Video Matrix Platform User’s Manual

V 1.0.1

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Welcome

Thank you for purchasing our Video Matrix Platform!
This user's manual is designed to be a reference tool for the installation and operation of your system.
Here you can find information about features and functions, as well as a detailed menu tree.
Before installation and operation please read the following safeguards and warnings carefully!

Important Safeguards and Warnings

1．Electrical safety

All installation and operation here should conform to your local electrical safety codes.
We assume no liability or responsibility for all the fires or electrical shock caused by improper handling or installation.

2．Transportation security

Heavy stress, violent vibration or water splash are not allowed during transportation, storage and installation.

3．Installation

Keep the device upwards. Handle it with care.
Do not apply power to the device before completing installation.
Do not place objects on the device.

4．Qualified engineers needed

All the examination and repair work should be done by the qualified service engineers.
We are not liable for any problems caused by unauthorized modifications or attempted repair.

5．Environment

The device should be installed in a cool, dry place away from direct sunlight, inflammable, explosive substances and etc.

6. Accessories

Be sure to use all the accessories recommended by manufacturer.
Before installation, please open the package and check all the components are included.
Contact your local retailer ASAP if something is broken in your package.

7. Lithium battery

Improper battery use may result in fire, explosion, or personal injury!
When replace the battery, please make sure you are using the same model!

1 Product Overview

1.1 Introduction

The Video Matrix Platform is designed by referring to ATCA (Advanced Telecommunications Computing Architecture) as the modern telecommunication-level device which supersede DVR, decoder, analog matrix, video wall controller and is compatible with past and current network monitoring environments.

Main Application: flexible equipping of Function Card; supporting analog/HD camera, input of various IPCs; HDMI, DVI and other outputs. It achieves matrix switch, encoding, decoding and etc. with these abundant interfaces. It supports network storage that leads to centralized storage management. It also supports online real-time preview.

Figure 1- 1

1.2 Features

This product is a digital video matrix system with functions of digital video switch, multiple operation insertion, centralized management, and distributed deployment. It achieves switches among analog signal, digital signal, HD network signal and HD digital video signal and making HD image available on video walls. It is a platform product integrating video signal encoding/decoding, centralized data storage, online real-time preview and various networks, pre-plan, log, user authority management, device maintenance functions and etc., which allows HD video command/dispatch and video conference.

1.2.1 Structure

- 19 inch 4U standard rack case for universal uses.
- Card-type large scale ATCA structure for simple extension and flexibility.
- 2 groups of fans for intelligent temperature controlling, contributing to stabilized air passage with the case structure to balance internal temperature.
- Dual-channel redundant power supply for continuous working of device and security of data.
- Double blade Function Card.

1.2.2 Hardware

- Intel x 86 Platforms for device expandability and fluency when system is in full load.

- High speed connector on compression card, x4 PCI-E gen2，12V DC power supply, for fluency of high speed data flow.
- Compression card's hot swap button and indicator for users' flexible extension on the application and knowledge of compression card status.
- Various interfaces of compression card, such as USB, serial, Internet port, HDMI, BNC, DVI and etc. which guarantee device functions and simplify operation and adjustment done by users and technical staffs.
- Each Function Card works independently to balance system's work load and ensure fluency.
- Duel-high-speed non blocking design for rear panel to meet demand of large volume A/V data transmission.

1.2.3 Software

Embedded LINUX OS: safe, stable, efficient, and easy for development and maintenance.

Matrix Switch Control

- Analog, network, digital video signal input and switch output.
- Signal non-compression direct switch output
- Keyboard control switch
- Module input, output card design, may switch matrix for different specifications of digital videos.

A/V Encoding Output

- Adopt H.264 video compression standard, support dual stream technology, VBR, support composite streaming and video streaming encode, and during composite streaming, A/V sync
- A/V encoding card may support 32-ch BNC (CVBS signal), 8-CH HD-SDI, 4-CH DVI (support DVI, VGA, HDMI signal), 8-ch HDCVI, 4-ch VGA (support DVI, HDMI signal).
- Max support 80-ch HD video encoding capacity or 320-ch SD video encoding capacity.

A/V Decoding Output

- DVI, HDMI output display.
- 1/4/6/8/9/16 window split and free split.
- Fluency function, to double original video 25 fps or 30 fps into 50 fps or 60 fps respectively.
- A single card max support 6-ch HDMI A/V decoding capacity, 4-ch 4K HD decoding capacity, 32-ch 1080P HD video decoding capacity, 64-ch 720P HD video decoding capacity, 64-ch D1 and lower SD video decoding capacity.
- Full config support 320-ch 1080P/60-ch 4K (3840*2160@30fps HDMI) decoding capacity
- Full config support max 40-ch 4K output
- Full config support 60-ch HD output
- Full config support max 320-ch 1080P H.265 bit stream real-time output
- 30 preset scenes; user may customize each TV wall layout.

Video Wall Splicing

- Random splicing among 40 screens

- Digital zoom in
- Open window and roaming, a single screen supports 16 windows.
- Combined window supports 1/4/6/8/9/16 splits.
- Point-to-point HD background display.

Record and Storage

- Scheduled record, mobile detection record.
- Pre-record and delay record.
- Redundant record, support to lock and unlock record file.
- Record file lock and unlock.
- HDD disk management.
- IPSAN, ISCSI standard network protocol storage, support NVR, NAS, EVS and other centralized storages.

