive to different network environment, display different resolution video on different client devices (PC & phone)
3. Dual Streams (CIF/D1) High Definition 4channels network video server, support output D1, Half-D1, CIF and QCIF dual streams each channel.
4. Use optimized H.264 main profile @ Level 3 video compression algorithm to realize transmission of High Definition video over low network bandwidth easily.
5. Uses the most advanced technology of network transition server to realize multi-user visit and multi-level password authorization management.
6. Support PAL/NTSC composite video. OSD overlay Channel, Date, Bit rate.
7. Stand alone alarming & motion detection; each channel able to set 4 detective zones each with 5 levels sensitivity, send snapshots by scheduling or at alarm/ motion detected through email or upload pictures to FTP server.
8. Built-in Web server enables the use of a standard Web browser for viewing and management, each channel supports digital zoom with selected area on IE browse
9. Support remote software upgrade safe function.
10. Bi-directional real time transmission of audio talk-back.
11. Support dynamic IP address (DDNS), LAN, Internet (ADSL PPPoE & DHCP)
12. Network protocols: HTTP, TCP/IP, UDP, RTP, RTCP, RTSP, SMTP, PPPoE, DDNS, DNS, SMTP, BOOTP, DHCP, FTP, NTP, Multicast
13. Network self-adapting technology to adjust video frame rate automatically according to the network bandwidth.
14. Video bit rate can be adjusted continuously between 16Kbps and 4Mbps, frame rate can be adjusted between 1 to NTSC 30 / PAL 25.
15. Provide video loss, motion detection and alarm in functions, trigger alarm out, send snapshots to FTP server or attach picture in alarm emails.
16. Provide RS485/ RS232 serial port with several built-in high speed domes/ decoder protocols.
17. Support image masking/ image capturing.
18. Auto-recovery functions if exception occurs, auto-connection if the network interrupts.

19. Provide SDK and client demo source code.
20. Management software that can manage up to 1728 cameras in 36 groups, display maximum 36 cameras video on single screen, support video lost、motion detection and sensors alarm functions.
21. Support masks function to mask sensitive area.
22. Support active & passive mode access, support GSM/ CDMA network or private network without public IP.
23. Support Multicast, unlimited clients connection. (must with Clairvoyant decoder or NVSCenter software)
24. Supports SD card up to 32GB, can store recording and snapshots locally.
25. IEEE 802.11g/b 2.4GHz Wi-Fi with WEP, WPA, WAP2 protection (optional).

Technical Parameters:

Video Input	4 channels composite video, PAL/NTSC BNC (1.0Vp-p, 75Ω)
Video compression	H.264 (AVC) main profile @ Level 3 & MJPEG dual compression
Video Resolution	PAL: 352*288 (CIF), 704*288 (2CIF), 704*576 (D1); NTSC: 352*240 (CIF),704*240 (2CIF), 704*480 (D1)
Adjustment of Video Parameters	Brightness, hue, contrast, saturation and image quality
Streaming Format	RTSP streaming format (video streaming or audio & video streaming)
Video Frame Rate	PAL: 25 fps CIF x 4 channels or 15fps D1 x 4 channels NTSC: 30 fps CIF x 4 channels or 20fps D1 x 4 channels
Video bit rate	16Kbit/S ~ 16Mbit/sec
Video Output	N. A.
Audio Input 1	4 channel, RCA interface, linear input, Impedance:1KΩ
Audio input 2	1 channel, MIC interface
Audio Compression	G.726, G711, ADPCM
Audio Output	1 channel, RCA interface, linear output
Communication Ports	1 10M/100M self-adapting Ethernet port, 1 RS485 port, 1 Optional 2.4Ghz 802.11g Wi-Fi, with WEP, WPA, WAP2 protection, 5dBi detachable omni antenna RS485 port; >100 built in high speed dome/ decoder protocols, supports transparent protocols
Alarm Input	4 channel on/ off input, supporting NO (Normally Open) or NC (Normally Close) sensors
Alarm Output	4 channel on/ off output, 120VAC 1A/ 24VDC 1A
Power Supply	AC 100 ~ 240V, 50 ~ 60Hz
Maximum Power	Less than 10W
Operating Temperature	-10 °C ~ +55 °C
Operating Humidity	10 ~ 85%
Dimensions	180mm(L) × 50mm(H)× 120mm(D)

Chapter 2 Packing Detail

1. IP Video Server

2. Installation Software utilities CD

3. AC Adaptor & Power Cord

1. Video Server (optional Wi-Fi)
2. Installation Software utilities & Central Management Software CD
3. AC Adaptor (DC12V/ 2A) & Power Cord

WARNING:

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Never try to use centralized power supply (high capacity, large current) for multiple video servers, serious consequence may result, >50% equipments may burn due to unstable power supply.

Online UPS or AVR is recommended to protect the device from unstable electricity

Chapter 3 Cable and Connectors

1. Terminal (A+/ B-) : RS-485 A+/ B- (D+/ D-) to control PTZ
2. Reset terminal: Restore to factory default settings (short at power on)
3. Audio in: 4 x RCA Female audio input, 1 x Microphone
4. Power connector : DC12V/ 1A
5. Audio out : RCA female audio output port to speaker.
6. Terminals (Alarm) : Alarm input (NC or NO) /
   Alarm output (on/off output, 220VAC 1A/ 24VDC 1A)
7. RJ-45 : Network Ethernet connector, LEDs flashing when accessing

Note:

After "**Reset**" Please must notice you must set your computer IP to 192.168.55.xxx, for example 192.168.55.20 so that you can connect the C2190E after reset (restore to factory default IP 192.168.55.160), must remember to disable wireless adapter or set wireless IP to different subnet (from wired IP), before performing other necessary settings.

3.1 FRONT VIEW

3.2 REAR VIEW

ALARM OUT: Four-channel Alarm Output

1 – 1	2 - 2	3—3	4-4
Channel 1 relay output	Channel 2 relay output	Channel 3 relay output	Channel 4 relay output

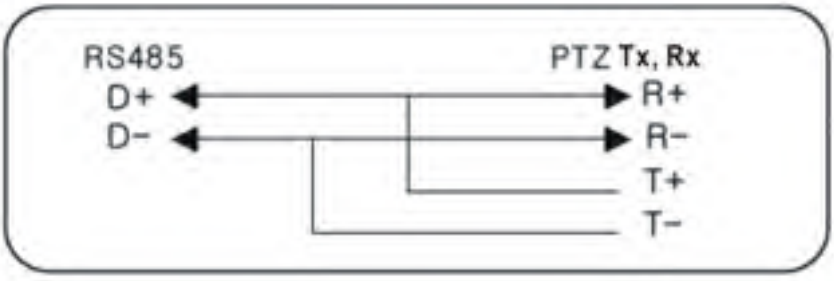
ALARM In: Four-channel Alarm Input

1	2	3	4	G
Channel 1 alarm input	Channel 2 alarm input	Channel 3 alarm input	Channel 4 alarm input	Alarm input public area

RS485 RS232：two independent serial ports:

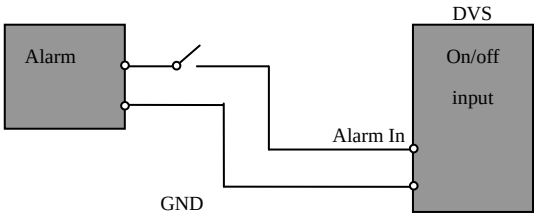
G	+	-	T	R
Public Area of Serial Port	RS485 Positive End	RS485 Negative End	RS232 Transmitting Port	RS232 Receiving Port

Connect Keyboard D+, D- : Connect PT control line (485A, 485B terminal)

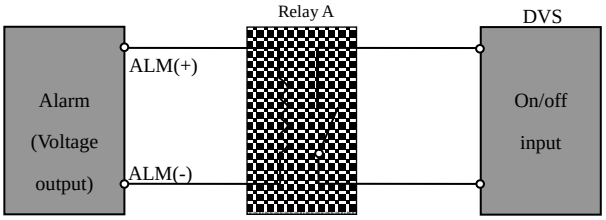


Alarm input connection mode

1 Alarm input signal is on/off input



2 Connect according to below mode if alarm input signal is not on/off signal.



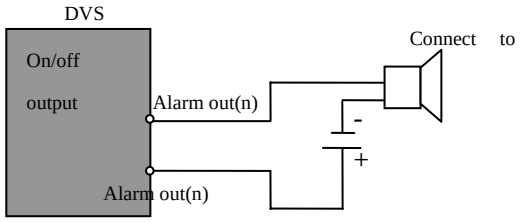
Note: The output power of relay A must be lower than the on/off input rated power of DVS (120VAC/1A or 24VDC/1A).

Connect sensors that support on/off states change.

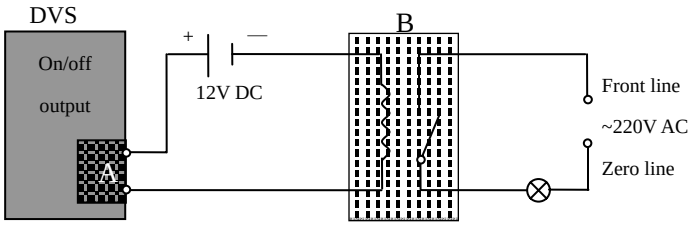
To connect the Active Infrared Sensor to **ALARM IN**, will trigger alarm when light beams interrupted.

Alarm output connection mode

1 User load is lower than the on/off output rated power



2 User load is higher than the on/off output rated power

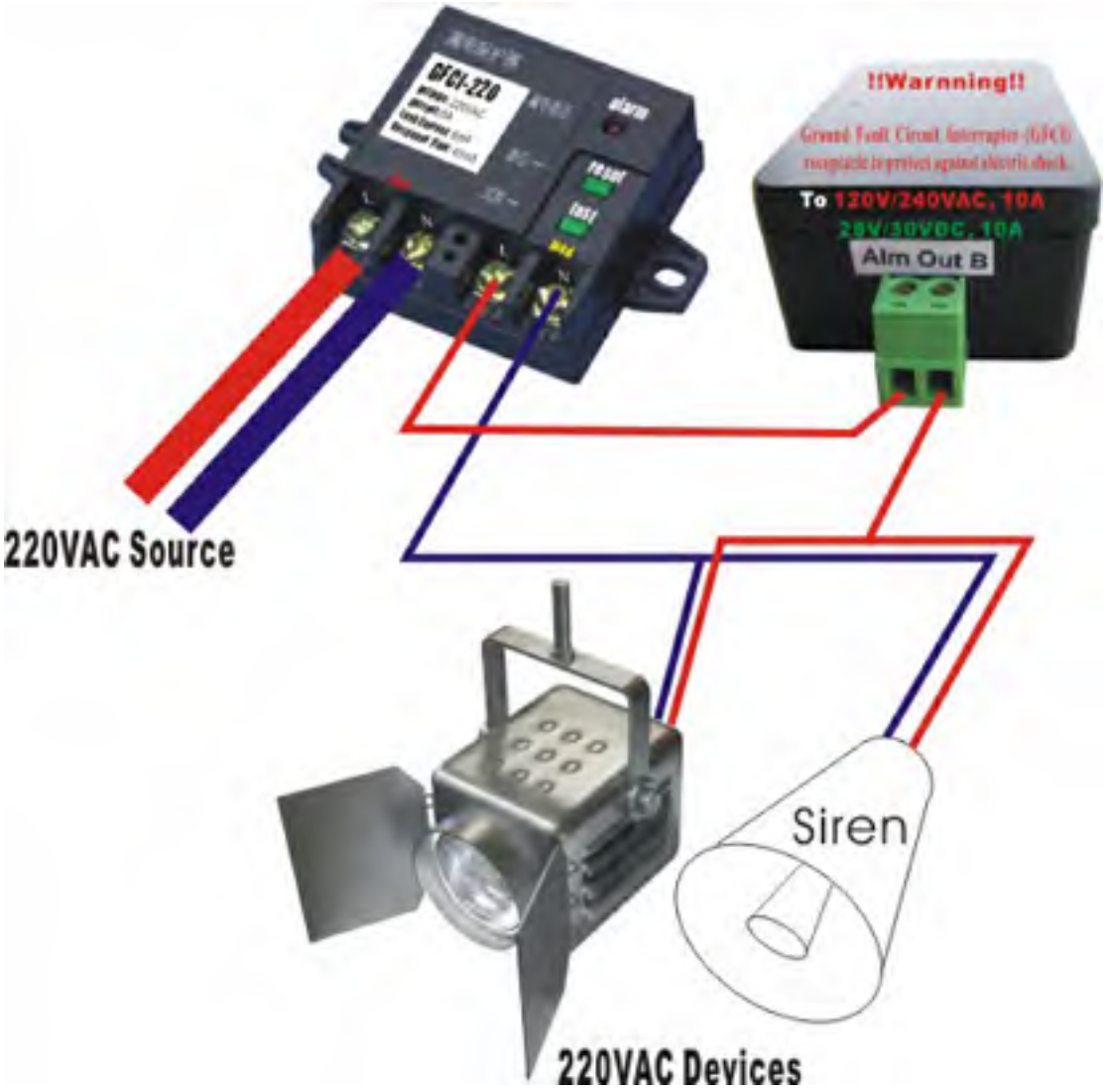


Relay A is the built-in relay of DVS, on/off output rated power (120VAC/1A or 24VDC/1A).

Relay B is an add-on relay.

The power of relay B must be lower than the on/off output rated power of relay A (120VAC/1A or 24VDC/1A), the on/off output rated power of relay B must be selected

according to actual load, and it should allow some surplus.



WARNING: If connect higher power loading (> 1A) directly to alarm out will cause damage the video server.
Higher current (>0.5A) will accelerate aging of the relay on PCB, external relay box is always recommended to protect the video server.

Chapter 4 System Requirement

4.1 The lowest hardware configuration

.◆CPU: Intel Pentium 2.0GHz (Don't support AMD CPU)
◆Memory:1,024MB
◆Graphics Card: TNT2
◆Sound Card: Speaker, Microphone
◆Hard Disk: Recording Image，no less than 40G

4.2 The recommended hardware configuration

.
◆CPU: Intel Core2 DUAL 2.0G Mhz or above
◆Memory: 2,048MB
◆Graphics Card: Nvidia Geforce FX9400 or ATI RADEON 9000 series 256MB video memory, graphic card supports hardware Scaling

The PC graphics card must support hardware zoom in & out.

Tested Graphics Cards are as follow:

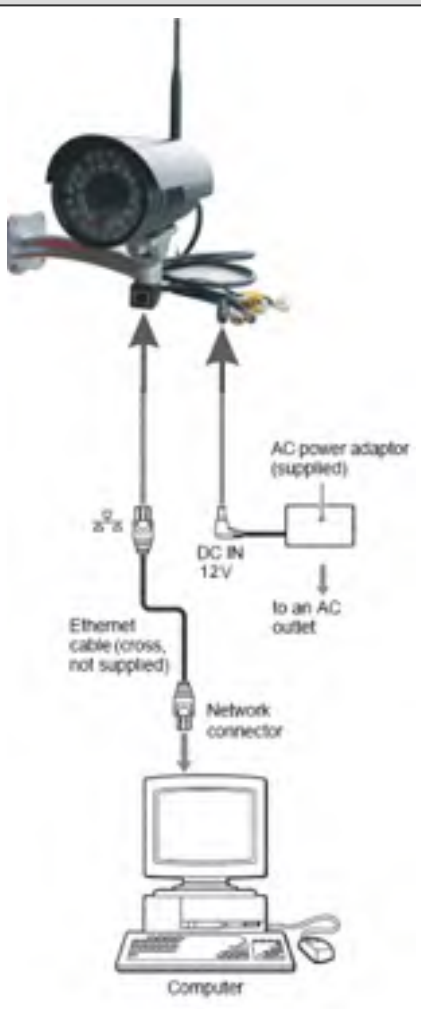
- Nvidia TNT/ TNT2,
- Geforce GTX295/285; Fx 8800/ 9600/ 9800 and its series;
- ATI Radeon 7000/7200/7500/8500/9550/9600/9700/9800 and X & HD series,
- Matrox G450/ 550;
- INTEL 865G/ 875G and its series.

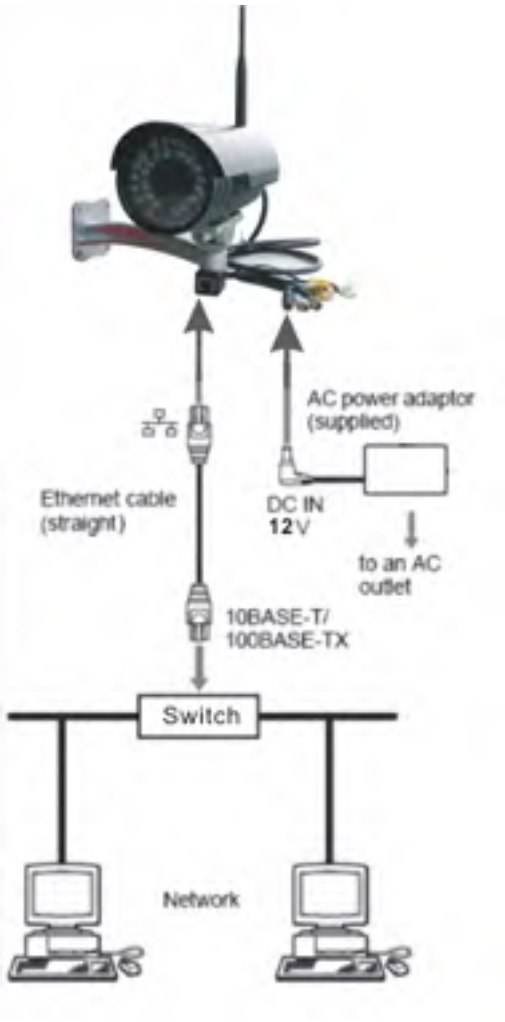
Operation System
◆Chinese; English: Windows2000/ Windows XP/ Windows Vista/ Windows 7.

Software
◆IE 6.0 or above
◆DirectX 8.0 or above
◆TCP／IP protocol

Chapter 5 INSTALLATION

5.1 CONNECT to PC or LAN





CAUTION:

Please use the power adapter that is provided with the C2190E. Connecting C2190E to other power source may cause permanent damage to the C2190E.

NOTE:

Please use straight Ethernet cable (CAT. 5e) to connect C2190E to your home/ office network switch/ hub or a broadband router.

For Wi-Fi models, you will still need to connect C2190E to your PC by Ethernet cable at first time installation, correct SSID, WEP/ WPA password & IP address must be set before you can connect the C2190E wirelessly (See more in section 6.8 Network Settings).
You will see two IP address by searchNVS software utility, if you didn't remove the Ethernet cable before the C2190E wireless connection.

Click **"Search Camera"** on Utility CD auto-play menu*, will find all the Clairvoyant IP cameras/ video servers in your local network.

* To use SearchNVS software to search and modify network parameters (IP address, Subnet mask, Gateway etc.).

NOTE:

A: Find the SearchNVS.exe in **tool software** folder of Utility CD and copy it to PC.

B: Install the Central Management software first, follow below steps to find the SearchNVS:

【Start】---【all programs】--- 【NVSCenterV6.xx】---【SearchNVS】.

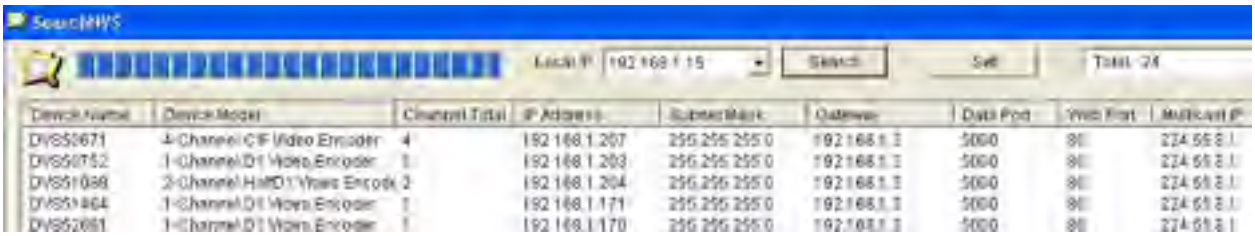
The factory default settings of the C2190E are as follows

IP: **192.168.55.160**; Subnet mask: **255.255.255.0**

User name: **admin**; Password: **admin**

Run the SearchNVS software to search and modify C2190E network parameters. SearchNVS use multicast protocol to find Clairvoyant IP cameras/ video servers; most firewalls forbid the multicast data packets. So please close the firewall first or enable/ allow SearchNVS to use multicast protocol.

Click on【Search】button to start search IP Cameras/ video server as illustrated below:



【Local IP 】Display the local PC IP. If your PC has multiple NICs or multi-addressed local IP, please select the IP address that connect to Clairvoyant IP cameras/ video servers.

In the above SearchNVS software interface, it shows this computer has searched all Clairvoyant IP cameras/ video servers in LAN. If there are many IP cameras/ video servers in your LAN, you can distinguish which camera/ video server is yours by the Device Name based on the unique device ID. The Device Name was named in the factory as "Model Name+ID number".

Note:

Please make sure there is DHCP server available, or set your PC IP address manually.

Your PC won't "Obtain an IP address automatically" without DHCP connected.

SearchNVS won't work on a PC without IP address.

Please select the IP address of correct Network Interface Card (that connected to cameras/ video servers) for "**Local IP**" if you have multiple Network Interface Cards installed in your PC.