Network Function

- 6 RJ45 interfaces, supporting 1000M network.
- Support TCP/IP protocol including TCP，UDP，RTP，RTSP, PPPoE，DHCP，DNS，DDNS，NTP，SADP，SMTP，ISCSI and etc.
- Support NAS, IP SAN network centralized storage, and support receiving system log remotely.
- Support management software to achieve remotely switching between analog and digital videos on video wall and control with keyboard.
- Support remotely receiving and configuring parameter, remotely rebooting and remotely inputting/outputting parameters.

Other

- Complete set of operation, alarm, abnormality and log recording, simplifying user and technical staff's maintenance.
- Complete user authority management and storage management, while the authority can be subdivided into a channel and a single HDD, making the device more user-friendly.
- Support local and remote update, guaranteeing update to catch changing market demand.
- Support network storage to accommodate demand from medium to large monitoring systems.
- Multiple users and clients login, convenient for users to preview and manage monitoring whenever and wherever possible.

1.3 Introduction to Compression Cards in System

No.	Name	Model	Functional Module	Description	Note
1	Platform Host	Video Matrix Platform-4U-E	Video matrix platform host	1) 1 4U host，support 10 Function Cards 2)1 MBC0004 main control panel 3)1 control panel 4)1 built-in power adaptor	Standard (dual-redundant power optional)

2	Input Module	VEC0804HS	HD-SDI video encoding card	1)8-ch HD-SDI video input (BNC) 2)2-ch RS485 interface	Optional
		VEC0404HD	HD DVI video encoding card	4-ch DVI video input	Optional (support DVI, VGA, HDMI)
		VEC0804HC	HDCVI encoding card	8-ch BNC video input (HDCVI)	Optional
		VEC0404HV	HD VGA encoding card	4-ch VGA video input	Optional
		VEC0404HH	HDMI encoding card	4-ch HDMI video input	Optional
		VEC3204FB	CVBS encoding card	1. 32-ch CVBS video input 2. 2-ch RS485 port	Optional
3	Output Module	VDC0404UD	4K decoding card	4-ch DVI video output port	Optional
		VDC0605H	HDMI decoding card	6 HDMI video output port	Optional

1.4 Host System

1.4.1 4U Host

Video matrix platform with 19 inch 4U structure host includes Function Card slot, power interface and intelligent temperature-controlled fan. For product appearance, please see Figure 1- 2.

Figure 1- 2

- Front panel, for displaying device working status;

	ON/OFF button.
	Device power indicator. Off: Not operating after plugged in. Red: Operating.
	Device alarm indicator. Red: Alarm on. Off: Alarm off.
	Device tatus indicator. Yellow: Device is properly running.

- Air intake of host with dust filter at rear;
- Intelligent temperature-controlled fan, total of 2 groups, allow hot swap;
- Function Card's rear interface board slot, total of 10, labeled in sequence, for installation of Function Card's rear interface board;
- Main control panel's rear slot, marked as "M";
- Control panel's rear slot, marked as "C".
- Duel-power module, support 220V modules.

1.4.2 Main Control Panel

1.4.2.1 Interface Introduction

Please see Figure 1- 3.

Figure 1- 3

No.	Interface	Function
1	Reset Button	1, support restoring to default settings
2	Mainboard Power Indicator	1, display mainboard power status
	System Status Indicator	1, display system working status
	PCI-E Status Indicator	1, display PCI-E working status
3	USB Port	3, as 1 USB 3.0 and 2 USB 2.0 for connection to mouse, keyboard, USB
4	VGA	1, for local display output
5	Audio Input	1, for audio bidirectional talk

6	Audio Output	1, for audio bidirectional talk
7	RJ45 Port	2, for transmission of network A/V data and network control signal.

Warning:

To guarantee normal use, connect Ethernet port 2 on main control panel to any Ethernet port on control panel via a cable.

1.4.2.2 Features

- High speed connector, including 10 x4 PCI-E gen2, 12V DC power, IIC
- Memory slot, 1 single channel, 4G DDR3L memory
- Fan interface, power/rotation rate control (CPU)
- 3 indicators (power indicator, system running status indicator, PCI-E status indicator)

1.4.3 Control Panel

1.4.3.1 Interface Introduction

Please see Figure 1- 4.

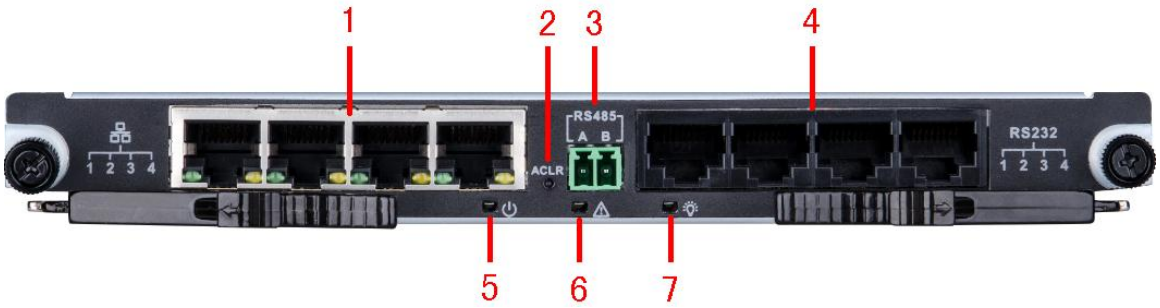


Figure 1- 4

No.	Interface	Function
1	RJ45 Ethernet Port	4 1000 Mbps Ethernet ports, used to send network A/V data and network control signal
2	Alarm Clean Button	Clean alarm signal
3	RS485	Control PTZ
4	RJ45 to RS232	● Serial 1, 2, 3，used to control peripheral device ● Serial 4，reserved
5	Mainboard Power Indicator	1, display mainboard power status
6	Alarm Indicator	1, display alarm status
7	System Status Indicator	1, display system working status

1.4.3.2 Features

- Control device power up/down and working status monitoring

- When system has alarm, via alarm clear button to clear alarm of the system
- 3 indicators (power indicator, system running status indicator, system alarm indicator)
- Via RS232 serial connection with central control device or debug PC

1.5 Function Card

Function Card adopts blade module design, and is mainly used to input analog, digital video and centralize encoding compression, achieving remote preview, network centralized storage and etc.

1.5.1 VEC0404HD Video Matrix Platform 4-CH DVI Encoding Card

Please see Figure 1- 5.

.

Figure 1- 5

1.5.1.1 Main Features and Performance

Features

- 4-ch DVI-I video interface input, supporting HDMI, VGA and DVI input
- 2 hot swap buttons
- 4 indicators
- High speed connector, including x4 PCI-E gen2,12V DC power

Encoding Function

- Video encoding parameter is adjustable in each channel, including resolution, bit stream rate, image quality and etc.
- Each channel supports schedule and event as compression parameters
- Support composite and bit stream encoding.
- Support picture compression in 4 CIF under JPEG standard or CIF and net transmission
- Support watermark technology

1.5.1.2 Interface introduction

- VIN video input interface, DVI-I interface

1.5.1.3 Technical Specifications

Model	VEC0404HD	
A/V Input	Video Input	4-ch, DVI-I
A/V Encoding Parameter	Video Compression Standard	H．264
	Video Encoding Resolution	1080P, 1680*1050, 1440*900, 1366*768, 1280*1024, 1280*960, 1280*800, 1280*720, 1152*864, 1024*768, 800*600
	Video Frame	1-60 fps
	Bit stream Rate	3584-8129Kbps，customizable, max 8192Kbps
	Dual Stream	Support

1.5.2 VEC0404HV Video Matrix Platform 4-CH VGA Encoding Card

Please see Figure 1- 6.

Figure 1- 6

1.5.2.1 Main Features and Performance

Features

- 4-ch VGA video interface input, support VGA signal input
- 2 hot swap buttons
- 4 indicators
- High speed connector, including x4 PCI-E gen2,12V DC power

Encoding Function

- Video encoding parameter is adjustable in each channel, including resolution, bit stream rate, image quality and etc.
- Each channel supports schedule and event as compression parameters
- Support composite and bit stream encoding.
- Support picture compression in 4 CIF under JPEG standard or CIF and net transmission
- Support watermark technology

1.5.2.2 Interface introduction

- VIN video input interface, VGA interface

1.5.2.3 Technical Specifications

Model	VEC0404HV	
A/V Input	Video Input	4-ch, VGA interface
A/V Encoding Parameter	Video Compression Standard	H．264
	Video Encoding Resolution	UXGA@60Hz，1080P@60Hz,1080P@50Hz, 720P@50Hz,720P@60Hz,1024x768@60Hz, 1024x768@75Hz,1280x1024@60Hz,1280x1024@75Hz;
	Video Frame	1-60 fps
	Bit stream Rate	3584-8129Kbps，customizable, max 8192Kbps
	Dual Stream	Support

1.5.3 VEC0804HS Video Matrix Platform 8-CH HD SDI Encoding Card

Please see Figure 1- 7.

Figure 1- 7

1.5.3.1 Main Features and Performance

Features

- 8-ch HD-SDI video interface input
- 2-ch RS485 interface
- 2 hot swap buttons
- 4 indicators
- High speed connector, including x8 PCI-E gen2, 12V DC power

Encoding Function

- Video encoding parameter is independently adjustable in each channel, including resolution, frame rate, bit stream rate, image quality and etc.
- Each channel supports schedule and event as compression parameters
- Support composite and bit stream encoding, A/V are synchronized in composite.
- Support picture compression in 4 CIF under JPEG standard or CIF and net transmission
- Support watermark technology

1.5.3.2 Interface Introduction

- VIN video input interface, BNC interface

1.5.3.3 Technical Specifications

Model	VEC0804HS

A/V Input	Video Input	8-ch SDI (BNC) (electrical level: 1.0Vp-p; impedance: 75Ω)
A/V Encoding Parameter	Video Compression Standard	H．264
	Video Encoding Resolution	1080P/720P/D1/HD1/2CIF/CIF/QCIF
	Video Frame	1-30 fps
	Bit stream Rate	3584-8129Kbps，customizable, max 8192 Kbps
	Dual Stream	Support

1.5.4 VEC0804HC Video Matrix Platform 8-CH HDCVI Encoding Card

Please see Figure 1- 8.

Figure 1- 8

1.5.4.1 Main Features and Performance

Features

- 8-ch BNC video input interface, support HDCVI signal input.
- 8-ch audio input, support external and built-in.
- Countercharge
- 2 buttons, hot swap
- 4 indicators
- High speed connector, including x4 PCI-E gen2, 12V DC power

Encoding Function

- Video encoding parameter is independently adjustable in each channel, including resolution, frame rate, bit stream rate, image quality and etc.
- Each channel supports schedule and event as compression parameters
- Support composite and bit stream encoding, A/V are synchronized in composite.
- Support picture compression in 4 CIF under JPEG standard or CIF and net transmission
- Support watermark technology

1.5.4.2 Interface Introduction

- A/V input interface, BNC interface

1.5.4.3 Technical Specifications

Model	**VEC804HC**	
A/V Input	Video Input	8-ch BNC
	Audio Input	8-ch HDCVI built-in

A/V Encoding Parameter	Video Compression Standard	H．264
	Video Encoding Resolution	1080P/720P
	Video Frame	1-30 fps
	Bit stream Rate	3584-8129Kbps，customizable, max 8192 Kbps
	Dual Stream	Support
	Audio Compresson Standard	G711a, PCM, G711u
	Audio Stream Rate	8K16BIT

1.5.5 VEC0404HH Video Matrix Platform 4-CH HDMI Encoding Card

Please see Figure 1- 9.