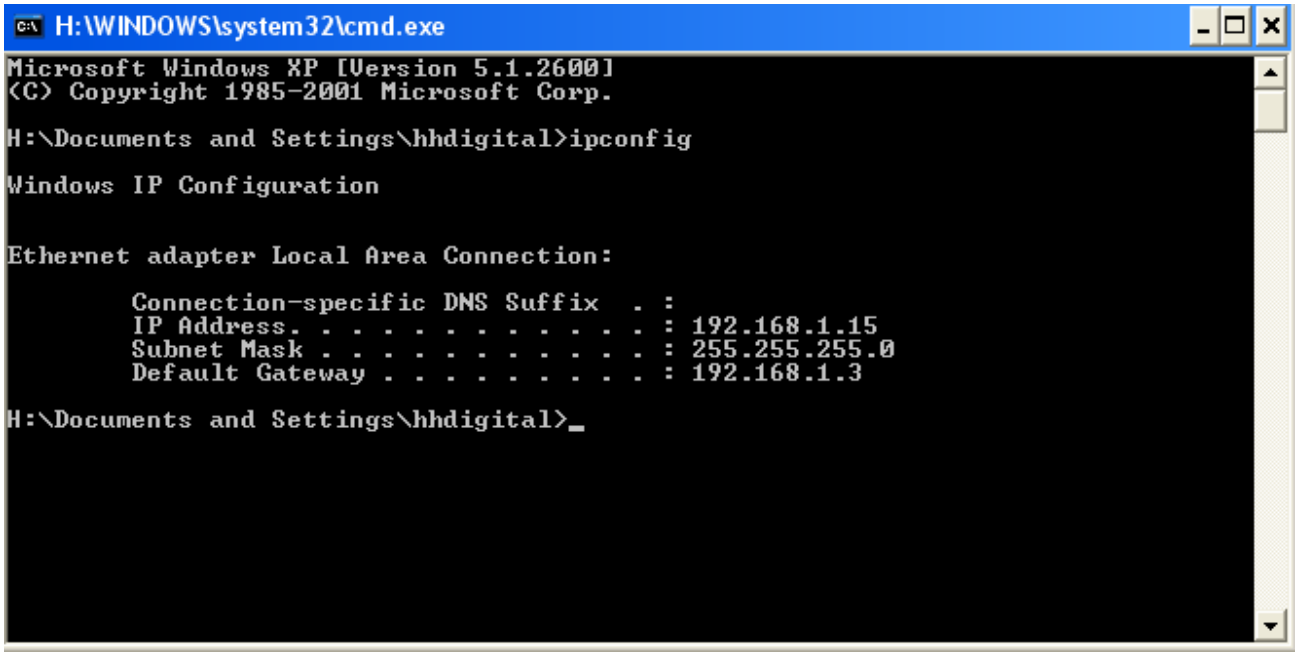
Set IP address for IP camera/ video server:

Your computer IP address must be "in the same subnet" of IP Camera/ video server in order to visit IP camera/ video server. So we need to set the IP address of the IP camera/ video server before accessing camera/ video server.

To get your PC IP configuration information: go to command mode by click 【Start】→

【Run】", then input "**command**" or "**cmd**"(Windows 2000/XP system).click "**ok**":

Type "ipconfig" at command prompt", press "**Enter**" button, you will get your PC Network Interface Card **IP address/ Subnet mask/ Gateway** information.

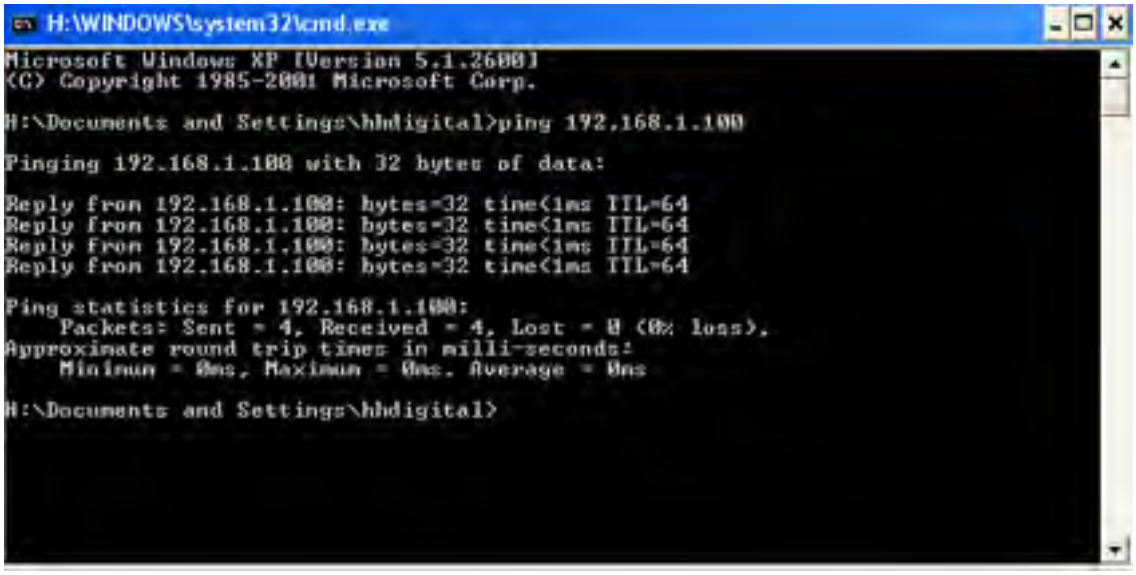


Please remember the **IP Address**，**Subnet Mask**, **Default Gateway**，then setup the C2190E IP address according to your PC IP address to ensure computer & C2190E IP addresses are "in the same subnet" .
For example : Set C2190E **IP addresses** to 192.168.1.100. **Default Gateway** & **Subnet Mask** same as PC. (with Subnet mask as 255.255.255.0)

Click 【Set】to set "**Network Parameter**" as illustrated below:

Modify relative Network Parameters; click "**OK**", then the C2190E will reboot.
Test the C2190E connection: go to command mode by click 【Start】---【Run】", then input "**command**" or "**cmd**" (Windows 2000/XP system).click "**ok**",
Type **"ping 192.168.1.100"** at command prompt**,** press "**Enter**" button, you will get following

information:



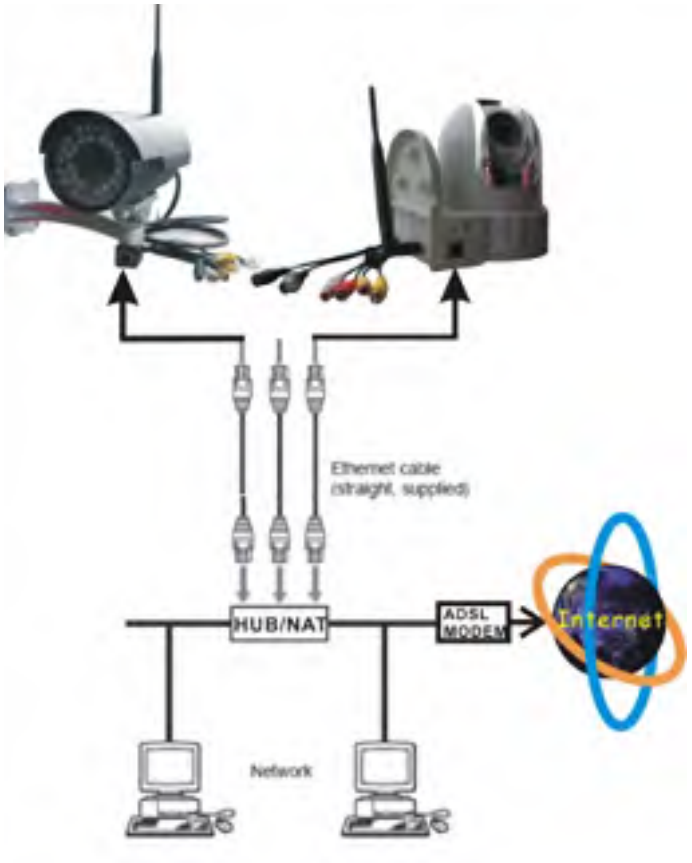
The message shown on above indicates the C2190E is functioning normally and connects to same subnet (LAN) correctly. If the screen displays other information, please confirm the IP address settings and check the network cables again.

Warning:
Please consult your office network administrator to get a free IP for your IP Camera/ video server; duplicated IP address will cause undesired problems.

CAUTION:
Please always write down the password and keep password in safe place. Please kindly notice, if you forget password you set, you will have to reset C2190E to factory defaults, all settings will be lost.

Note:
"in the same subnet" is a conceptual term that describe two network devices are with IP addresses in same subnet determined by Subnet mask.
For normal Subnet mask: 255.255.255.0, means a C class subnet, there are 254 IP addresses in a C class subnet, for example: 192.168.x.1 ~ 192.168.x.254
Don't use 192.168.x.1 or 192.168.x.254 because these two IP are normally used by gateway (broadband router)
x can be either 0 ~ 254.
Direct connect C2190E to your PC doesn't necessary mean they are "in the same subnet"
Please make sure there is DHCP server available, or set your PC IP address manually.
Your PC won't "Obtain an IP address automatically" without DHCP connected.

5.2 CONNECT to WAN



Connect C2190E to your broadband router or NAT gateway.

Do the following setup:

1. Setup Virtual Server/ forward ports on your router to C2190E,
2. or set your C2190E IP to router DMZ
3. Obtain DDNS service from mvDDNS if you don't have fixed public IP,
4. Setup DDNS account information to your C2190E
5. Access C2190E URL through Internet.

Example:
http://yourC2190E.myddns.net:port
Please reference more details of Router & mvDDNS setup on Appendix 3 & 4 of this User's Manual.

Note:
Clairvoyant IP cameras/ Video servers support PPPoE auto-dial-up, that you can connect your C2190E directly to an ADSL modem; please remember to setup DDNS and email parameters before you enable PPPoE function.

It's impossible to access "**LAN IP**" from Internet; IP started with 192.168.xxx.xxx is **LAN IP**. **LAN IP** sometime called illegal IP, only legal "**Public IP**" can be accessed through Internet. It's not possible to access your **LAN IP** through Internet or there will be in big security threat, Hackers can access your bank account information and secrets stored in your LAN PC

You will need to connect C2190E to Internet before you can access from remote through Internet, there shall be a "**Gateway**" connect your office network (LAN) to Internet (WAN), usually "**Gateway**" is a broadband router, you will need to change settings of your broadband router to enable the accesses from Internet to your C2190E.

Connect C2190E Internet:

1. Port Forwarding: forward port 80 & 5000 (default web & data port, see your router manual or Appendix 4 FAQ)
2. Set DNS & Gateway settings of your C2190E
3. Register a new DDNS account for DDNS Service, Set DDNS settings of your C2190E.

Note:

a. Broadband router is firewall in nature will block all accesses from Internet, you will need to set virtual server (port forwarding) on your router, normally we will always suggest to use port 80 or port > 1024 for web port to avoid conflicts, port <1024 are frequently used by other applications.

b. Check if the DNS & Gateway settings are correct, it is impossible to go out of your LAN if wrong. (Gateway is the door, DNS is like "map", people won't go out without knowing where the door is or don't have map to find the way)

c. Always test the DDNS service from remote IP (that is outside of your LAN); some router will block WAN port access from inside LAN.

The broadband router that connect Internet is similar to a "Security Guard" at the entrance of LAN (Local area network), who will protect you from un-authorized intrusions from outside (Internet), IP cameras/ video server located in LAN are well protected so that accesses from outside (Internet) are not possible to pass router "Guard". Remote viewer won't be able to access IP cameras/ video server behind router "Guard" from outside (Internet), unless you have gave the correct "commands", letting router "Guard" to allow outsiders access the cameras/ videos server in LAN.
The correct "commands" are so-called "Virtual Server" or "Port Forwarding" settings on various routers, please reference the routers user's manual to learn how to enable "Virtual Server" http port & data port (default are: 80 & 5000) on your router. ("Port Forwarding" = mapping WAN http port & data port (default are: 80 & 5000) to LAN IP address & ports)

Please see Appendix 4 FAQ for more details.

5.3 Install ActiveX and Login

1. Click **"Install 1st" tab on product CD pop-up Manu** to Install ActiveX controls (plug-in) required by Microsoft IE browser.

or

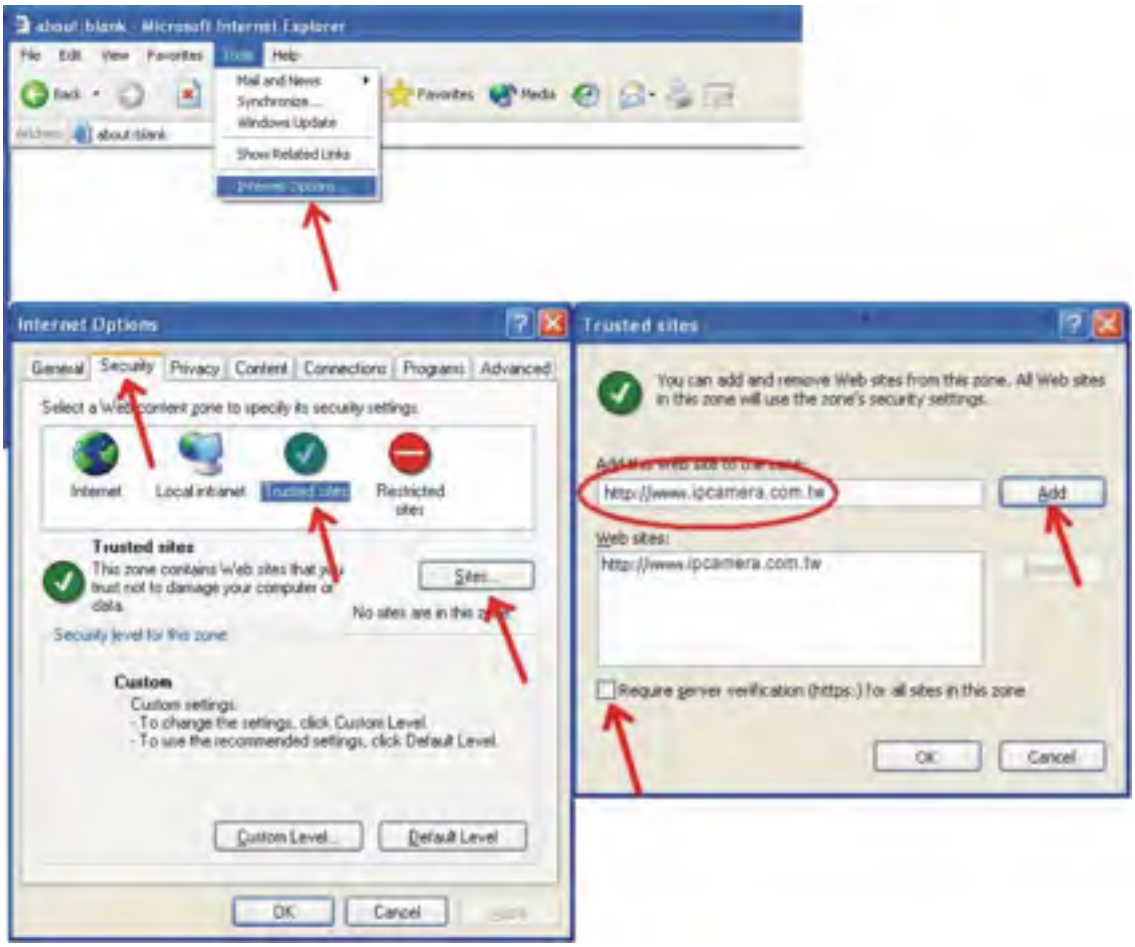
2. Download ActiveX controls (plug-in) required, set the safety property of IE in the PC only at the first time accessing new C2190E

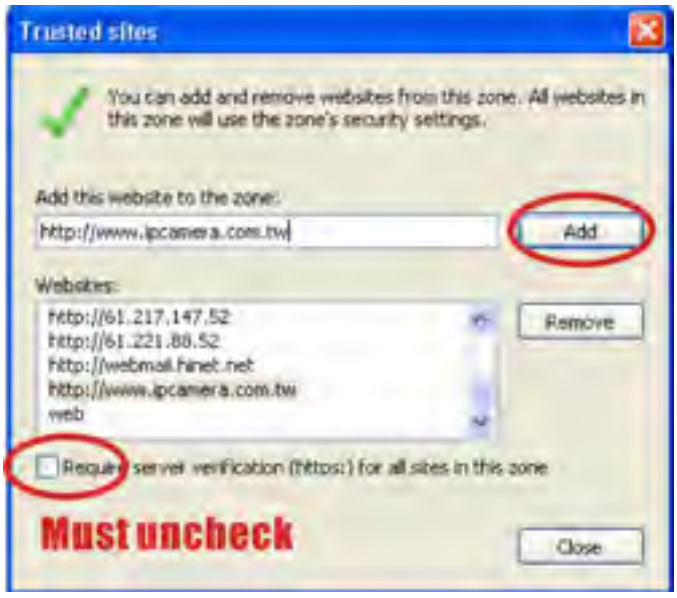
Note:

Before Install "OCX setup" must close all IE browser windows.
Before accessing *Clairvoyant* IP Cameras/ Video servers through IE browser, please follow below steps to "Add C2190E IP address or URL to your IE trusted sites list".

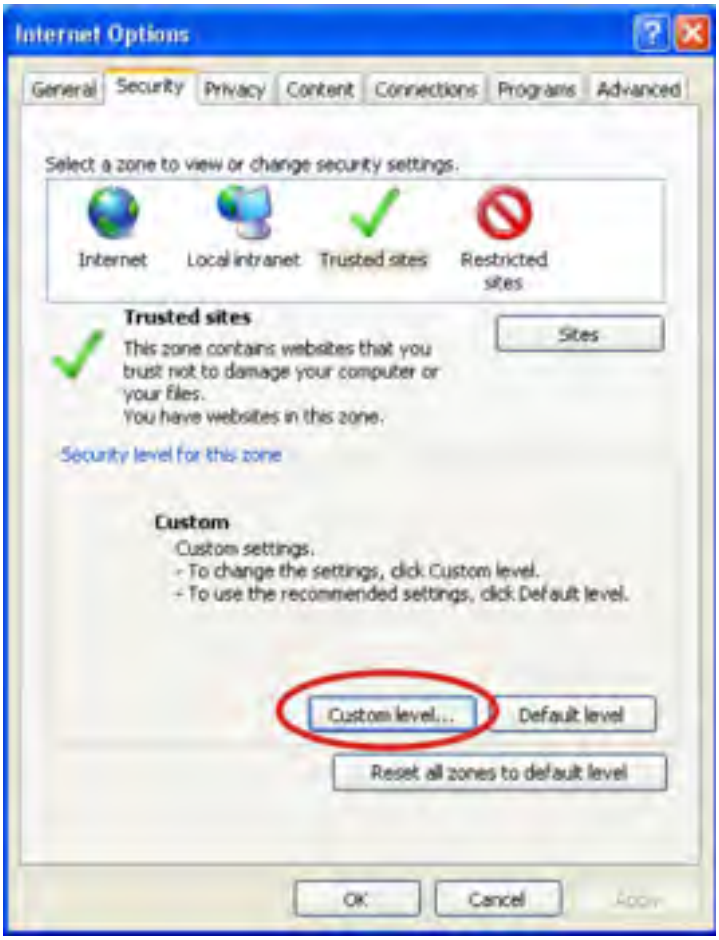
In order to download & install ActiveX controls, you will need to add your C2190E IP/ URL address to your IE browser "**Trusted sites**"

IE browser→"Tool"→"Internet Options"→"Security"





Remember to un-check the "Require Server verification (https:) for all sites in this zone"
Type in http:// C2190E _IP_address or URL to "**Add this website to the zone:**" field, click on "**Add**" button.
You can also add you LAN subnet to your trusted sites by adding http://192.168.0.* if your LAN subnet is 192.168.0.xxx.