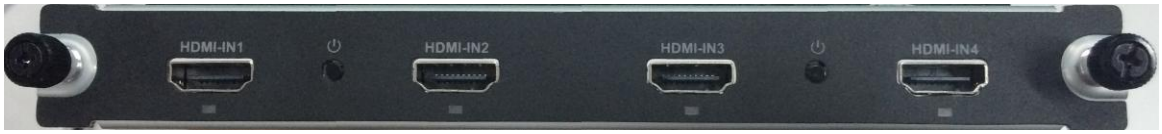


Figure 1- 9

1.5.5.1 Main Features and Performance

Features

- 4-ch HDMI video port input, support DVI and HDMI signal input
- 2 hot swap buttons
- 4 indicators
- High speed connector, including x4 PCI-E gen2, 12V DC power

Encoding Function

- Video encoding parameter is independently adjustable in each channel, including resolution, frame rate, bit stream rate, image quality and etc.
- Each channel supports schedule and event as compression parameters
- Support composite and bit stream encoding, A/V are synchronized in composite.
- Support picture compression in 4 CIF under JPEG standard or CIF and net transmission
- Support watermark technology

1.5.5.2 Interface Introduction

- VIN video input interface, HDMI interface

1.5.5.3 Technical Specifications

Model	**VEC0404HH**	
A/V Input	Video Input	4-ch, HDMI
	Audio Input	4-ch, HDMI interface (embedded)
A/V	Video	H.264

Encoding Parameter	Compression Standard	
	Video Encoding Resolution	1080P, 1680*1050, 1440*900, 1366*768, 1280*1024, 1280*960, 1280*800, 1280*720, 1152*864, 1024*768, 800*600
	Video Frame Rate	1-60 fps
	Bit stream Rate	3584-8129Kbps，customizable, max 8192 Kbps
	Dual Stream	Support
	Audio Compresson Standard	G711a, PCM, G711u
	Audio Stream Rate	8K16BIT

1.5.6 VEC3204FB Video Matrix Platform 32-CH CVBS Encoding Card

Please see Figure 1- 10.

Figure 1- 10

1.5.6.1 Main Features and Performance

Features

- 32-ch CVBS video interface input
- 2-ch RS485 interface
- 2 hot swap buttons
- 2 indicators
- High speed connector, including x4 PCI-E gen2, 12V DC power,

Encoding Function

- Video encoding parameter is independently adjustable in each channel, including resolution, frame rate, bit stream rate, image quality and etc.
- Each channel supports schedule and event as compression parameters
- Support composite and bit stream encoding, A/V are synchronized in composite.
- Support picture compression in 4 CIF under JPEG standard or CIF and net transmission
- Support watermark technology

1.5.6.2 Interface Introduction

- VIN video input interface, 2-ch DB26 interface, convertor to 32-ch BNC.

1.5.6.3 Technical Specifications

Model	VEC3204FB	
A/V Input	Video Input	2-ch DB 26 interface, convertor to 32-ch CVBS (BNC) (level: 1.0Vp-p; resistence: 75Ω)
A/V Encoding Parameter	Video Compression Standard	H.264
	Video Encoding Resolution	D1/960H
	Video Frame Rate	PAL: 1-25fps, NTSC: 1-30 fps
	Bit stream Rate	3584-8129Kbps，customizable, max 8192 Kbps
	Dual Stream	Support

1.5.7 VDC0404UD Video Matrix Platform 4-CH 4K Decoding Card

Please see Figure 1- 11.

Figure 1- 11

1.5.7.1 Main Features and Performance

Features

- 4-ch DVI digital video interface output
- 1 hot swap button
- 4 indicators
- High speed connector, including x4 PCI-E gen2, 12V DC power

1.5.7.2 Interface Introduction

- VOUT video output interface, DVI interface

1.5.7.3 Technical Specifications

Model	VDC0404UD	
A/V Output	Video Output	4-ch DVI digital interface output
A/V Decoding Parameter	Video Compression Standard	H.264, H.265, MPEG4, SVAC, MJPEG
	Video Decoding Resolution	4096*2160@30Hz, 3840*2160@30Hz, 1080P@50/60Hz, 1280*720@50/60Hz, 1024*768@60Hz
	Video Process	● 6-ch 1080p@30Hz SVAC or 4-ch 1080p@30Hz H.265

	Capacity	● 64-ch D1 or 32 or 1080p or 4-ch 4K decoding output ● 24-ch D1 format non-standard decoding output
	Bit Stream Rate	48Kbps-4096Kbps, customizable, max 8192 Kbps
	Display Mode	1/4/6/8/9/16 split, free split

1.5.8 VDC0605H Video Matrix 6-CH HDMI Decoding Card

Please see Figure 1- 11.