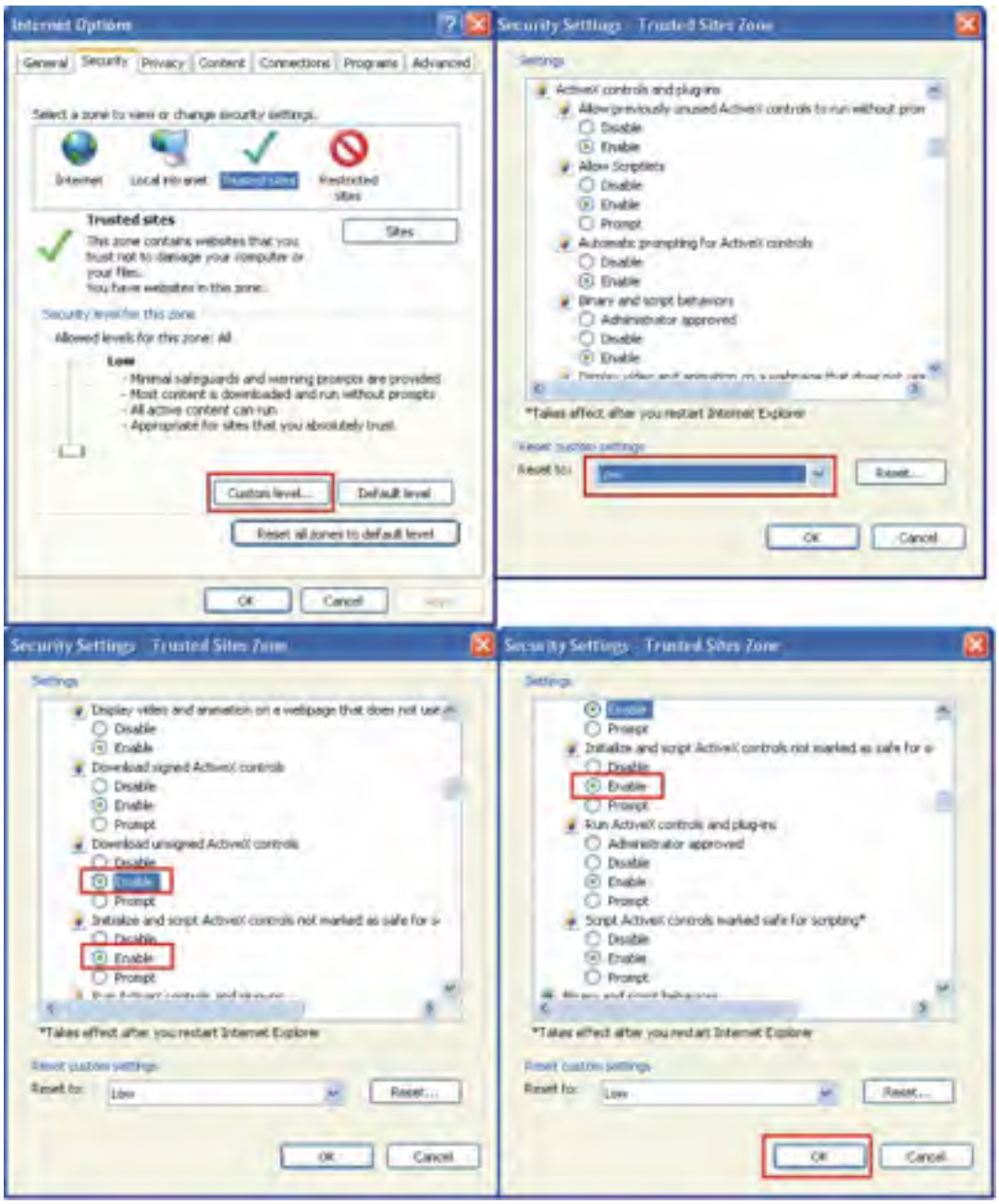


Choose Custom level and enable all ActiveX features of Trusted sites zone

IE browser→"Tool"→"Internet Options"→"Security"→"Custom Level"→
"ActiveX control and Plug-ins" three settings should set to "**Enable**",

Remember to set the Security level of "**trusted sites**" to **Low,** Click "**Apply**" or "**OK**" to save

Enable download and run un-signed ActiveX plug-ins.
Enable: Download unsigned ActiveX controls
Enable: Initialize and script ActiveX controls not marked as safe
Enable: Run ActiveX controls and plug-ins

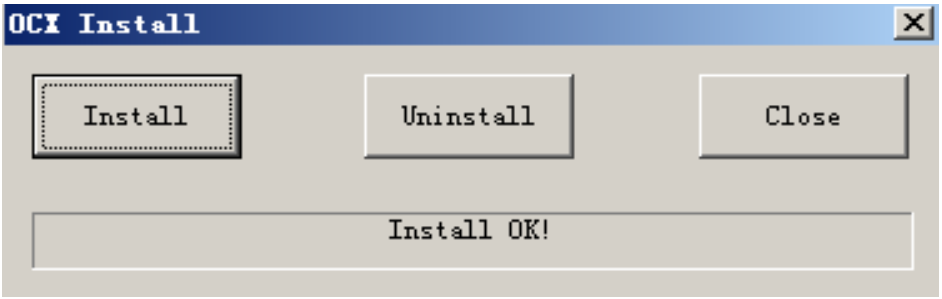


After installed C2190E ActiveX controls, enable "**Run ActiveX controls and plug-ins**", you can view camera video as followed:

Type IP address of the C2190E in Microsoft **Internet Explore** address field; Click "**Enter**" to bring up the C2190E Login page as illustrated below:

Click【**File**】to download the ActiveX：

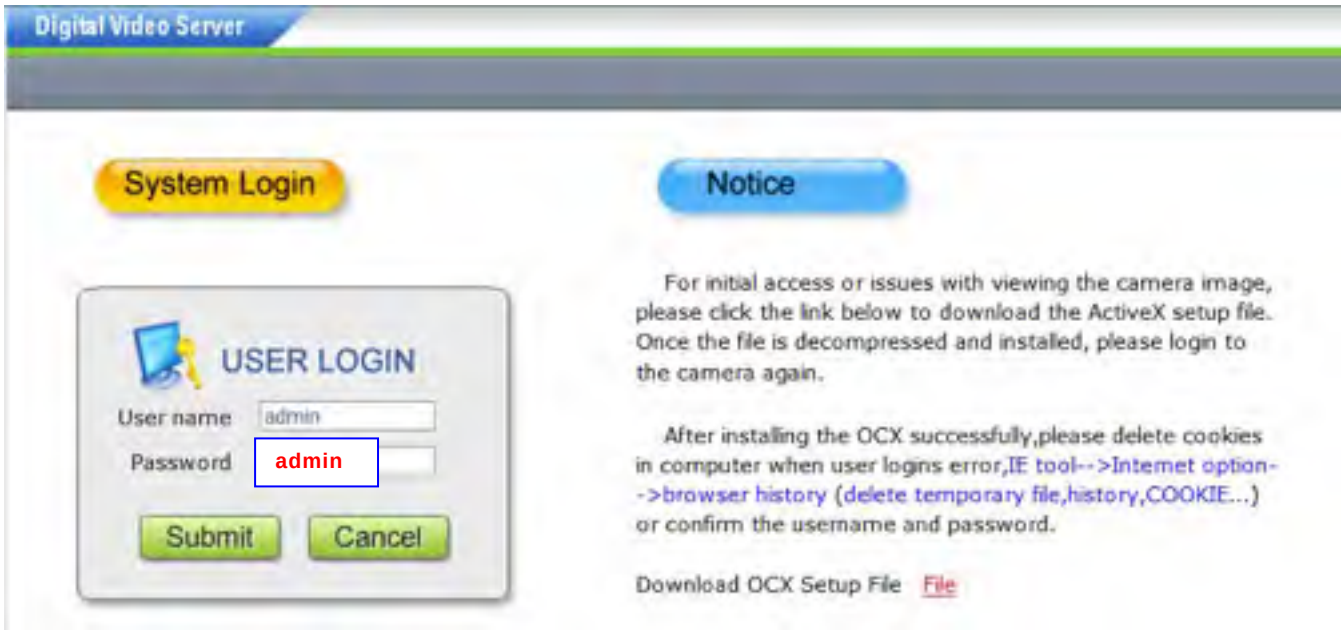
A new dialogue box will pop-up, click 【**Run**】to start Installing ActiveX:



Close current Internet Explorer Window, close all IE Windows. click "**Install**" button，after installed the ActiveX will show "**Install OK**".

Note:
Install the ActiveX OCX plug-in once is enough, if already clicked "**Install 1st**" **tab on product CD pop-up Manu, the** ActiveX OCX plug-in is already Installed. No need to download and install again.

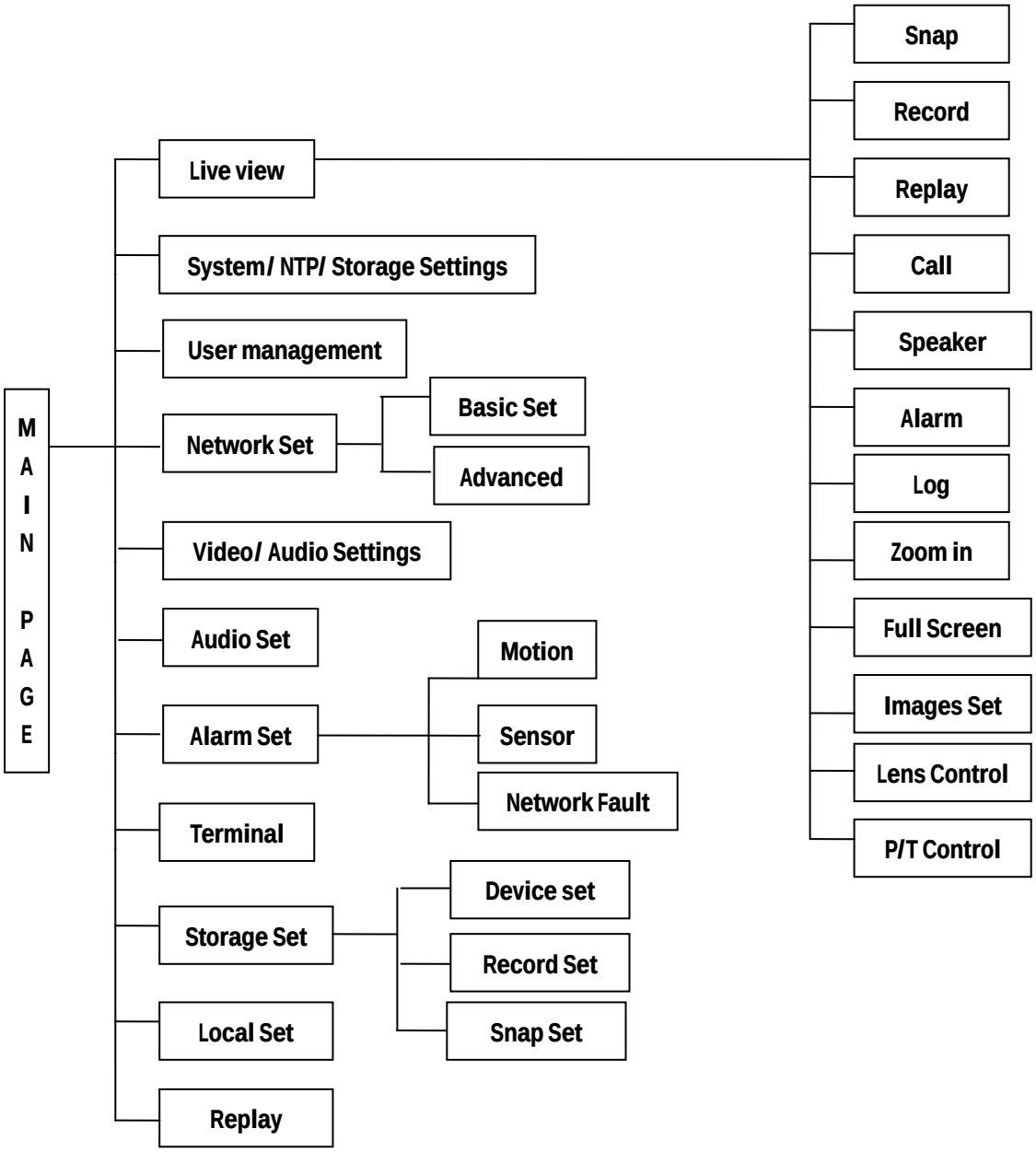
Again, type IP address of the C2190E in Microsoft **Internet Explore** address field; Click "**Enter**" to bring up the C2190E Login page as illustrated below:



Input User name (Default: **admin**)、Password (Default: **admin**)，click "**Submit**" to bring up C2190E video page:

Chapter 6 System Configurations

6.1 Setup Menu Tree



6.2 Live View Page

In the Live view webpage, administrator can do below operations :
Taking Snapshots, Recording, Playback recording, Talk-Back, Speaker on/off, Alarm on/ off, Search log info., Zoom in selected area, switch to full screen mode and Image Parameters Settings.

【Snap】 click "Snap", take the current image snapshot, which can be stored in your computer hard drive C:\XDNVS\yy-mm-dd\URL or C2190E name\channel\hh_mm_ss.jpg in JPEG format.

Snapshot http command:

http://URL or IP of camera/capture/webCapture.jpg?FTpsend=0&checkinfo=1&username=admin&password=admin&channel=1~4

Example:

http://www.ipcamera.com.tw:1260/capture/webCapture.jpg?FTpsend=0&checkinfo=1&username=mwradmin&password=admin&channel=1

http://www.ipcamera.com.tw:1260/capture/webCapture.jpg?FTpsend=0&checkinfo=0&channel=4

ftpsend=1 upload snapshot to FTP server
ftpsend=0 don't upload snapshot to FTP server

checkinfo=1 require authentication
checkinfo=0 don't require authentication

username=admin (default)
password=admin (default)

channel=1, 2, 3, 4 ; default is 1

Note:
Snapshot http command capture only main stream image

【**Record**】Manual video recording, the current video can be stored in your computer C:\XDNVS\yy-mm-dd\ C2190E name\channel\hh_mm_ss.264. The working status as: 

Install the Central Management software first, follow below steps to find the MP6Player:
【Start】---【all programs】--- 【NVSCenterV6.xx】---【MP6Player】

【**Replay**】click "Replay", it will bring up a new Playback window, user can playback the recorded video or pictures captured.

【**Call**】Mic. on/ off，If user connects Microphone and Speaker with C2190E, it can turn on the two way Audio function. The working status as: 

【**Speaker**】Speaker on/ off，The working status as : 

【**Alarm**】While there is an alarm, click on【Alarm】to stop the alarm manually .

【**Log**】Evens log

【**Zoom in**】Only active when only one channel video selected (by double clicks on video). Click on "**Zoom in**" change to red color, Select area to zoom in (live view)

【**Full Screen**】Enlarge to full screen

【Images Set】
brightness, contrast, chroma, saturation adjustment, **click icons to get default settings.**

CAUTION:
Must not adjust image parameters arbitrarily or you won't get proper color or even "too bright" or "to dark" image will result.

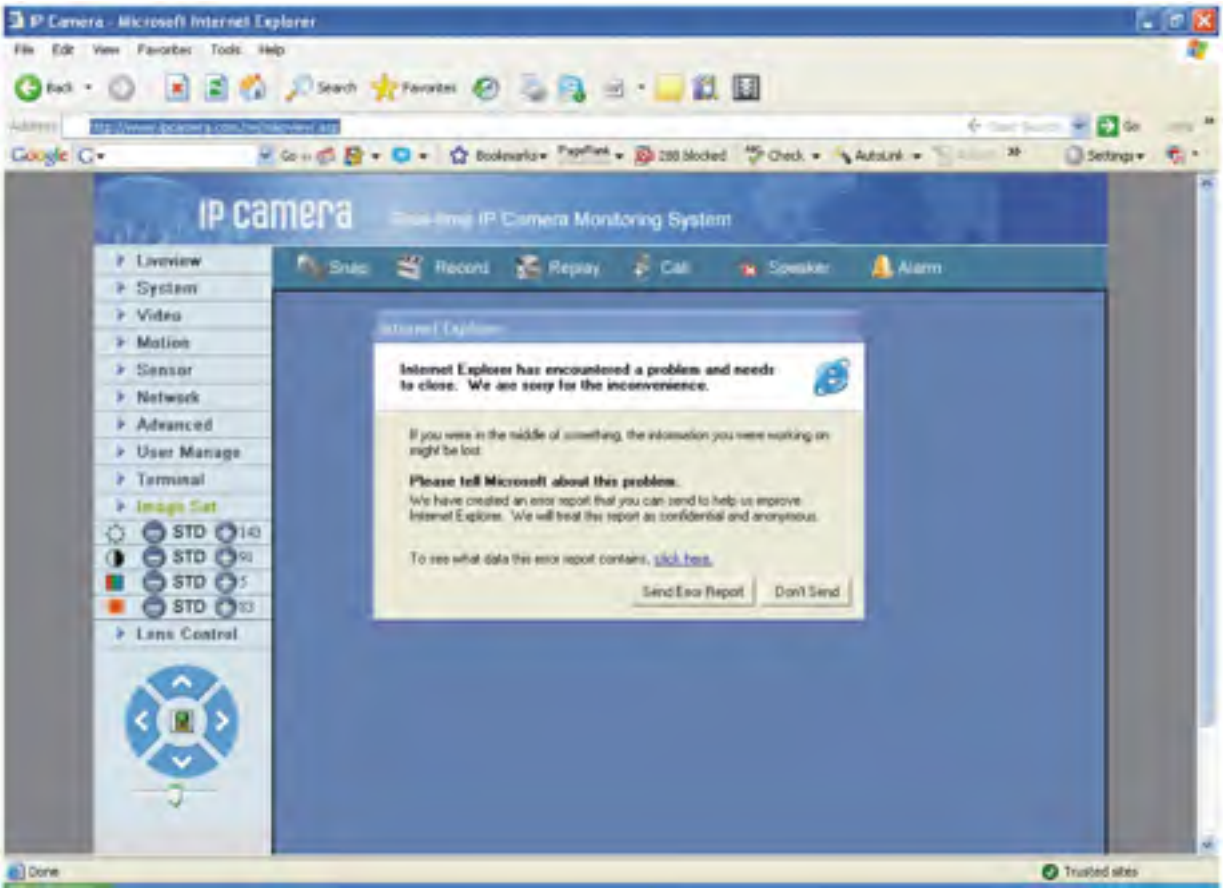
.

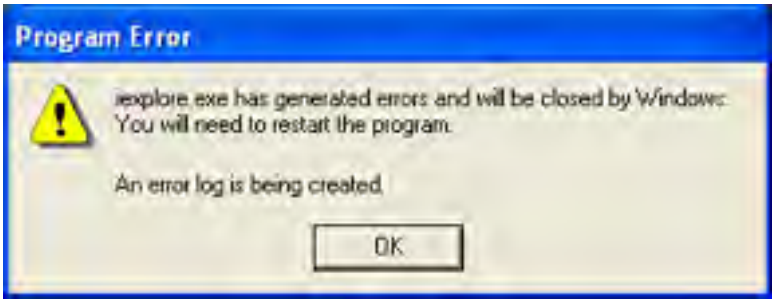
【Lens Control】It can be adjusted Zoom, Focus, Aperture, Light, Clip, set Preset, and recall Preset

Select output channels by clicking top channel number, red indicates active

【P/T Control】Pan / Tilt operation, PAN speed adjustable

Error Message





Note:

If you see above screen, which indicate your hardware is not powerful enough, please choose PC with more advanced processor.

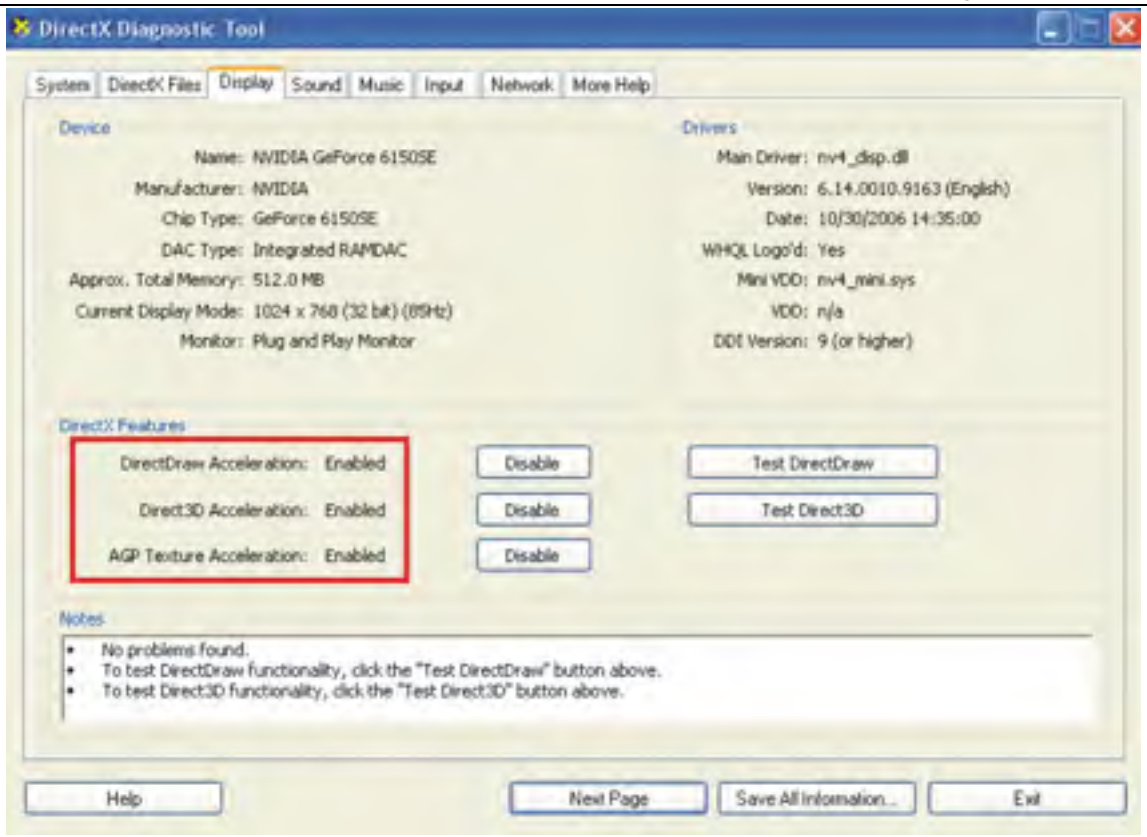
Minimum system requirement are:

CPU: PIII 2.0GHz or above; **AMD processors are not supported**

Display card : DirectX 9c compliant.

Start→Run→input DXDIAG

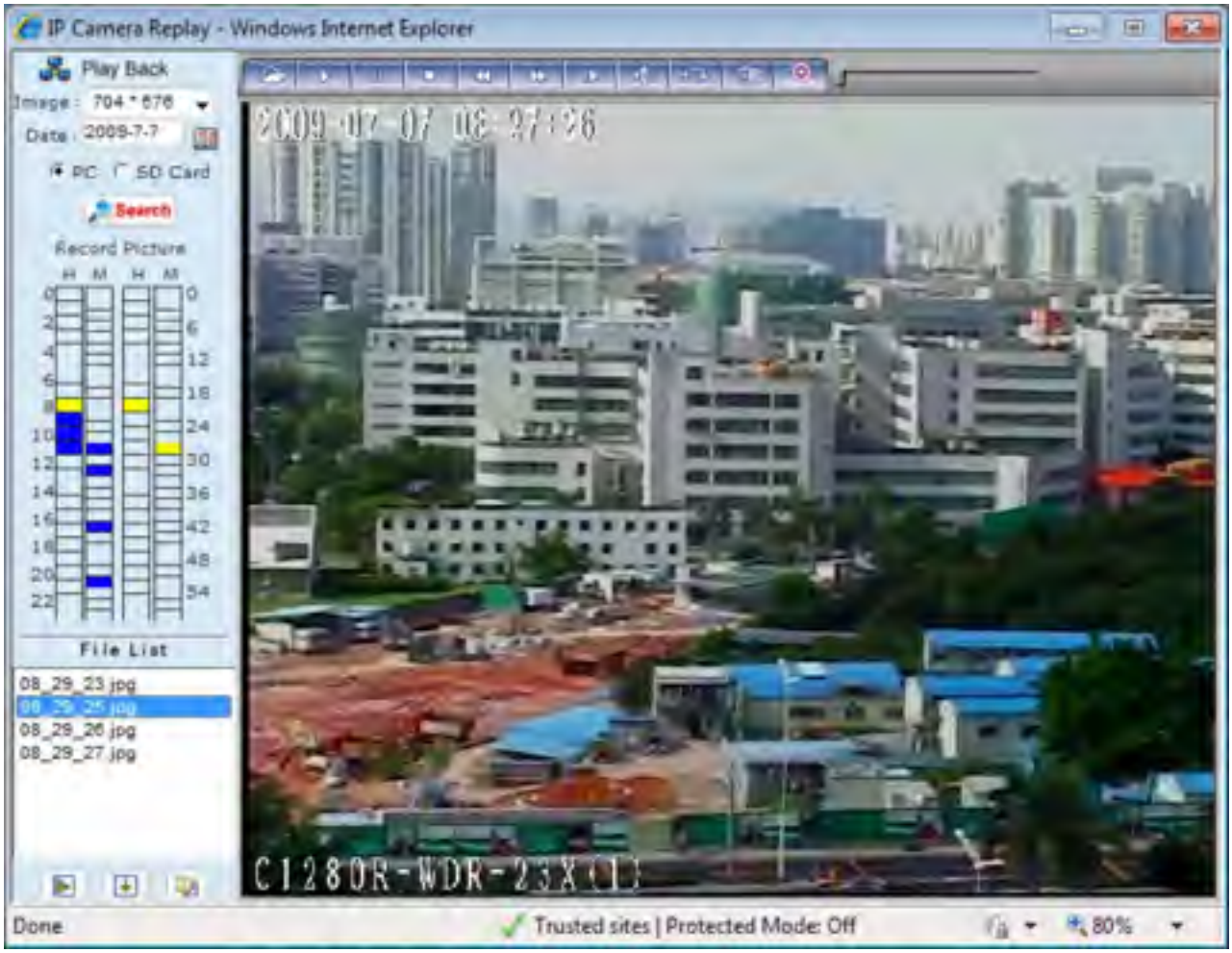
DirectDraw、Direct3D、AGP Texture Acceleration must be enabled


DirectX Diagnostic Tool
System
DirectX Files
Display
Sound
Music
Input
Network
More Help
Device
Name: NVIDIA GeForce 6150SE
Manufacturer: NVIDIA
Chip Type: GeForce 6150SE
DAC Type: Integrated RAMDAC
Approx. Total Memory: 512.0 MB
Current Display Mode: 1024 x 768 (32 bit) (85Hz)
Monitor: Plug and Play Monitor
Drivers
Main Driver: nv4_disp.dll
Version: 6.14.0010.9163 (English)
Date: 10/30/2006 14:35:00
WHQL Logo'd: Yes
Mini VDD: nv4_mini.sys
VDD: n/a
DDI Version: 9 (or higher)
DirectX Features
DirectDraw Acceleration: Enabled
Direct3D Acceleration: Enabled
AGP Texture Acceleration: Enabled
Disable
Disable
Disable
Test DirectDraw
Test Direct3D
Notes
No problems found.
To test DirectDraw functionality, click the "Test DirectDraw" button above.
To test Direct3D functionality, click the "Test Direct3D" button above.
Help
Next Page
Save All Information...
Exit

6.3 Video Playback

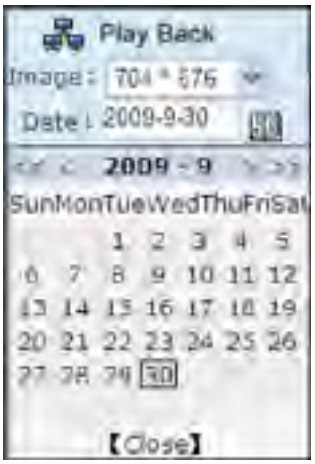
Click【Replay】button: 

, to bring up the following webpage



User can search the recorded image files or snapshot pictures in local PC or SD card according to date.

【Date】User can check the recorded video files or snapshot pictures according to the selected date, click the button :  calendar appears:



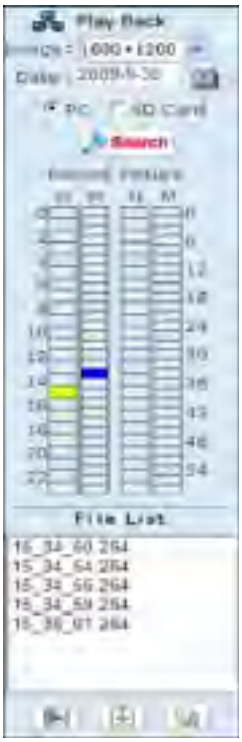
Click " 《 "icon to previous year
Click " 》"icon to next year
Click " 〈 "icon to previous month
Click " 〉"icon to next month

【PC】check the recorded video files or snapshot pictures in local PC according to the selected date.

【SD Card】check the recorded video files or snapshot pictures in SD Card according to the selected date.

【File List】Shows the selected recorded video files or snapshot pictures in the File List.

Check the current recorded video files or snapshot pictures in the list as follows:



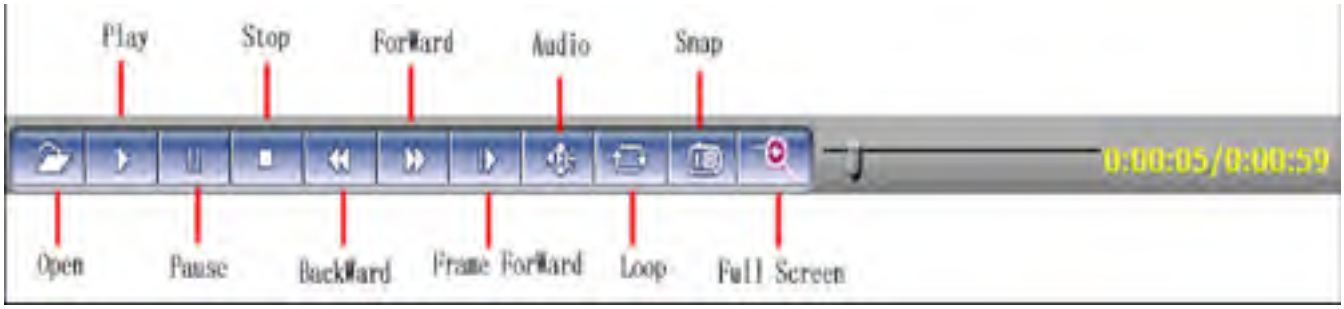
Select to search for record files or snapped pictures in PC or device SD card

The record file list searched is displayed on the left
The picture list searched is displayed on the right
The left side stands for hour, each grid means one hour
The right side stands for minute, each grid means 2 minutes
Yellow indicates the selected search period
Blue indicates there are files and pictures searched of the selected period

Display the files and pictures searched of the selected period
Select to search for record files or snapped pictures in PC or device SD card

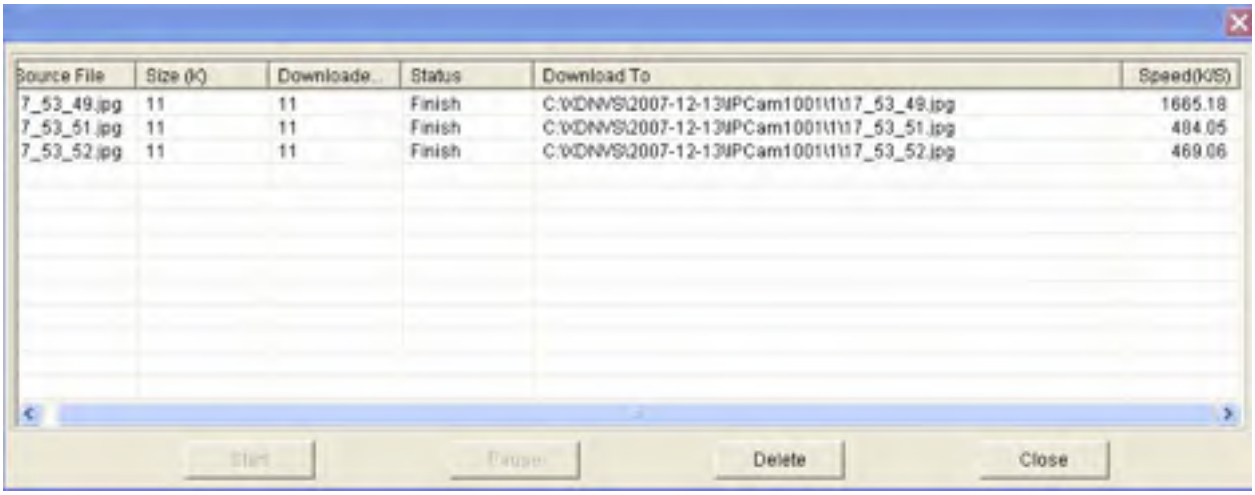
【 】Choose the recorded video or snapshot picture in play list, then click "play" button as :

Playback control as follows:



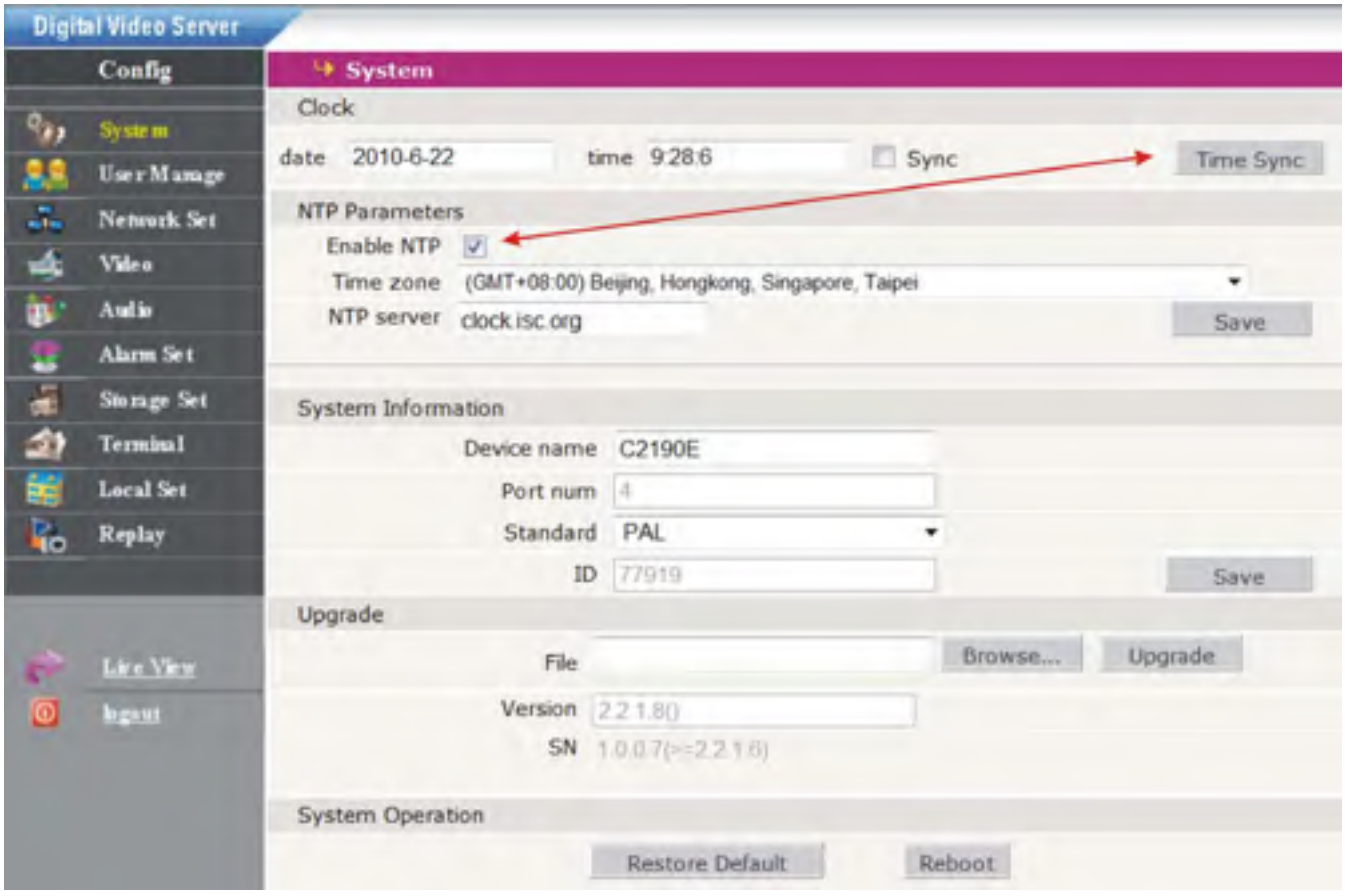
【 】Searching the recorded video file or snapshot pictures which downloaded from SD card in Play list, click the " " button to download it to local PC.

【 】following window pop up after click the " ":



Click【Pause】to pause download manually，click【Start】to continue downloading the remaining files，click【Delete】to del the file，click【Close】to close the download information window.

6.4 System Settings



System Clock: click: "**Time Sync**", C2190E time will be synchronized with your computer.
【NTP Parameter】: Please input the correct NTP server address and select the correct time

zone. After save it, switch to【Live View】, The NTP sever will show the correct time got from NTP Server.

【System Information】Display name, ID number and camera type (NTSC/ PAL).

Note: Rename the C2190E name and save it, the C2190E will reboot.

【Restore Default】Resume all the C2190E parameters (Including Network parameter except MAC address) to default factory settings.

Note: Be careful when use this function.

【Reboot】Click 【Reboot】, the C2190E will reboot after 5 seconds.

【Upgrade】:

The sequence of the upgrade is as follows:

Step1: Application (uke)
Step2: Other (uot)
Step3: OCX (uoc)
Step4: Web Page (uwe)

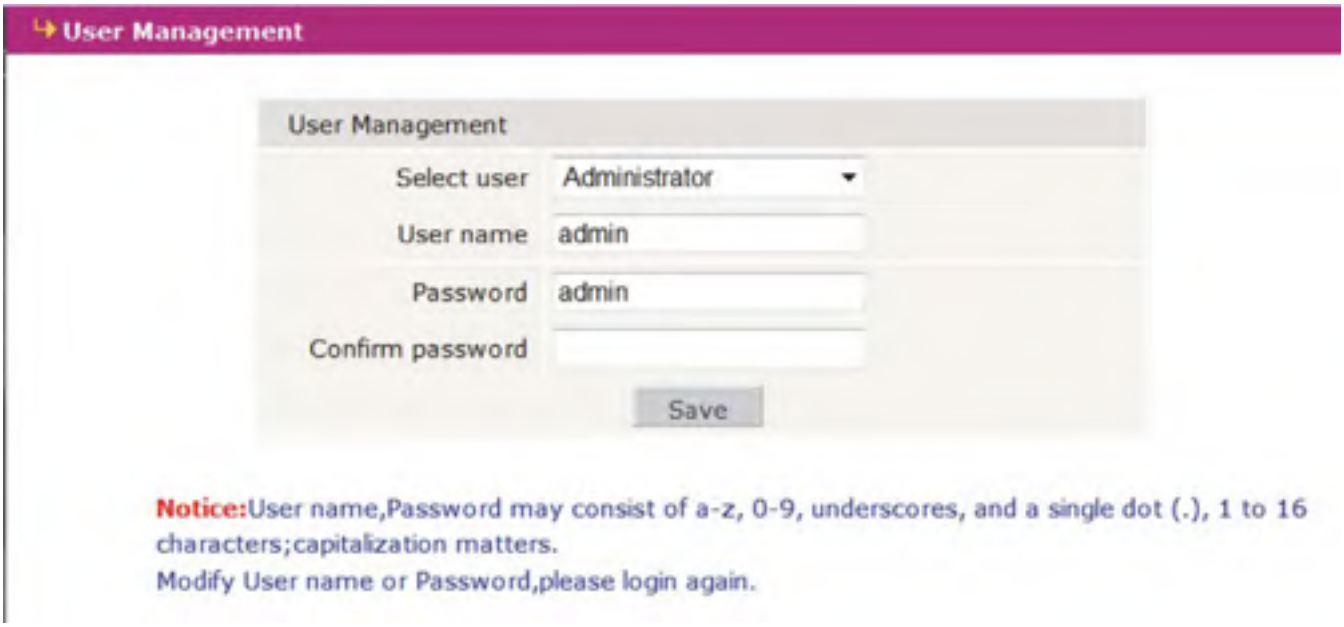
【Upgrade】: Click 【Browse】button, select the correct file for upgrading.
Click 【Upgrade】to upgrade. After finished, the C2190E will reboot automatically.

For example：The current version of C2190E is V2.2.1.5; the new firmware version of IP Camera from the factory is V2.2.1.8 (file: kernel_ccd_v2218.uke) , click 【Browse】button，select file:"kernel_ccd_v2218.uke"，click 【Upgrade】button，There is information showed that the upgrade file was downloaded to Flash in C2190E. When the upgrading finished, it shows "upgrade success", and the C2190E will reboot. After reboot, login and check the new version.

Never power off *Clairvoyant* IP Cameras/ Video servers during upgrading.
Don't interrupt the power and network connection during upgrading.

Must upgrade firmware according to the correct order, first upgrade the kernel Application, then OCX file and Web Page file.
Remember to clear up IE browser history before accessing C2190E after upgrading firmware
Must download new OCX again after upgrading firmware, See page 23 for more details

6.5 User Management



There are two user accounts. One is **Administrator** another is **Guest**. **Administrator** can change parameters of C2190E.
Guest is not allowed to change parameter of C2190E.

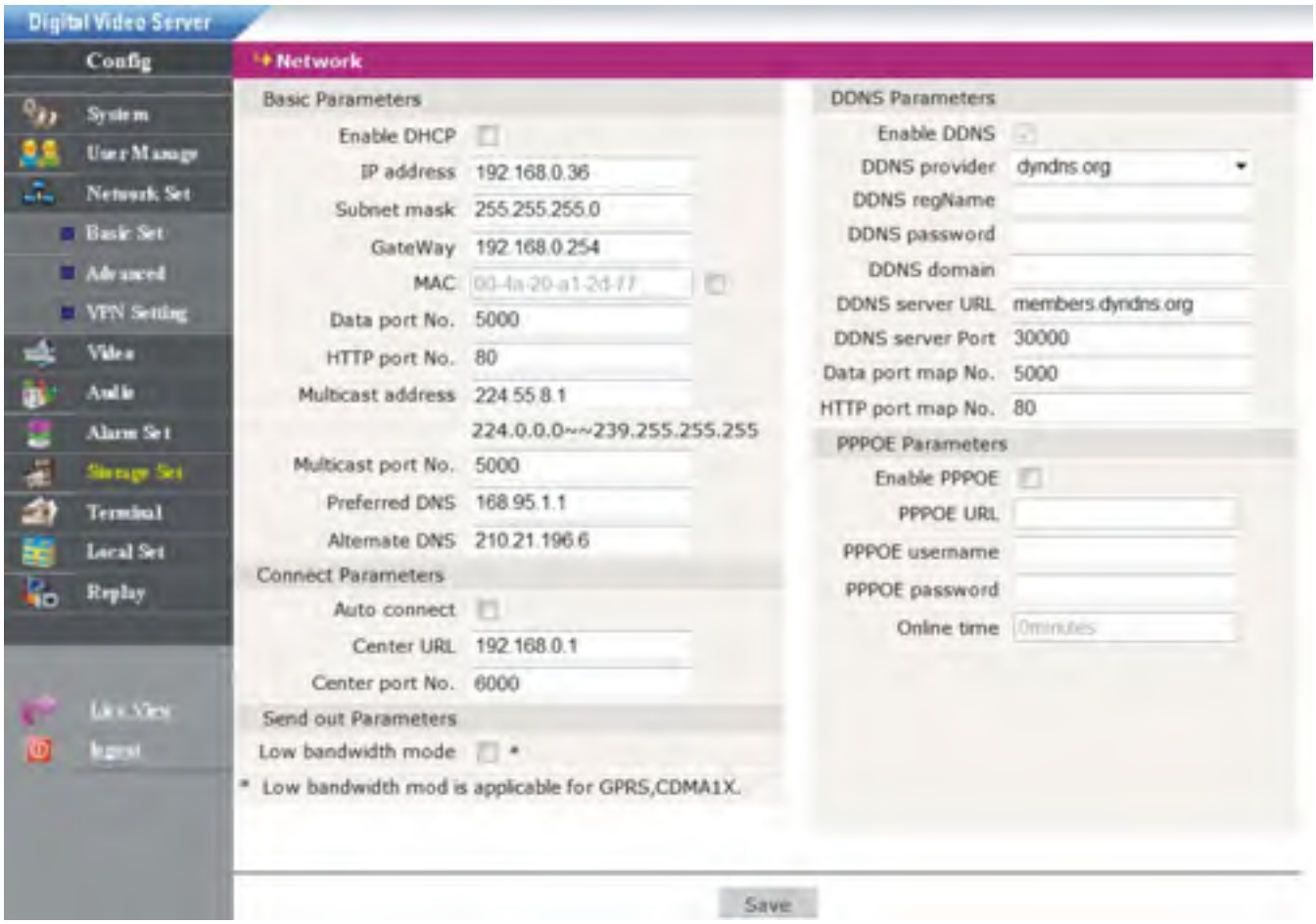
Note: Username/ Password are case sensitive, consisted of letters, numbers, underline or dot up to 16 characters.

Default Administrator Name: **admin**	password: **admin**
Default Guest1 Name: **guest1**	password: **guest1**
Default Guest2 Name: **guest2**	password: **guest2**

Note: It's case sensitive, must use the correct upper case/ lower case characters

6.6 Network Setting

A. Basic settings



Setting C2190E IP address, Subnet mask, Gateway, MAC, Data port、HTTP port、DNS address. The device will restart after setting and save. If C2190E is connected to Wi-Fi network, please don't use the same subnet IP addresses for both wired & Wi-Fi.