Figure 1- 12

1.5.8.1 Main Features and Performance

Features

- 6-ch HDMI digital video interface output
- 1 hot swap button
- 6 indicators
- High speed connector, including x4 PCI-E gen2, 12V DC power

1.5.8.2 Interface Introduction

- VOUT video output interface, HDMI interface

1.5.8.3 Technical Specifications

Model	**VDC0605H**	
A/V Output	Video Output	6-ch HDMI digital interface output Support 4K output display(4-CH supports 4K, 2-CH supports 1080P)
	Audio Output	6-CH HDMI interface, audio embedded
A/V Decoding Parameter	Video Compression Standard	H.264, H.265, MPEG4, SVAC, MJPEG
	Video Decoding Resolution	4096*2160@30Hz, 3840*2160@30Hz, 1920*1080P@60fps, 1280*1024P@60fps, 1280*720@50/60Hz, 1024*768@60Hz
	Video Process Capacity	● 6-ch 3840*2160@30fps, 32-ch 1080p@30fps（H.264, H.265）, 48-ch 720p@30fps, 96-ch D1 decoding ● 32-ch 1080P H.265 decoding ● 8-ch 1080P SVAC decoding ● 24-ch D1 format non-standard decoding output
	Bit Stream Rate	48Kbps-4096Kbps, customizable, max 8192 Kbps
	Display Mode	1/4/6/8/9/16 split, free split

2 Open-Package Inspection and Wiring

2.1 Inspection Procedure

When you receive video matrix platform, please check for obvious external damage. The material of product package should be able to protect the product from majority impacts during transportation.

Secondly please open the package, and check all accessories see if any part is missing. You may refer to accompanied accessory bag. After you have checked that all parts are included, you may remove protector on device.

Thirdly, please open device case to check front panel's wiring, power line and see if the connection between mainboard and interface board is loose.

2.2 Accompanied Assessory Bag

Accompanied assessory bag includes user's manual and disk. When you unpackage the product, please make sure all contents match the checklist.

2.3 Device Installation

- At time of inserting mainboard and Function Card into chassis, please remove the protection cover at connection interface of real panel.
- Connect Ethernet port 2 on main control panel to any Ethernet port on control panel via a cable.
- In case of beep, it may be that either one of power modules is not well fixed. You may press the small red button next to power module at the rear of device to cancel beep alarm.

3 Local Interface Config

Note:

Before you operate in Local Interface, you must connect monitor and other control device (i.e. mouse, keyboard) to the device.

3.1 Software Interface Basic Operation

3.1.1 Boot Up Device

Plug in power line, and press power switch on front panel. Power indicator turns on and device boots up followed by boot interface which lasts for 90s.

When you boot up device, please keep the following in mind:

1) Make sure whether the supplied voltage is within 100~240V 47~63Hz. Turn on the device after you check power line connection.
2) We recommend you to use power supply with stable voltage and little interference (refer to international standard), which benefit the device to work stably and last longer. This will also benefit external devices such as camera. UPS is the best choice if possible.

3.1.2 Shut Down Device

1. Enter main menu → in shutdown system select shutdown device.
2. Press ON button on panel for 5s to shutdown.
   Note:
   - Method 1 is recommended.
   - Stop all performance of the device, and then you may unplug the device from power supply.

3.1.2.1 Outage Recovery

When the device is under working status, and there is an outage or forced shutdown, the system can automatically save and resume previous working status after power recovery.

3.1.2.2 Replace Button Battery

Please make sure to use the same battery model if possible.
We recommend replace battery regularly (such as one-year) to guarantee system time accuracy.
⚠Note: Before replacement, please save the system setting, otherwise, you may lose the data completely!

3.1.2.3

3.1.3 Enter System Menu

After you properly turn on the device, system pops up the startup wizard. Click the Cancel button; you can go to the system login interface. Click the Next Step button; you can go to the startup wizard interface. Here you can set general, encode, schedule, record control, and network. Please see Figure 3- 1.

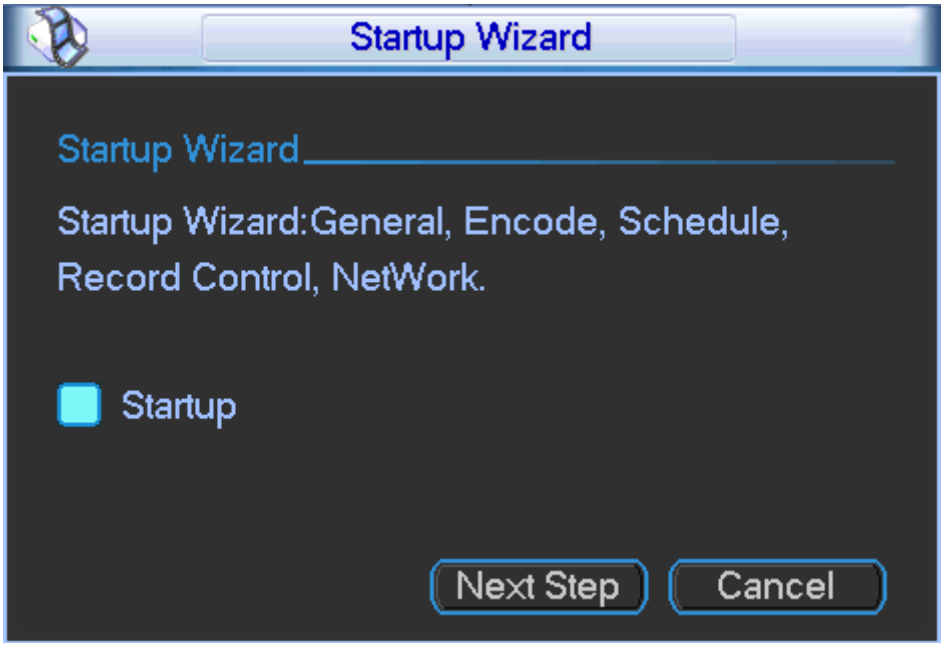


Figure 3- 1

The system login interface is shown as in Figure 3- 2.
System consists of four accounts (defaulted):

- **Username:** admin. **Password:** admin. (administrator, local and network)
- **Username:** 888888. **Password:** 888888. (administrator, local only)
- **Username:** 666666. **Passwords:** 666666(Lower authority user who can only monitor, playback, backup and etc.)
- **Username**: default. **Password**: default(hidden user)

You can use USB mouse, front panel, remote control or keyboard to input. About input method:

Click Shift to switch between numeral, English character (small/capitalized) and denotation and click designated buttons on soft keyboard with the mouse.