Please make sure the C2190E IP is set to the same "**subnet**" of your LAN IP, please consult MIS or network engineer if don't understand what is "**subnet**"

If connect C2190E directly to your PC, please make sure your PC IP is the same "**subnet**" of your C2190E, **make sure to set your PC IP to manual settings**.

Before you can connect your C2190E from Internet, please must read below check points:

It's impossible to access LAN IP from Internet, IP started with 192.168.xxx.xxx is LAN IP, LAN IP is illegal IP, Only legal public IP can be accessed through Internet.
No one can access your LAN IP through Internet or you will be in big security threat, Hackers can access your bank account and secrets stored in your LAN PC

1. Broadband router is firewall in nature will block all accesses from Internet, you will need to

set virtual server (port forwarding) on your router, normally we will always suggest to use port > 1024 to avoid conflicts, port <1024 are frequently used by other applications.

2. Check if the DNS & Gateway settings are correct, it is impossible to get out of your LAN if wrong. (Gateway is the door, DNS is like "map", people won't go out home without knowing where the door is or don't have map to find the way)

3. Always test the DDNS service from another IP (that is outside of your LAN); some router will block WAN port access from LAN.

Please consult qualified network engineers for more details.

CAUTION:

If "Enable WiFi" check box is checked, will enable C2190E wireless interface, the camera won't respond to the broadcast search request cross subnets!!

Please must write down the wired LAN IP address before you enable Wi-Fi!!

SearchNVS.exe won't be able to find camera if your PC is not on the same subnet.

You won't be able to find the C2190E by searchNVS software tool, if you have not correctly set the wireless network parameters or Wi-Fi AP has been switched off, even you have connected your C2190E to LAN by Ethernet cable.

WiFi Parameters

【IP address】The IP address used to connect to your wireless network (wireless router/ AP), for example: 192.168.1.160

【Gateway】Wireless network gateway (wireless router/AP), for example: 192.168.1.1

【SSID】 The unique SSID of your wireless network. This SSID must be same as the SSID of your wireless network (wireless router/AP). Save the parameters after setting. Disconnect the Ethernet cable, visit C2190E through wireless IP address, for example 192.168.1.160.

【Type of encryption】WEP, **WPA, WPA2**

【Mode】802.11b or 802.11g (choose 802.11g for better performance)

Note: The IP of wireless network can't be same as the IP of wired network.

DDNS Setting

Enable Dynamic Domain Name Service will bind your C2190E with a fixed Domain Name (URL); user will access the C2190E by the URL, no matter what the dynamic WAN IP address may vary all the time.

【DDNS RegName】User account registered on DDNS server

【DDNS Password】User Password of DDNS server.

【DDNS Domain】The unique URL set for internet access.

【DDNS Server URL】Dynamic Domain Name Service provider URL.

【DDNS Port】Default :30000.

【Data Port Map No】Default :5000, is the TCP/IP port open on your Gateway/ Firewall which will forward to your C2190E.

【HTTP Port Map No】Default :80, is the TCP/IP port open on your Gateway/ Firewall which

will forward http access to your C2190E.

Note: If other than port 80 used, you will need to add http port number every time you access your C2190E by IE browser. (ex: http://C2190E _IP_Address(URL):port)

PPPOE:

Dial-up setting, enable PPPOE if connect your C2190E to ADSL modem directly.
Get PPPOE Username, Password from your ISP, click 【Save】button

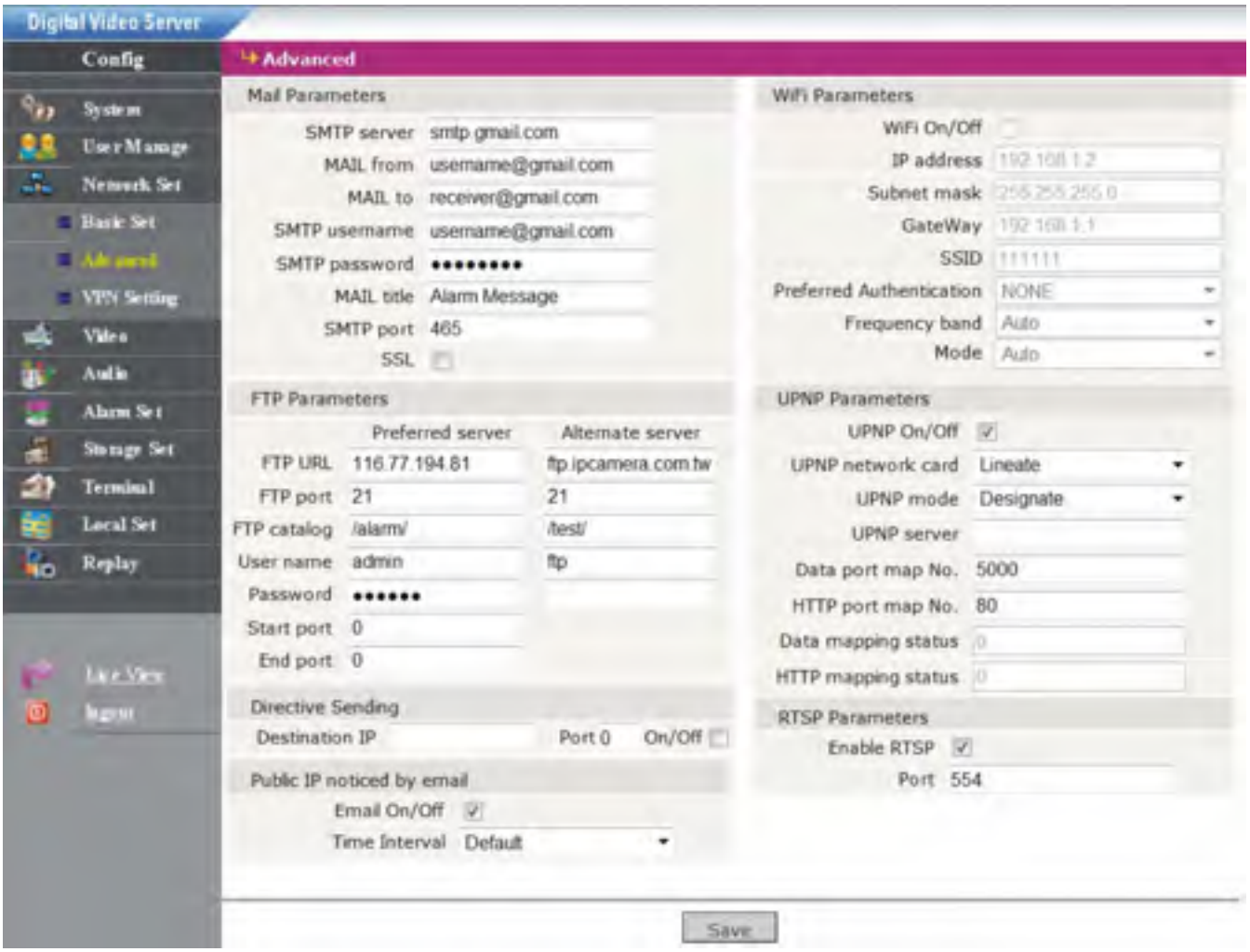
Note: Please kindly notice the below facts of wireless video.

1. Most wireless clients are 2.4GHz Wi-Fi, some are 11b, some are 11g
2. Most home routers are with 2.4GHz Wi-Fi, that support 11b+g by default.
3. Most SOHO routers are with **relative weaker power** to be complied with European ETSI regulations on wireless devices (Antenna + AP: total power < 20dBm)
4. The true throughput of 2.4Ghz Wi-Fi is 20Mbps maximum (not 54 or 108Mbps), will be lesser (down to 1Mbps or smaller) for longer wireless link distance or weaker signal strength (due to interference, wall, door, windows)
5. The IP video will be unstable (not fluent, bad quality, unclear with big square blocks), if packets lost during wireless transmission.
6. The Wi-Fi transmitting protocols will identify packets lost, will try to resend over and over again until transmit successful. Resend packets will jam the effective bandwidth under bad wireless link (interference, weaker signals)
7. The resend packets (previous lost packets) received will be discarded as useless garbage, because it is out of sequence, out of sequence video frames are useless because of the real time nature of video.

Conclude the above facts, that's the reason why SOHO Wi-Fi AP will support "no more than (4) wireless cameras/ video servers", but it is not necessary to be true, if we can conquer below difficulties:

1. For FCC regulations, it is not strictly limited the wireless power as European Countries, we can choose **professional AP** with higher power, plus higher gain directional antennas.
2. Choose only 802.11g wireless cameras/ video servers, set the wireless AP to 802.11g mode only, to get best throughput. Note: 802.11b maximum throughput is only 4Mbps.
3. Choose more professional IP cameras/ video servers with H.264 video compression that require lesser bandwidth per camera (30fps @D1, NTSC; 512kbps ~2Mbps maximum).
4. Avoid obstacles in between AP & IP Camera/ video server. Choose different wireless channels for adjacent AP.
5. Choose 802.11a (5.8GHz) for longer range wireless link, or under serious interference to ensure good wireless link quality.

B. Advanced Settings



Mail Setting:

When there is a motion alarm, the C2190E will send the alarm mail to the designated email box automatically

【SMTP Server】Your Email server address, for example: Hinet mail, the SMTP server is msa.hinet.net

【Mail From】sender email address.

【Mail To】 receiver email address.

【SMTP User Name】Your User account on SMTP server, please check your outlook email settings.

【SMTP Password】Your User Password on SMTP server, please check your outlook email settings.

【Mail Title】Title of the alarm mail.

【SMTP Port: 】port of SMTP port, different mail server has different port. For example, the server

Note:

Gmail mail server:

SMTP server: smtp.gmail.com

SMTP user name: username@gmail.com

SMTP port: 465

SSL: enabled
Yahoo mail server:
SMTP server: smtp.mail.yahoo.com
SMTP user name: username@yahoo.com
SMTP port: 465
SSL: enabled

UPNP Setting: Port mapping automatically: The Gateway/ Firewall server with UPNP function will map port for C2190E automatically.
【UPNP Network Card】The C2190E interface connect to UPNP Gateway/ Firewall.
【UPNP mode】There are **Designate** and **Auto** modes:
Designate mode: C2190E will designate the data port and web port to UPNP Gateway/ Firewall.
Auto mode: C2190E will get the data port and web port from UPNP Gateway/ Firewall.
【UPNP server】Gateway/ Firewall IP address.
【Data mapping port】data mapping port of user-specified device on the router(works only under specified mode).
【Web mapping port】web mapping port of user-specified device on the router(works only under specified mode).
【Data mapping port status】When UPNP function runs successfully, the status bar will echo the data port mapped to the router by the device.
【Web mapping port status】When UPNP function runs successfully, the status bar will echo the web port mapped to the router by the device.

click【save】After setting.

Note:
C2190E is fully functional UPnP client, will communicate with UPnP Server through standard UPnP protocols, The Gateway/ Firewall must supports UPnP Server functions.

FTP Setting: Upload snapshot at alarm (motion & sensor), or by scheduled period of time (example: every 1 minute).
【FTP URL】Your FTP server **IP address** (or our LAN DISK), for example:192.168.66.10
【FTP port】default is 21.
【FTP Username】 FTP account name.
【FTP Password】Your account password on FTP server.
【FTP catalog】folder to store snapshots.

Note: FTP URL must be IP address, don't support domain name.

RTSP Setting: Enable RTSP streaming, will be compatible with vlc player, Coreplayer & Real player on 3G phones
【RTSP port】default port is 554.

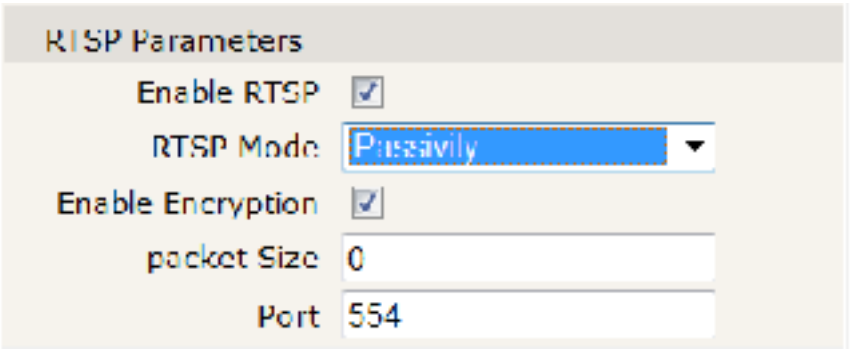
click【save】After setting.

WARNING: If RTSP enabled, **authentication is not required** to playback live video & audio by vlc media player.
Please be aware of privacy risk.

To play on vlc, Coreplayer (iPhone, Smart phones), Realplayer (Nokia Symbian)

Syntax
rtsp:// C2190E_url_or_WAN_IP:rtsp-port
Example:
rtsp://www.ipcamera.com.tw:554

To select channel, Must set RTSP parameter as below
Channel 1 main stream
rtsp://IP/av0_0
rtsp://192.168.55.160:554/av0_0
Channel 2 main stream
rtsp://IP/av1_0
rtsp://192.168.55.160:554/av1_0
Channel 3 main stream
rtsp://IP/av2_0
rtsp://192.168.55.160:554/av2_0
Channel 4 main stream
rtsp://IP/av3_0
rtsp://192.168.55.160:554/av3_0



Channel 1 2nd stream
rtsp://IP/av0_1
rtsp://192.168.55.160:554/av0_1
Channel 2 2nd stream
rtsp://IP/av1_1
rtsp://192.168.55.160:554/av1_1
Channel 3 2nd stream
rtsp://IP/av2_1
rtsp://192.168.55.160:554/av2_1
Channel 4 2nd stream
rtsp://IP/av3_1
rtsp://192.168.55.160:554/av3_1

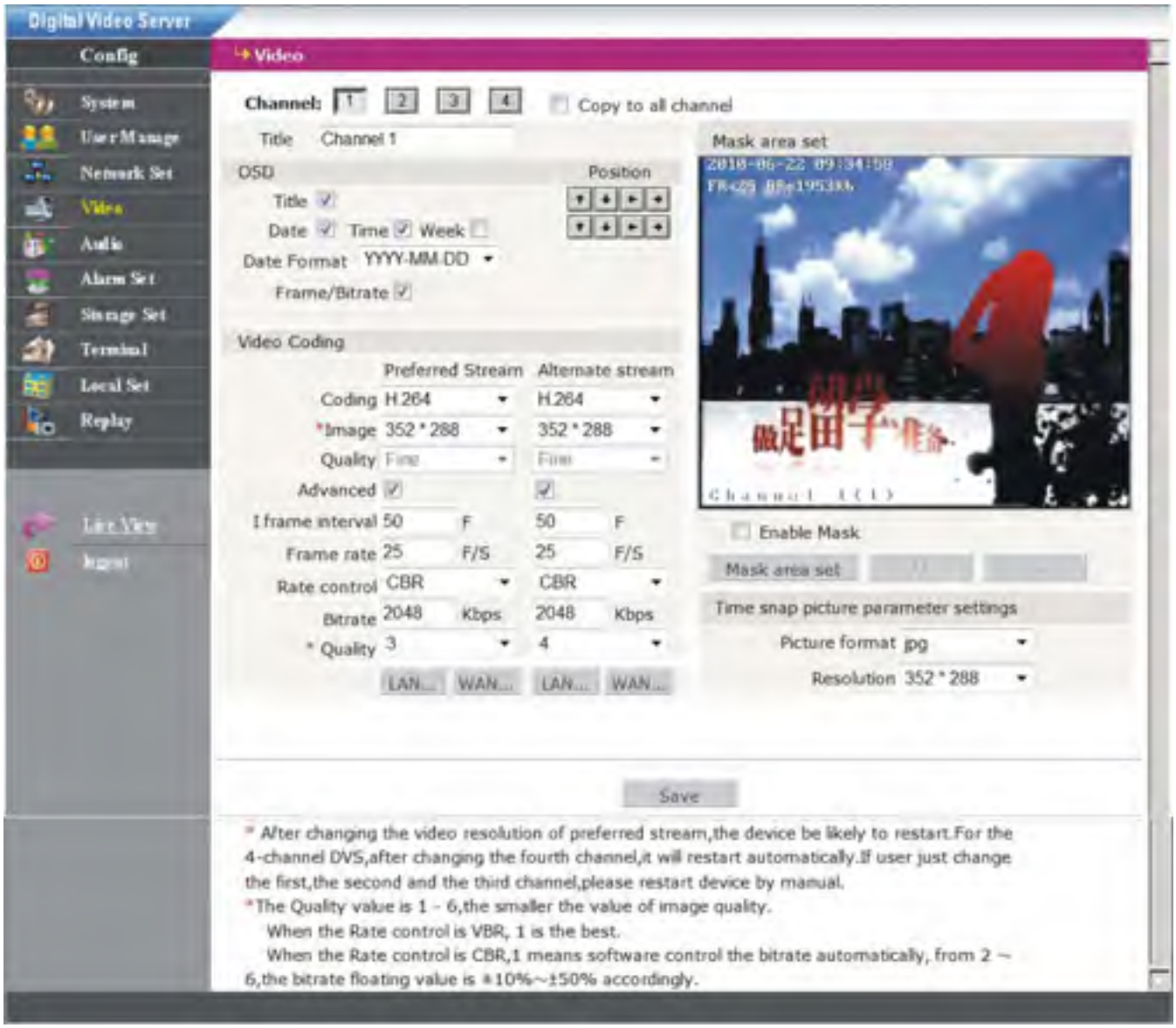
【Public IP mail notification】

Mail notification on/off: check this switch to enable public IP mail notification function.

Interval: select the interval of public IP mail notifications.

After enable this function, when the device starts or detects public IP change, it will send notification mail to the mail address set in “mail settings”.

6.7 Video Settings



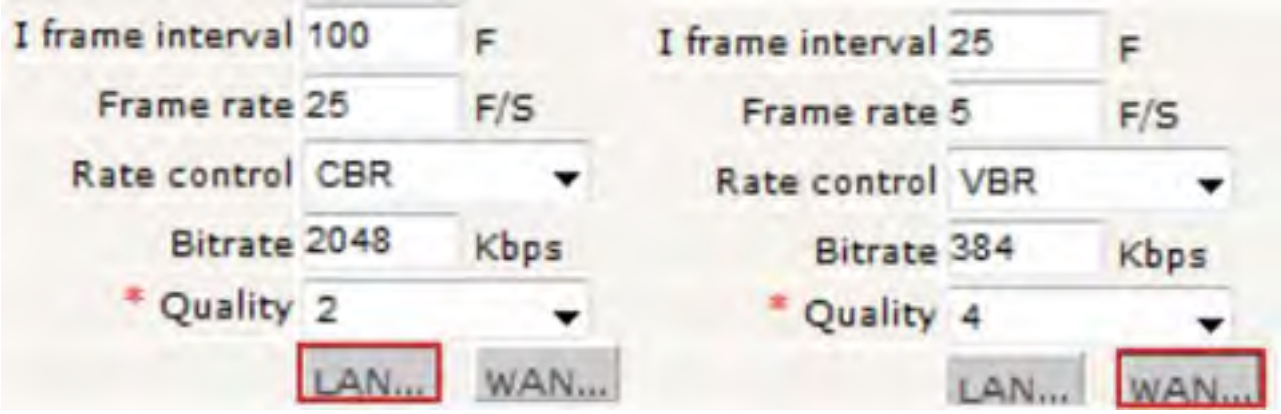
【Image】: Set image resolution, C2190E supports

PAL system D1 (704*576)/ HD1 (704*288)/ CIF (352*288)/ QCIF (176*144);

NTSC system D1 (704*480)/ HD1 (704*240)/ CIF (352*240)/ QCIF (176*120)

【Quality】: Options for **Fine**, **Normal**, **Basic** and there is advanced image setting.

【Advanced image setting】 as follows:



Choose LAN or WAN defaults to get best applicable settings

Note:

Why can't get image from H.264 images IP Cameras/ video servers? But can access MJPEG images with the same broadband WAN/ Internet connection?

IP Cameras with H.264 compression won't display video if I frame lost, received P/B frames won't display without I frame, at bad network connection, packets may lost or out of sequence, video won't start until a full I frame arrived.

Note:

I frame: full image

P frame: moving objects of I frame

P frame must join to I frame to become a full frame, if I frame lost, no video will display.

Please also check the available "upload bandwidth" , normally ADSL is very small around 256~384kbps, please adjust the video settings to WAN defaults, adjust the bit rate to 256kbps, adjust video resolution to CIF or QCIF to fit for lower "upload bandwidth".

Note: the lower "upload bandwidth", the worse "network connection" the lower resolution should choose.

Please always use smaller "I interval" for Internet accesses, the worse network connection, the smaller "I interval" should use.

If set 2,048Kbps throughput with highest resolution (D1) and full frame rate (25fps) on an ADSL connection with poor bandwidth, no video will display.

Please select most reliable MJPEG video compression, which sends pictures frame by frame, will drop pictures automatically at small bandwidth, which means users will always see pictures changing, the refresh rate is according to bandwidth available. The parameters of video quality and frame rate are not adjustable, will automatically adapt the available bandwidth.

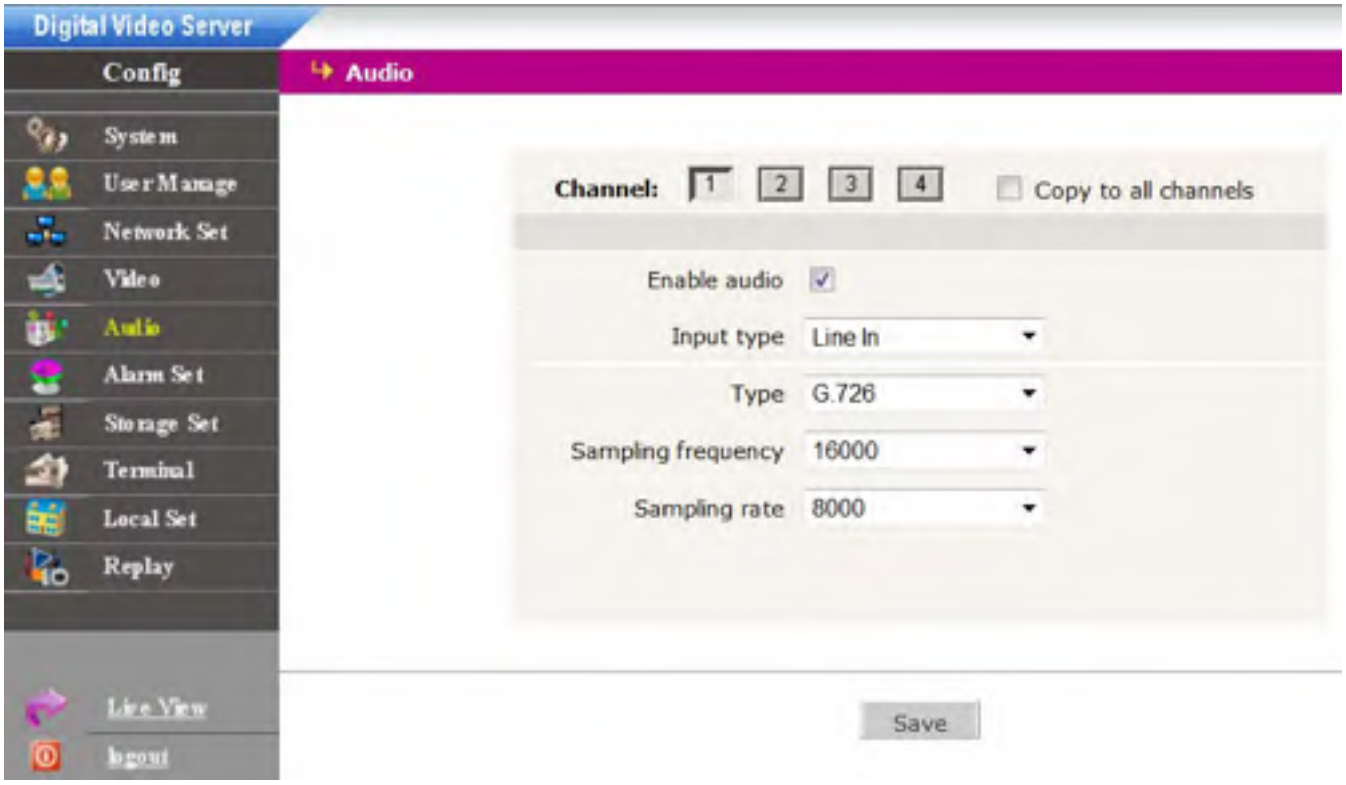
This IP Camera adopts most advanced H.264 Main Profile compression with Dual compression (h.264 & MJPEG) & Dual video Streams output, which means you can choose most suitable compression/ resolution/ frame rate/ quality according to real application scenario.

Note: don't use the advanced image setting if you are not professional personnel.

【Audio】 Set audio ON/OFF（Default: OFF）,there are two models: Microphone and Line input. If users don't need audio status; please close audio input to save the DSP resource and network resource.

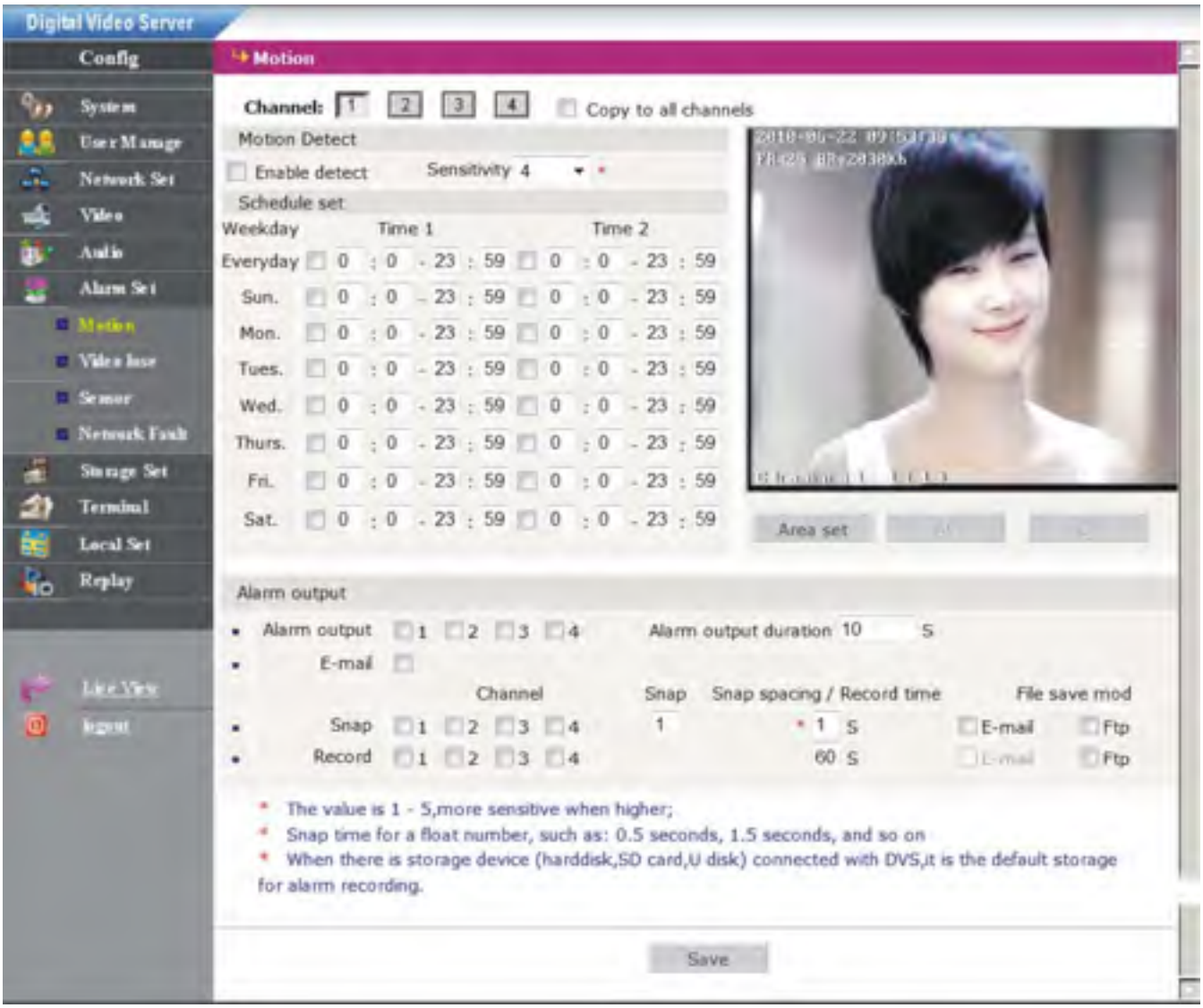
【Mask Area Set】 Mask all image or Mask part image, the whole image divided into 22 * 18 blocks. Select the blocks to mask, or cancel the mask setting.

6.8 Audio Setting



6.9 Alarm Setting

A. Motion Detect



Setting motion alarm parameters: included the schedule time, on/ off the alarm, sensitivity, trigger alarm output, alarm delay, alarm recording on PC storage or capture snapshot to SD card when alarming. (The snapshots stored on SD card can be downloaded to PC on 【replay】page)

【Schedule】Set the time of motion alarm detection.

【Alarm output】Alarming, trigger alarm signal output.

【Alarm delay】Alarming, delay the alarm (the period of time after alarm that continuous alarms will be ignored) automatically ,set the time from 0~86400 seconds.

【Alarm record in PC】Automatically recording video and stored it on PC storage when alarming if no SD card in C2190E.

【Alarm snapshot in SD Card】Automatically capturing image and stored it in SD when alarming. If there are continuous alarms, the interval time of capturing is the delay time. For example, the alarm delay is 10 seconds; it will capture an image

stored in SD card every 10 seconds. The image in SD card can be downloaded to PC when replay. And when the SD is full, the old file will be over written automatically.

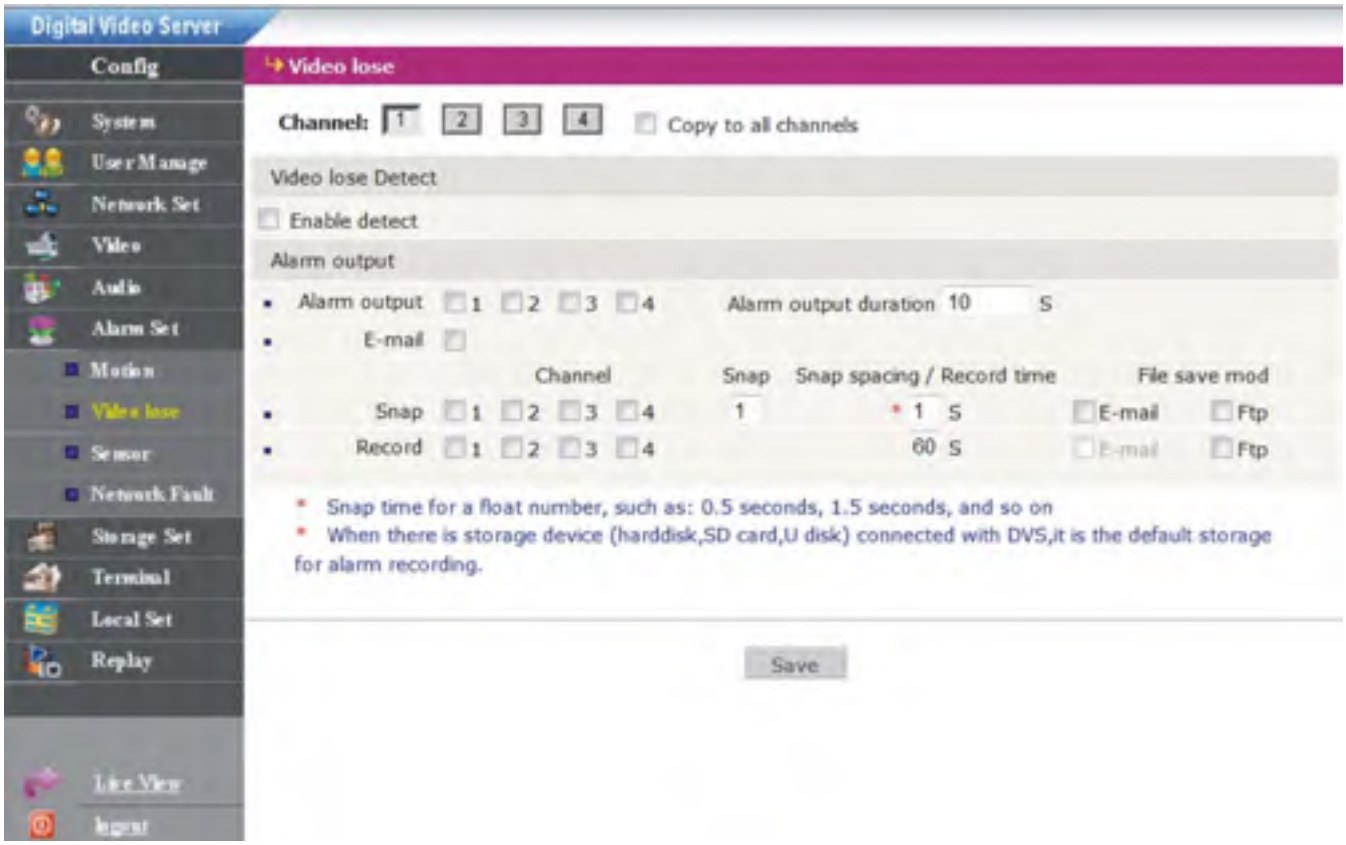
【Area set】: Hold the left button of mouse and drag the motion detect area.

【All】Set whole image as motion detect area

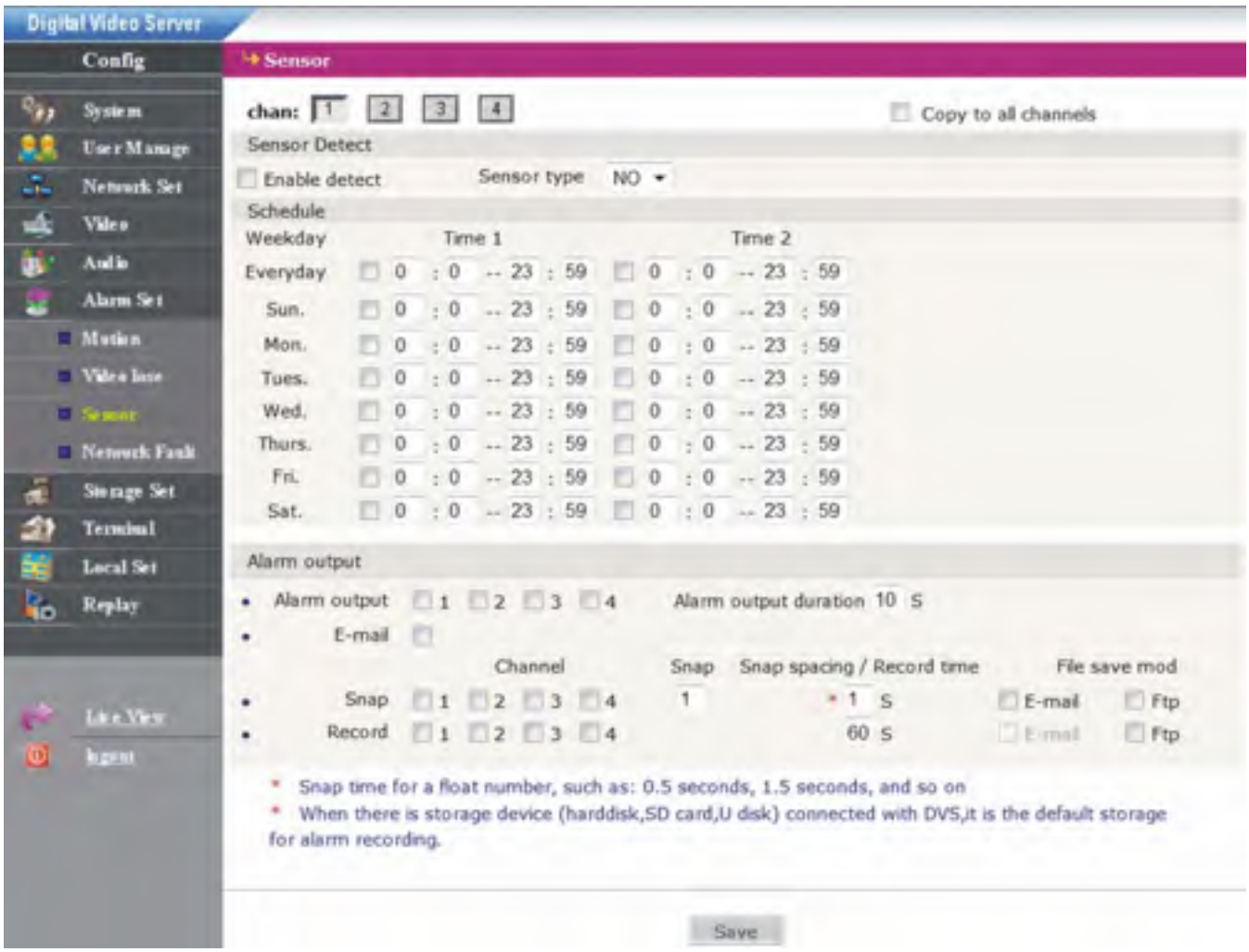
【Clr】Clear all motion detect area.

After setting, click the 【save】button.

B. Video Lose



C. Sensor



Setting sensor alarm parameters: include the schedule time, on/ off the sensor alarm, sensor state, alarm output, alarm delay, alarm record on PC storage or capture snapshot on SD card when alarming.

【Schedule】Set the time of sensor alarm detection.

【Alarm output】Alarming, trigger alarm signal output.

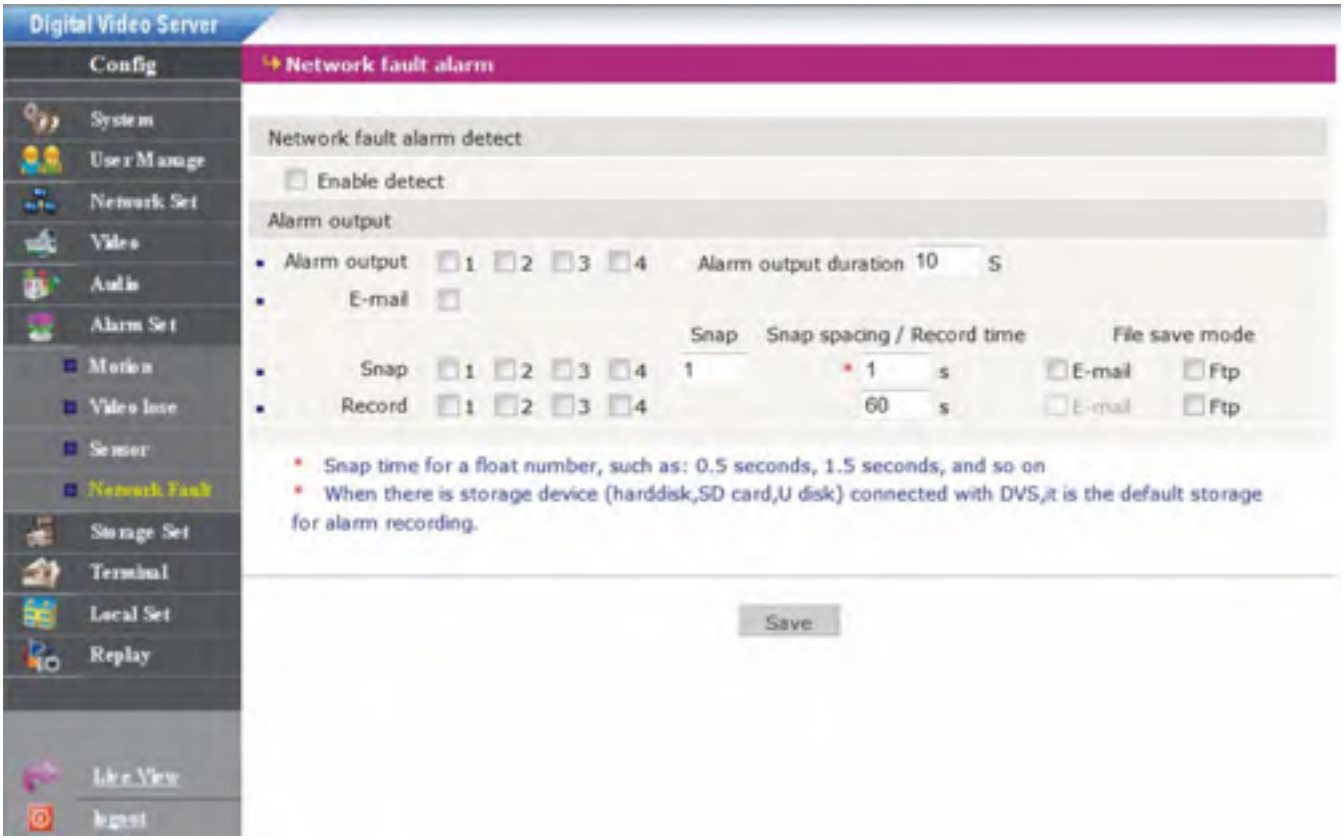
【Alarm delay】 Alarming, delay the alarm (the period of time after alarm that continuous alarms will be ignored) automatically ,set the time from 0~86400 seconds.

【Alarm record on PC】Automatically recording video and stored it on PC storage when alarming if no SD card in C2190E.

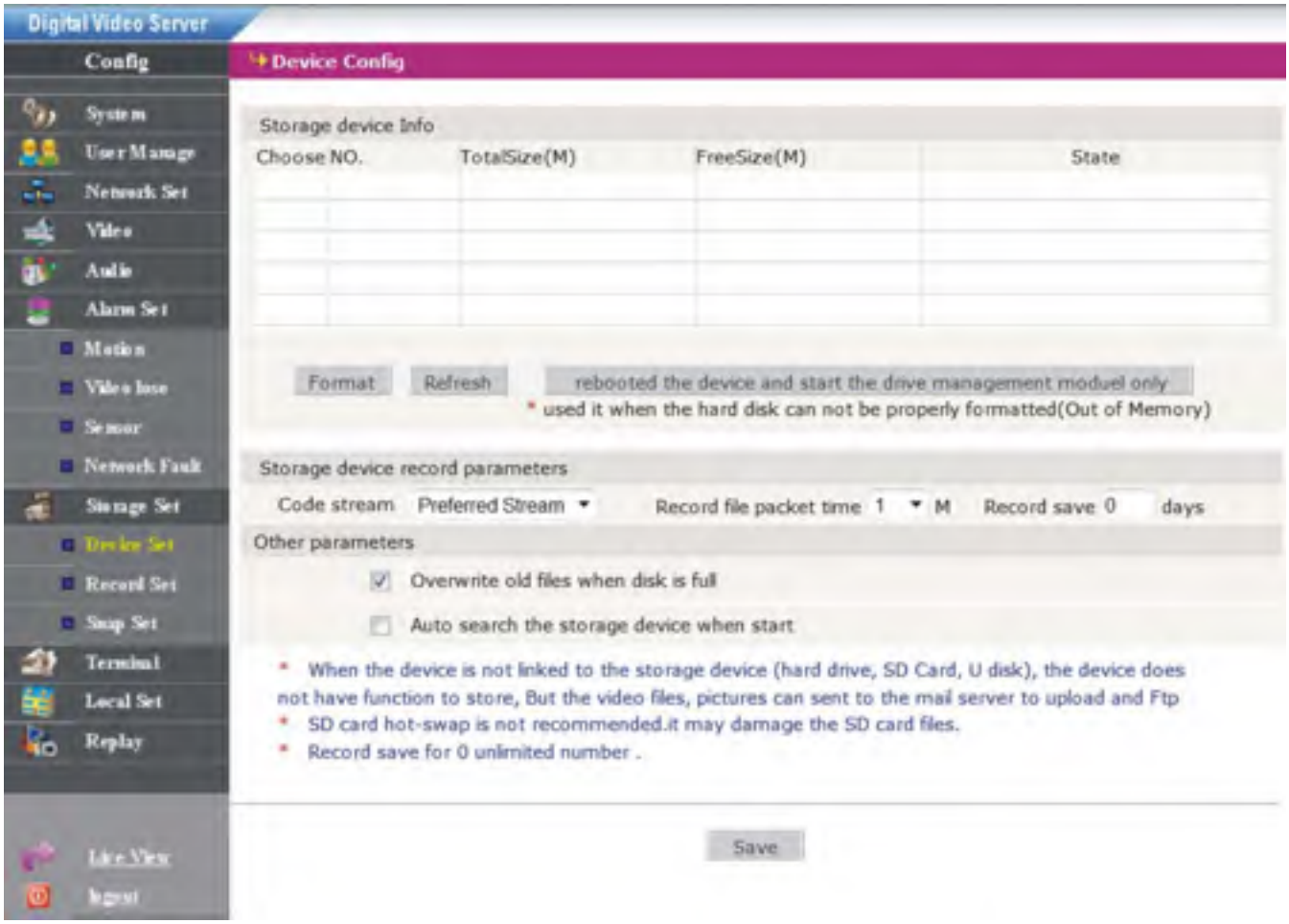
【Alarm capture on SD Card】Automatically capture snapshots, stored on SD when alarming. If there are continuous alarms, the interval of snapshots is the delay time. For example, the alarm delay is 10 seconds; it will capture an image store on SD card every 10 seconds. The snapshots on SD card can be downloaded to PC when【replay】. And when the SD is full, the old file will be over-written automatically.