Note:

For security reason, please modify password after you first login. To add user group, user and edit user please refer to User Account Section.

Within 30 minutes, three times login failure will result in system alarm and five times login failure will result in account lock!

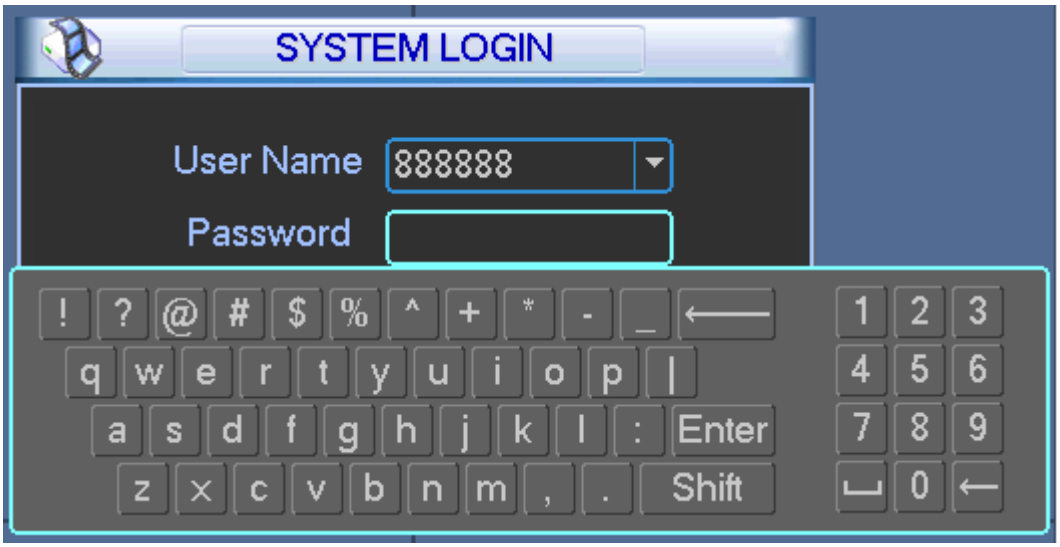


Figure 3- 2

3.1.4 Main Interface Introduction

After you logged in, you will enter main interface as shown in Figure 3- 3 (for various icon definitions, please refer to the following Chart 3- 1).