After setting, click the 【save】button.

D. Network fault



6.10 Storage Settings



[Storage Device info]: view information of SD card here, including total capacity, free capacity, and formatting status. Users can also click [Formatting] button to format SD card, during the formatting process, please click [Refresh] button to the display formatting completion percentage.

[Storage device Record Parameters]

Stream selection: set record stream for SD card, preferred stream and alternate stream are selectable.

Record files packing interval: set packing intervals for each segment of record file when SD card is recording.1 means files will be packed every 1 minute.

[Other Parameters]

Automatically overwrite old files when storage device gets full: when the storage capacity of SD card is used up, the device will delete old files automatically. The way to delete old files: first delete the files of the earliest date, if the space is still not enough, then delete the files of the earliest date but one, then go on like this if necessary. If the record files are taken on the current date, then first delete the files of the earliest hour. But files of the current hour cannot be deleted, if the SD card gets full in one hour, the device will stop recording and snapping images. After the one-hour session ends, system will delete the files of the hour and continue to record and snap pictures.

Scan the disk when device starts: check storage device or not when C2190E starts.

Note:

1 Do not cut off the power of the device during formatting process.

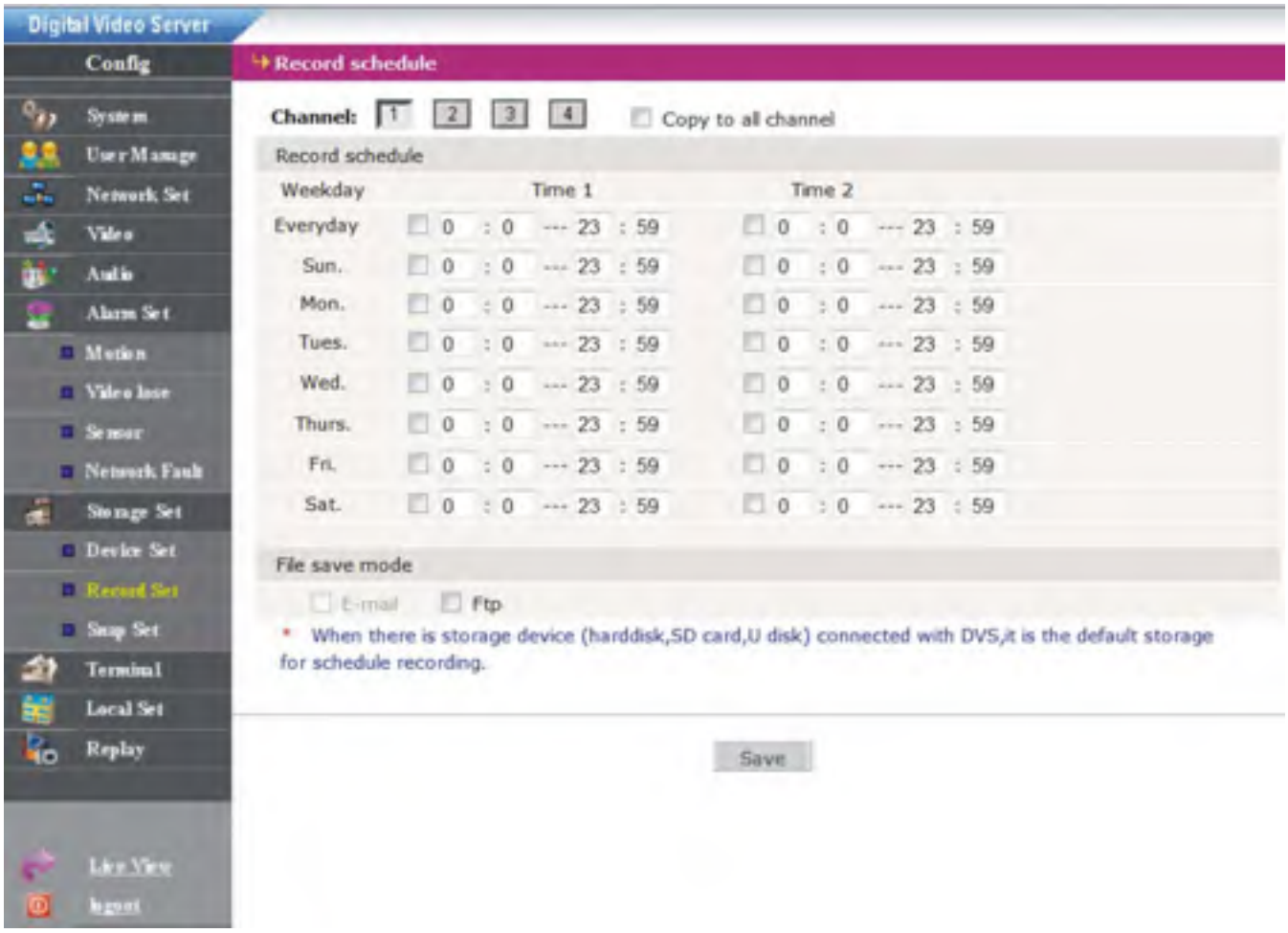
2 ext2 file is used to format system by default.

After setting all the parameters, click [save] to make the parameters valid.

CAUTION:

Never hot-swap SD card that may damage the SD card, valuable recording stored in SD card will be lost!!

Record schedule



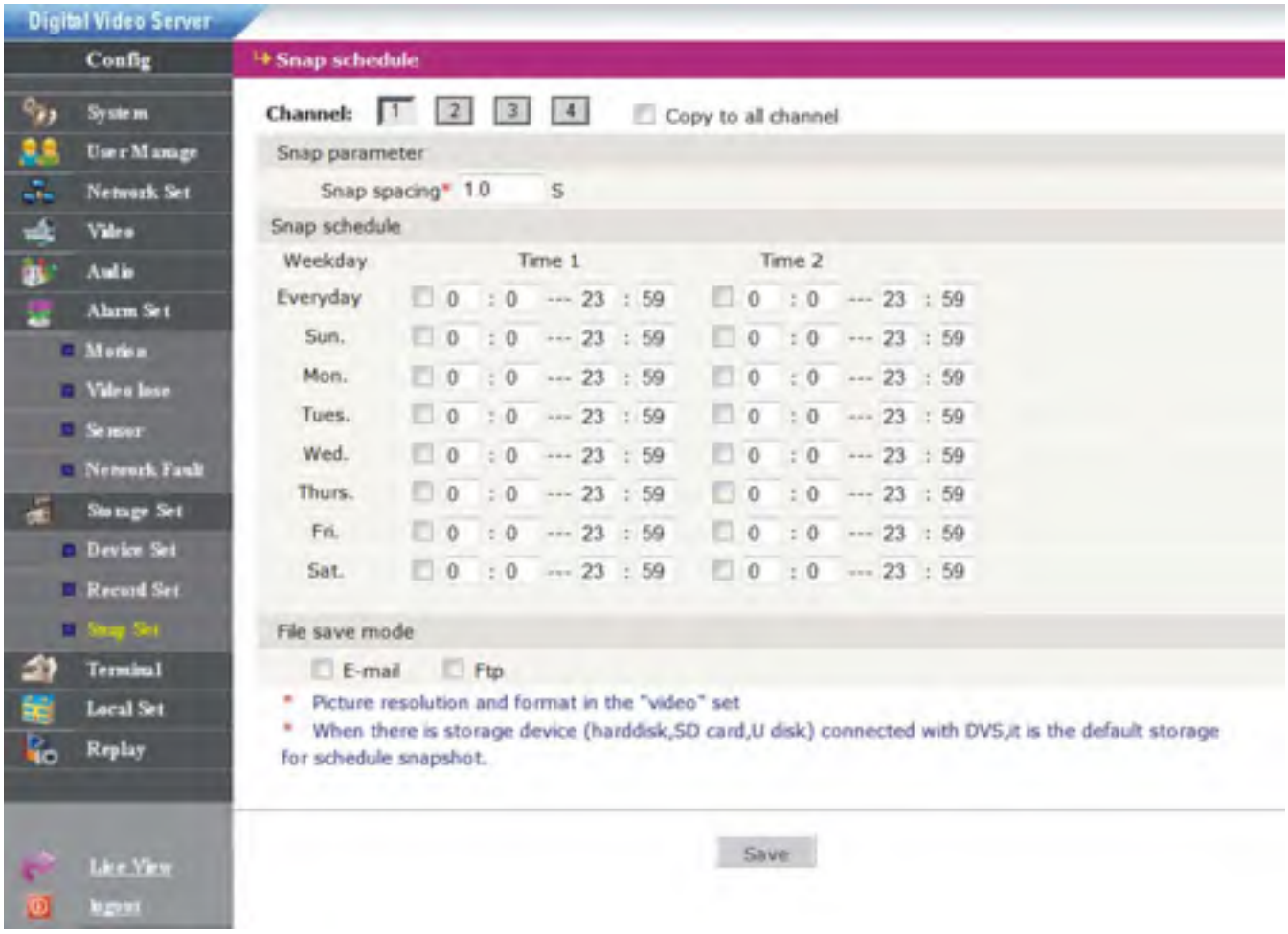
[Record Schedule]: set the period of scheduled recording, two periods allowed.

[File save mode]: set to save scheduled recorded files to FTP server via FTP uploading, **FTP server can be set up in [FTP settings]**.

Note: record files are saved via FTP uploading. SD card is required as cache memory, otherwise record files will be overwritten by new files due to insufficient cache memory space.

After setting all the parameters, click [save] to make the parameters valid.

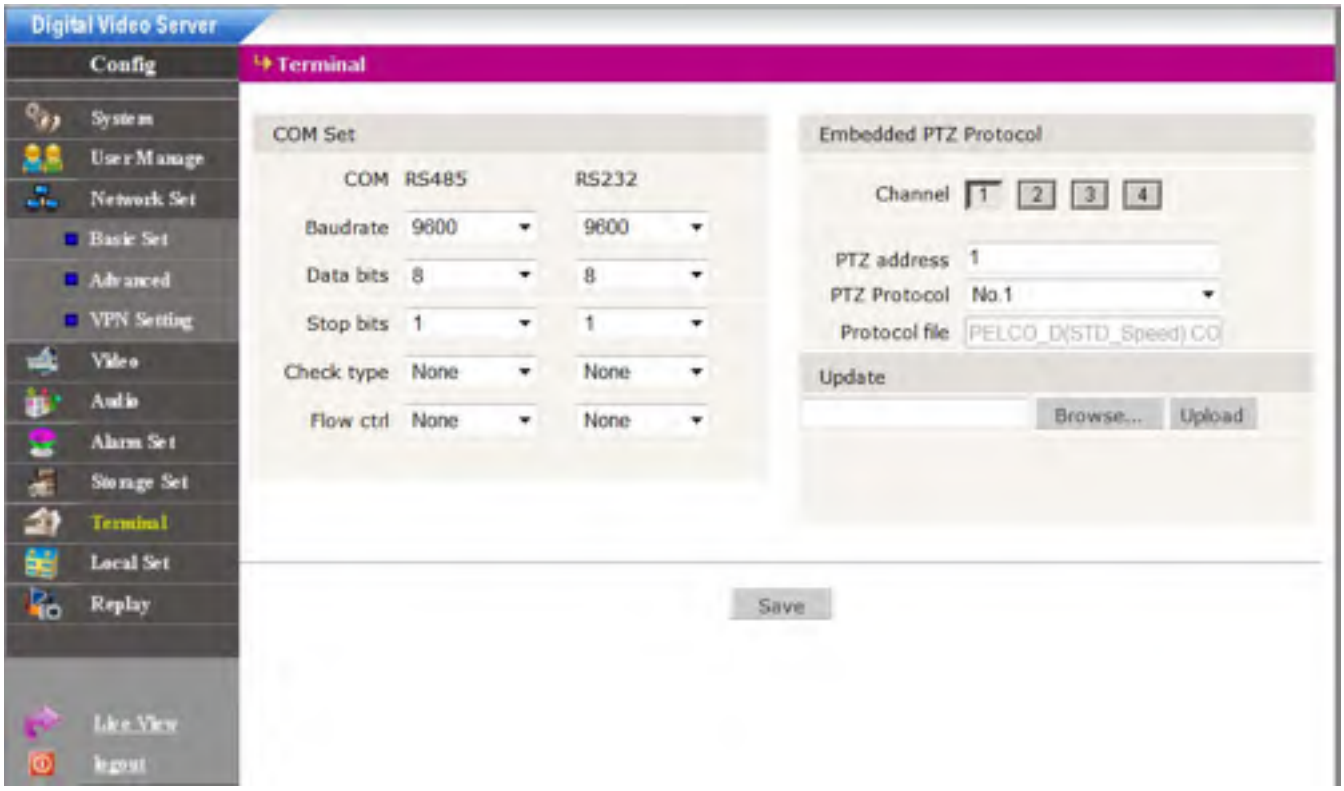
Snap schedule



[Snap parameter]: set the interval of picture snapping, minimum interval is 1 second.
[Snap Schedule]: set the period of scheduled snapping, two periods allowed.
[Files saving mode]: Snapped pictures can be saved via E-mail sending or FTP uploading. E-Mail server can be set up in [Mail Settings], FTP server can be set up in [FTP Settings].
After setting all the parameters, click [save] to make the parameters valid.

Note:
Record files are saved via FTP uploading. SD card is needed for cache memory support, otherwise record files will be overwritten by new files due to insufficient cache memory space.

6.11 Terminal Settings



[PTZ address]: 1 ~ 256.
Default PTZ address: 1

Please set address of PAN/TILT seat to match above settings.
.

Note:

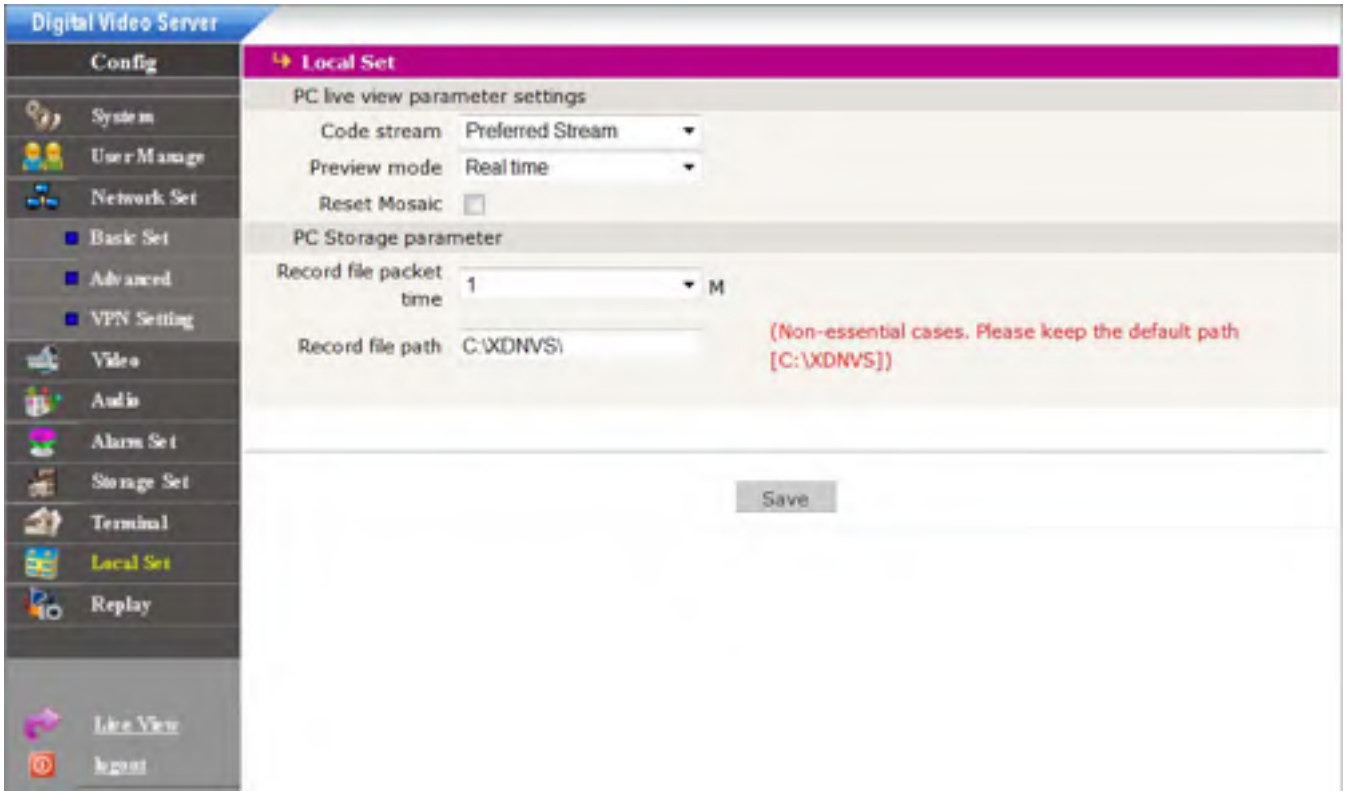
Must set parameters and protocol correctly, PTZ won't be controllable if change parameters.

Not necessary to change above settings unless you want to use keyboard/joystick to control multiple speed dome cameras.
Suggest to match camera PTZ address with windows number set on CMS.

Baudrate : 2400bps
Data bits : 8
Stop bits : 1
Check type : none
Flow ctrl : none
Protocol : PELCO_D(STD_Speed).COD

click【save】after setting.

6.13 Local Settings



[PC live preview parameters settings]

Stream selection: set video stream for PC live preview, preferred stream and alternate stream are selectable. The parameters of preferred and alternate stream can be set up in [Video Settings].

Preview mode: users can choose real-time priority or fluency priority mode according to their needs.

[Anti-crack]: select this option to make image quality better, but CPU usage rate will be higher at the same time.

[PC storage parameter]

Record files packing time: set packing time of record files for local PC when it is recording.

Record/snapped files storage directory: set the storage directory for local records and snapped files, the default path is C:\XDNVS.

Appendix 1 Network Port for IP Camera/ Video Server

TCP	80 (Web port)	5000 (Communication port, Audio/ Video data transmitting Port, Talk data transmitting Port)
UDP	5000	Audio/Video data transmitting Port
Multiple port	Multiple original port + Channel Number	

Appendix 2 Network Factory Defaults

Wired network defaults:

IP Address: 192.168.55.160 Data port: 5000
Subnet Mask: 255.255.255.0 Web port: 80
Gateway: 192.168.55.1 DHCP: OFF

Wireless network defaults:

IP Address: 192.168.1.160 Subnet Mask: 255.255.255.0
Gateway: 192.168.1.1 Frequency /Mode: Auto

Note: The wireless network can't be the same as the wired network. Must be different subnet

Appendix 3 DDNS introduction

DDNS function

DDNS (Dynamic Domain Name Service) refers to the real-time analysis of a fixed domain name and the dynamic public IP address of the IP camera/ video server. With this function, all Internet users can visit the IP camera/ video server via a fixed domain name.