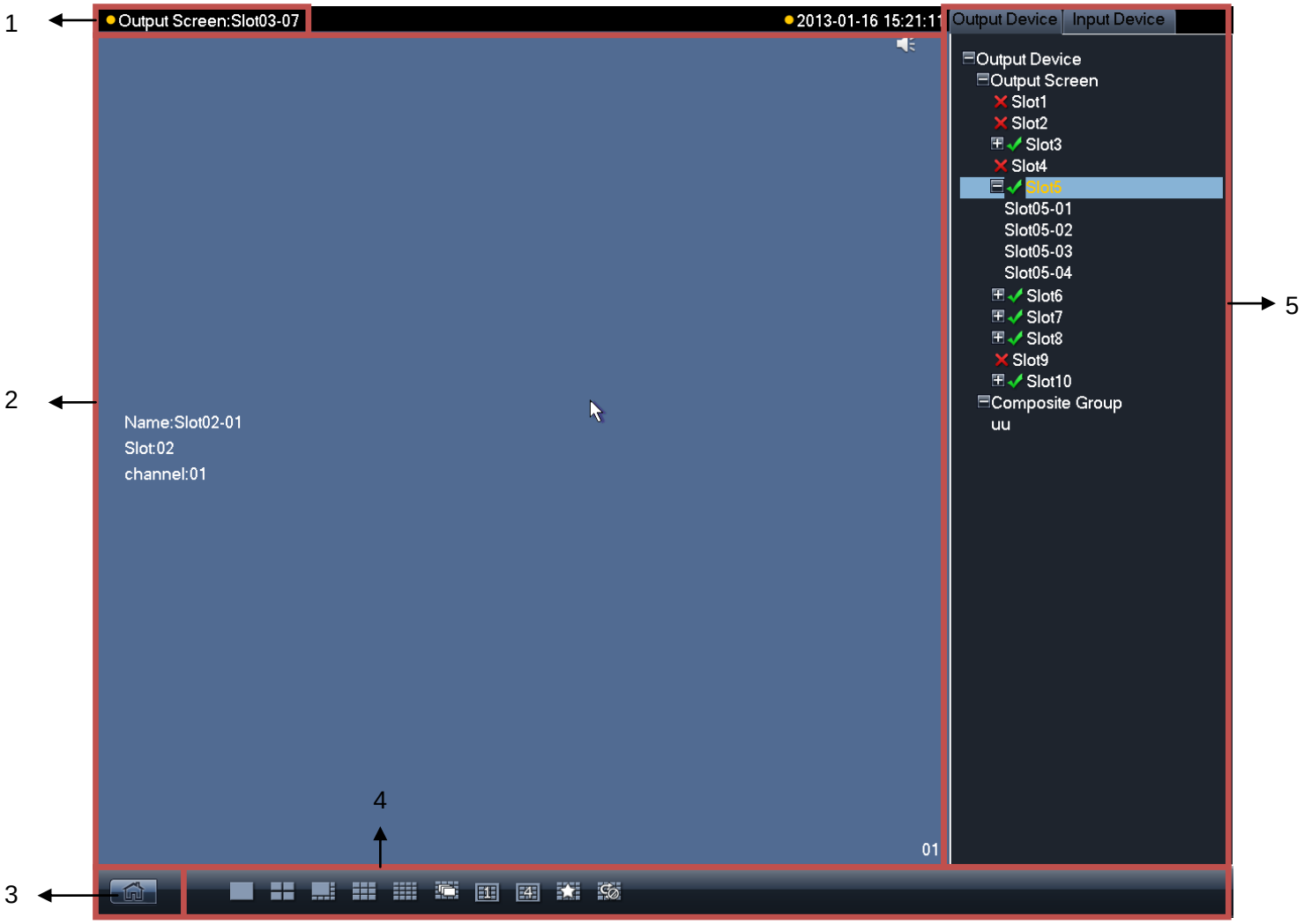


Figure 3- 3

No.	Name	Function Description	
1	Current Output	Display current output slot name	
2	Display window	Display current output screen or cubeless video wall's splicing illustration. Click channel, and if its corresponding area turns yellow, it is selected successfully. Support1, 4, 8, 9, 16 channel display at the same time.	
3	Display Control Area	Display mode selection area	Display mode：single channel, 4-ch, 8-ch, 9-ch and 16-ch available. (device differ for different number of channels) Under single channel mode, you may select 1st to 16th channel. Under 4-ch mode, you may switch among : ➢ 1st to 4th channel ➢ 5th to 8th channel ➢ 9th to 12th channel ➢ 13th to 16th channel Under 6-ch mode, you may switch between 1st to 6th channel and 7th to 12th channel, and 13th to 18th channel. Under 8-ch mode, you may switch between 1st to 8th channel and 9th to 16th channel. Under 9-ch mode, you may switch between 1st to 9th channel and 8th to 16th channel. Under 16-ch mode, you may view full 16 channels at the same time
			Independent display button. It allows an independent view of any window selected in a single screen or independent view plus crossing screen function in a cubeless video wall. To exit, you need to re-split and drag selected window.
			May split all cubeless video wall units into one.
			May split all cubeless video wall units into four.
			Favorites，you may save combination of display channels which you often monitor.
			Tour button，support tour decoding and wall mount.
			Sound on/off.
4	Shortcut Menu		Click to enter homepage.
5	Input and Output Device	Show input and output devices of each slot and channel Click this button to switch to output device list. Click this button to switch to input device list.	

Chart 3- 1

3.1.5 Output Device Tree Introduction

The output device tree is show as follows; please see Figure 3- 4 and Chart 3- 2.

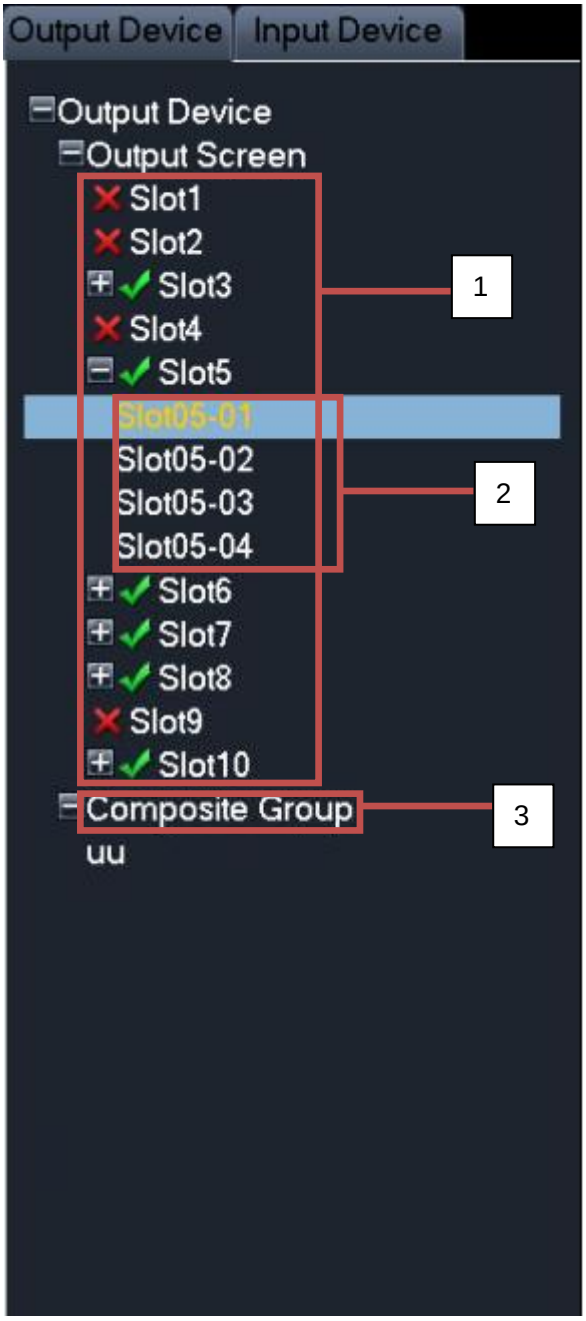


Figure 3- 4

No.	Name	Function Description
1	Output Card List Area	List of output card inserted in slot, when an output card is inserted into current slot, ⊞ will display. You may click it to extend the list as ⊞ will change to ⊟. Meanwhile the current output card's corresponding output interface name will be listed.
2	Output Interface List Area	Display all output interface names under current output card. You may switch display control area to current output interface by double clicking on output interface name to achieve control over displayed contents of current output interface.
3	Cubeless video wall List Area	Display current cubeless video wall list. You may double click cubeless video wall to switch from display control area to current cubeless video wall to achieve control over displayed contents of current cubeless video wall.