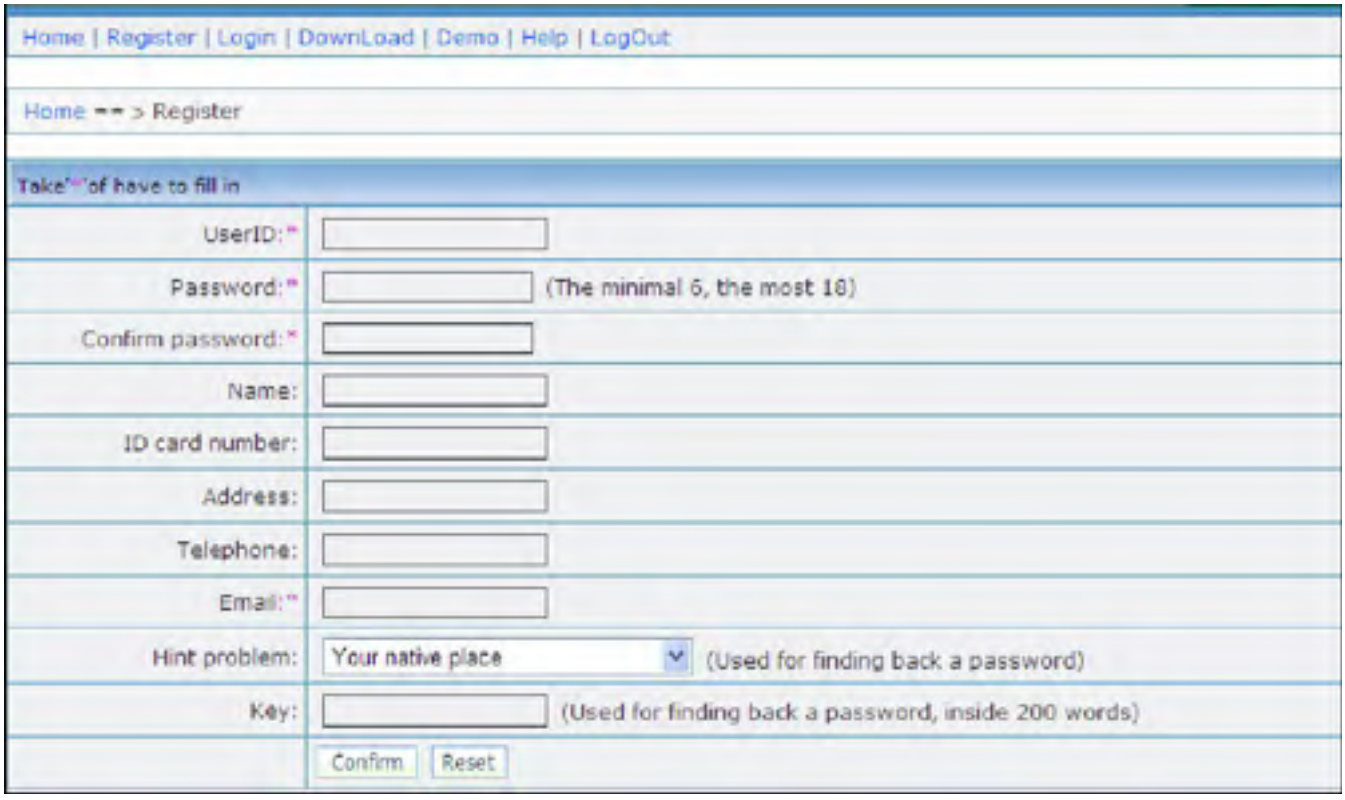
The DDNS process of IP camera/ video server is as follow:

The DDNS process flow diagram of IP camera/ video server

Apply for DDNS domain name service

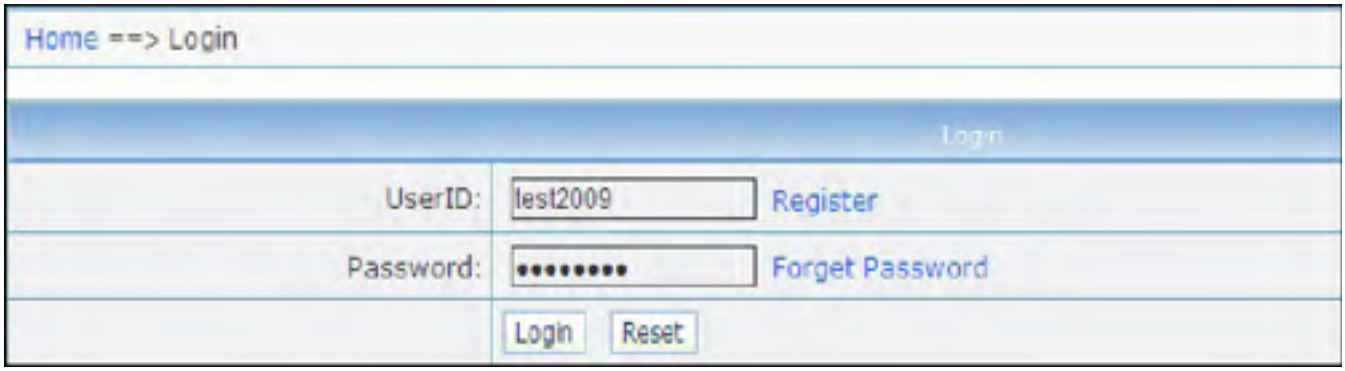
Step 1: Sign up

Users need to sign up to manage and inquire about domain name status when using this dynamic domain name management system for the first time. Visit DDNS server (http://www.mvddns.net) to sign up. See the picture below:



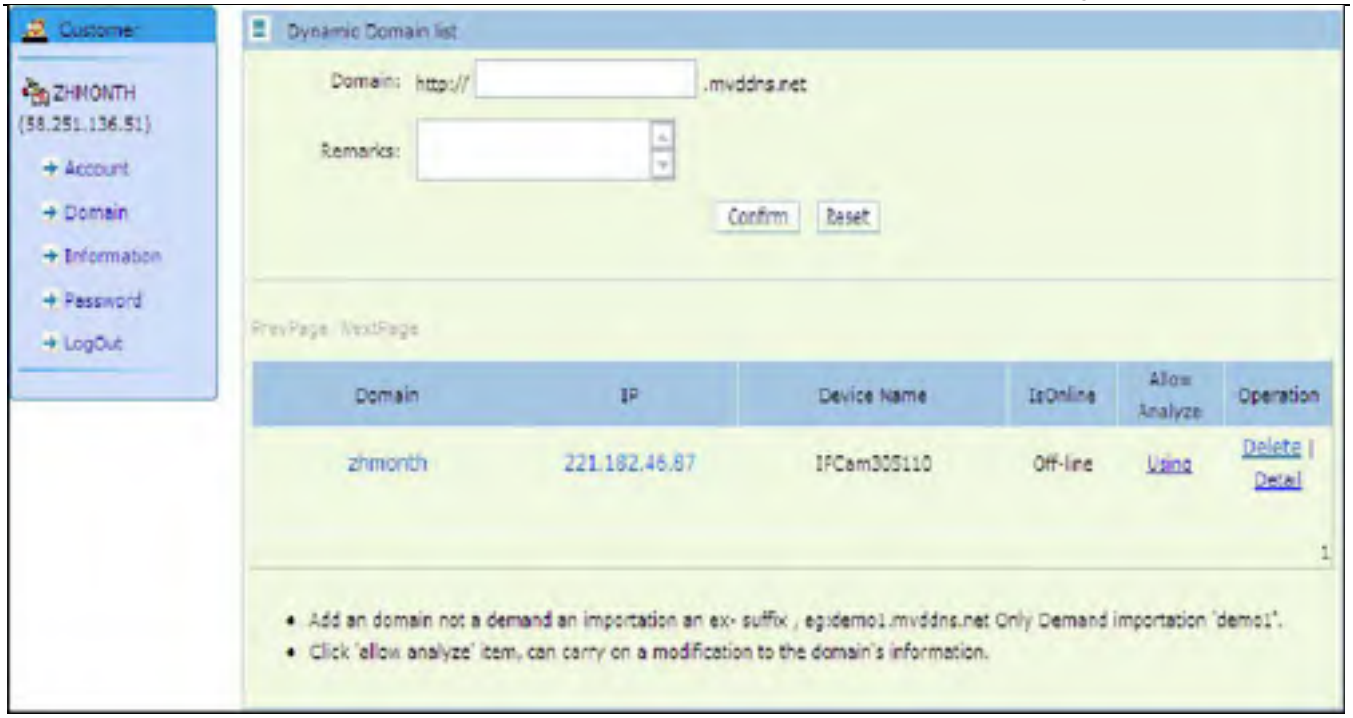
Step 2: User login

Enter registered user name and password, click "login" to enter into domain name management interface as follow:



Step 3: Domain name registration

A domain name must be registered first, and then put into use. Click "Domain name management", a page appears as follow:



Register and submit the domain name to be used. For example: "test.mvddns.net".

Appendix 4 FAQ

1、 **Forget Password**

Solution: There is a [RESET] button on the back panel of the IP camera/ video server, press it to restore all default parameters (Factory Settings), user name and password are both "admin".
Note: Please don't press RESET if you are not a professional operator. After reset, all parameters will restore factory settings (except for the physical network address).

2、 IP camera/ video server audio/video function fails after abnormalities or abnormal power cut occur during upgrade, core edition is V4.0.0.0 (Backup file)

Solution: Connect the power cord and network cable of IP camera, press on RESET button and release it after 10 seconds, system will run the back-up program automatically. After enter into the back-up program, upgrade system. After upgrade completes, the IP camera/ video server will work normally. The back-up program offers only upgrade and parameter setup functions, audio and video functions are not available.

3、**No video image displayed in IE browser**

Possible reason: ActiveX not installed
Solution: ActiveX must be installed when visiting IP camera/ video server for the first time via Internet Explorer.
How to install: Visit IP camera/ video server, click [Download Address], file download dialog will pop up, select [Run] or [Save] to download. After download finishes, installation interface will pop up, click "install", the installation of ActiveX will start automatically, "Register OCX success" dialog box will pop up to remind the completion of installation process.

4、 Fail to visit IP camera via IE after upgrade

Solution: Delete the caching of Browser.
Steps: Open IE—click "Tools"—select "Internet Options"—click "delete files" button in "Internet temporary files", select "delete all offline contents", then click "OK" and re-log in IP camera.

5、 The images do not flow

Possible reason 1: The frame rate of IP camera is too low.
Solution: Increase the video frame rate
Possible reason 2: Too many users are viewing the images.
Solution: Block some clients or reduce the video frame rate.
Possible reason 3: The bandwidth is low.
Solution: Reduce video frame rate or video compression bit rate.

6、 Fail to visit IP camera via IE browser

Possible Reason 1: Network is disconnected.
Solution: Connect your PC to network, checking whether it works properly or not. Check whether there is cable failure or network failure caused by PC virus, until PCs can be connected with the command of Ping.
Possible reason 2: IP Address has been occupied by other devices
Solution: Stop the connection between IP camera and Network, hook up IP camera to PC separately, reset IP address according to the proper operations recommended.
Possible reason 3: IP addresses are in different subnets.
Solution: Check IP address, subnet masking address of the DVS and the settings of Gateway.
Possible reason 4: Physical address of network conflict with IP camera
Solution: modify the physical address of IP camera.
Possible Reason 5: Web port has been modified
Solution: Contact Network Administrator to obtain related information.
Possible Reason 6: Unknown
Solution: Press RESET to restore default settings then connect it again, the default IP address is 192.168.55.160, subnet mask is 255.255.255.0

7、 The color of images is abnormal (green or other colors)

Solution: Sometimes IP camera images cannot display properly for the difference between Graphics Cards, the images appears to be green or other colors, then you should run Config.exe (or run C:\windows\system32\Config.exe) to set the following parameters of display buffer: auto-detection, used display card memory or system memory, then reopen IE and connect IP camera.

8、 There is no sound while monitoring

Possible Reason: No audio input connection
Solution: Check audio connection of the host
Possible Reason 2: the audio option of IP camera is off
Solution: Check audio parameter settings to see if you have opened the audio.

9、 Search NVS software cannot find device

Possible reason: Search NVS software adopts multicast protocol to perform searching. But the firewall forbids multicast data packet.
Solution: disable the firewall.

10、 What is my public IP address

Use http://checkip.dyndns.com/ will reply

"Current IP Address: 116.77.192.104"

11、Routers and Port Forwarding

For a collection of step-by-step guides for many common routers, please visit PortForward.com.
http://portforward.com/help/portcheck.htm

One of the most common devices in any given network — after computers, of course — is the **router**. Sitting between the modem and the other devices in the network, the router's job is to *route* (direct) traffic to and from the Internet and devices in the **local area network (LAN)**, sharing a single Internet connection between multiple devices.

A router is more than just a glorified cable splitter, however; in addition to intelligently juggling packets and priority between devices to ensure smooth data transfer, most routers include a variety of features including Quality of Service settings, virtual private network options, web content filtering, time-delimited access restrictions, and more.

At factory default, most routers are preconfigured with a variety of security settings, including a firewall set to reject new incoming connections to the network. This security measure is simple, effective, and rarely obtrusive; surfing the Internet, watching streaming video and chatting with friends and family is uninterrupted, since these connections are established first by an *outgoing* connection *from* the LAN.

Since the router's firewall prevents Internet visitors from reaching any devices in the LAN, the user must open a tunnel in the router's firewall to allow *specific* external connections to reach a *specific* destination device while keeping the rest of the network safe.

Port Forwarding

All TCP and UDP traffic on the Internet uses **ports** to identify the protocol being used, such as port 80 for HTTP (web) and port 25 for SMTP (email). To solve the firewall problem and let visitors into the network, the user instructs the router to allow traffic to pass through on a given port. This is known as **port forwarding**, as the router *forwards* (directs) all Internet requests on a specific port to the local machine. With port forwarding, external visitors are able to connect to the server while other internal devices remain protected.

There are three different kinds of port forwarding:

- **Port Forwarding**: Standard port forwarding is an "always on" tunnel through your router's firewall. Any visitor may connect to your network on the given port at any time. This is the correct choice for "always on" services such as web servers and mail servers.
- **Port Triggering**: This is a special kind of "temporary" port forwarding that requires an initial *outgoing* connection. Once the connection is established, the router begins forwarding all new incoming connections to the local machine; when the local machine closes the connection, the forwarding rule is turned off. This rule is most commonly used in gaming, video conferencing and other applications that receive incoming connections on a need-only basis.
- **DMZ (DeMilitarized Zone)**: This feature effectively places the destination device outside of the router's protective firewall by forwarding all incoming connections on all ports to the single local machine. The DMZ is mostly used for troubleshooting purposes and advanced network configurations; as such, it is *not recommended* to use the DMZ for general hosting purposes.

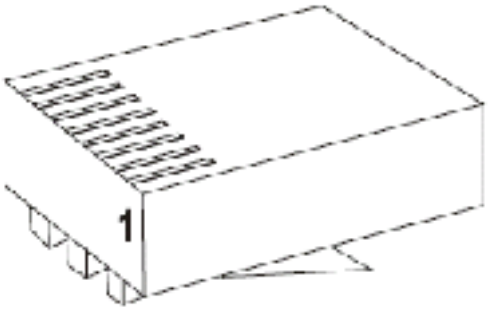
In most routers, a port forwarding rule take the following information:

- **Application Name**: The label for the forwarding rule.
- **Start and End Port**: The application's port(s), e.g. 80 for HTTP. Many routers will allow you to forward an array of ports with a single rule.
- **Protocol**: The protocol (TCP, UDP or Both) for the forwarding rule. The protocol depends on the type of service you are providing (e.g. webservers use TCP).
- **IP Address**: The internal IP address of the destination device in the LAN, usually beginning with *192.168.x*. If your router dynamically assigns internal IPs with DHCP, you will need to configure the server device to use an internal static IP address.

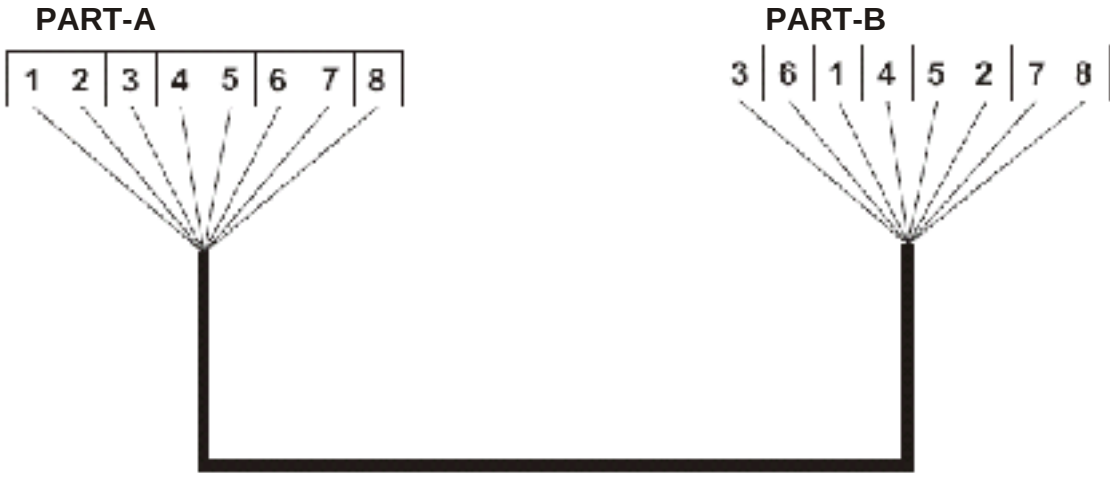
The best source for more detailed information about routers and port forwarding, as well as step-by-step pictorial walkthroughs for most common routers, is PortForward.com. If you are setting up a new service and configuring your router for the first time, it is highly recommended to read their guides and walkthroughs to determine the necessary changes you will need to make to correctly forward ports in your router.

Appendix 5 Cross Ethernet Cable Making Tip

I. LAN Plug
Pin: 1 ~ 8

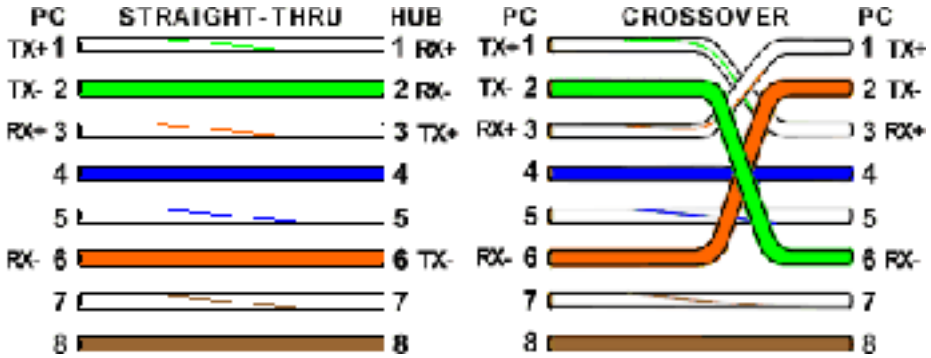


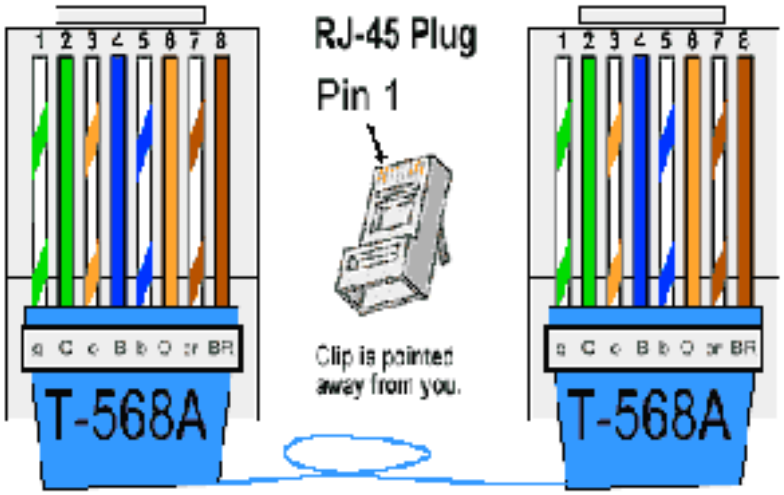
II. LAN Cable

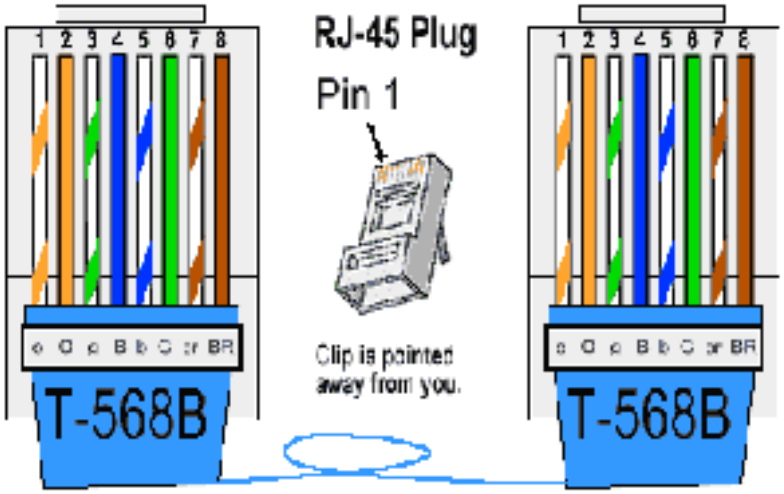


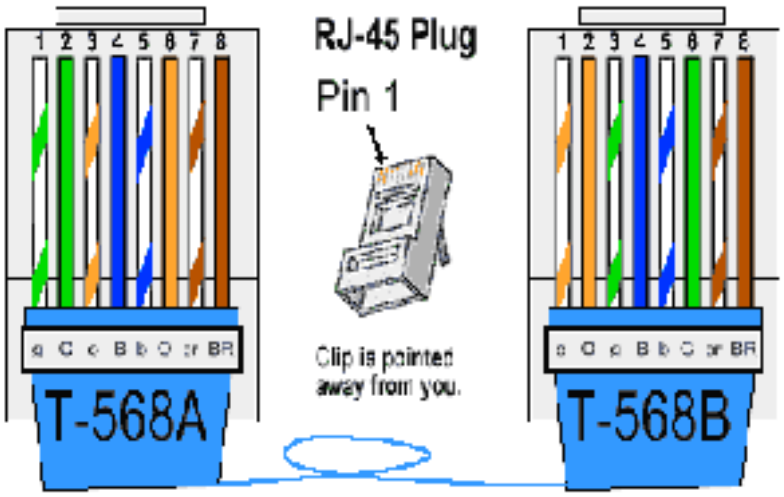
III. Connection Method

a. Connect LAN Cable Part-A and LAN plug by order as one to one .
b. Connect to LAN cable Part-B & Part-A, Replace order No.1 & 3, No.2 & 6.
c. Connect LAN cable Part-B No. 3 to LAN plug No. 1 and connect the next by order.




RJ-45 Plug
Pin 1
Clip is pointed away from you.
T-568A
T-568A


RJ-45 Plug
Pin 1
Clip is pointed away from you.
T-568B
T-568B


RJ-45 Plug
Pin 1
Clip is pointed away from you.
T-568A
T-568B

========== **The End** ==========