Chart 3- 2

3.1.6 Input Device Tree Introduction

The input device tree is show as follows; please see Figure 3- 5 and Chart 3- 3.

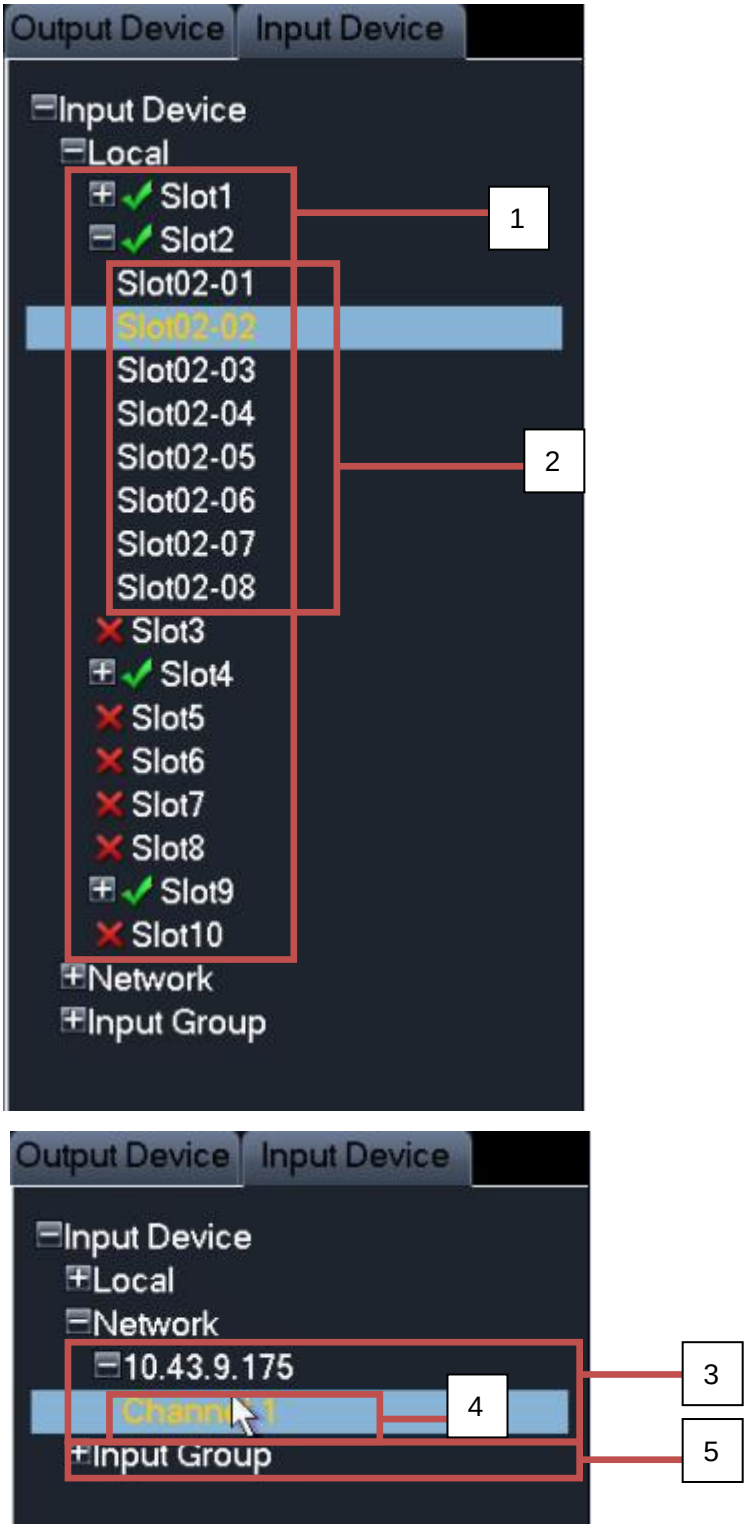


Figure 3- 5

No.	Name	Function Description
1	Decoding Card List Area	List of Decoding Card inserted in slot, when an Decoding Card is inserted into current slot, ⊞ will display. You may click it to extend the list as ⊞ will change to ⊟. Meanwhile the current Decoding Card's corresponding input interface name will be listed.
2	Input Interface List Area	Display all input interface names under current Decoding Card. After control area displays, select channel. By double clicking input interface name, you may switch from local input channel to currently selected input channel.
3	Remote Input List Area	Display added remote device list, and devices may be DVR, IPC and otherencoding devices. It will display ⊞ icon, and you may click it to extend the list as ⊟. Meanwhile channels supported by current remote device will be listed.
4	Remote Input Channel List Area	Display all input channel names under surrent remote device. After control area displays, select channel. By double click input interface name, you switch from remote input channel to currently selected input channel.
5	Input Group	When there is input group, it will display ⊞ icon and you may click it to extend the list as ⊟. Current input group name will be displayed.

Chart 3- 3

3.1.7 Display Control Area Introduction

The display control area is shown as follows; please see Figure 3- 6 and Chart 3- 4.

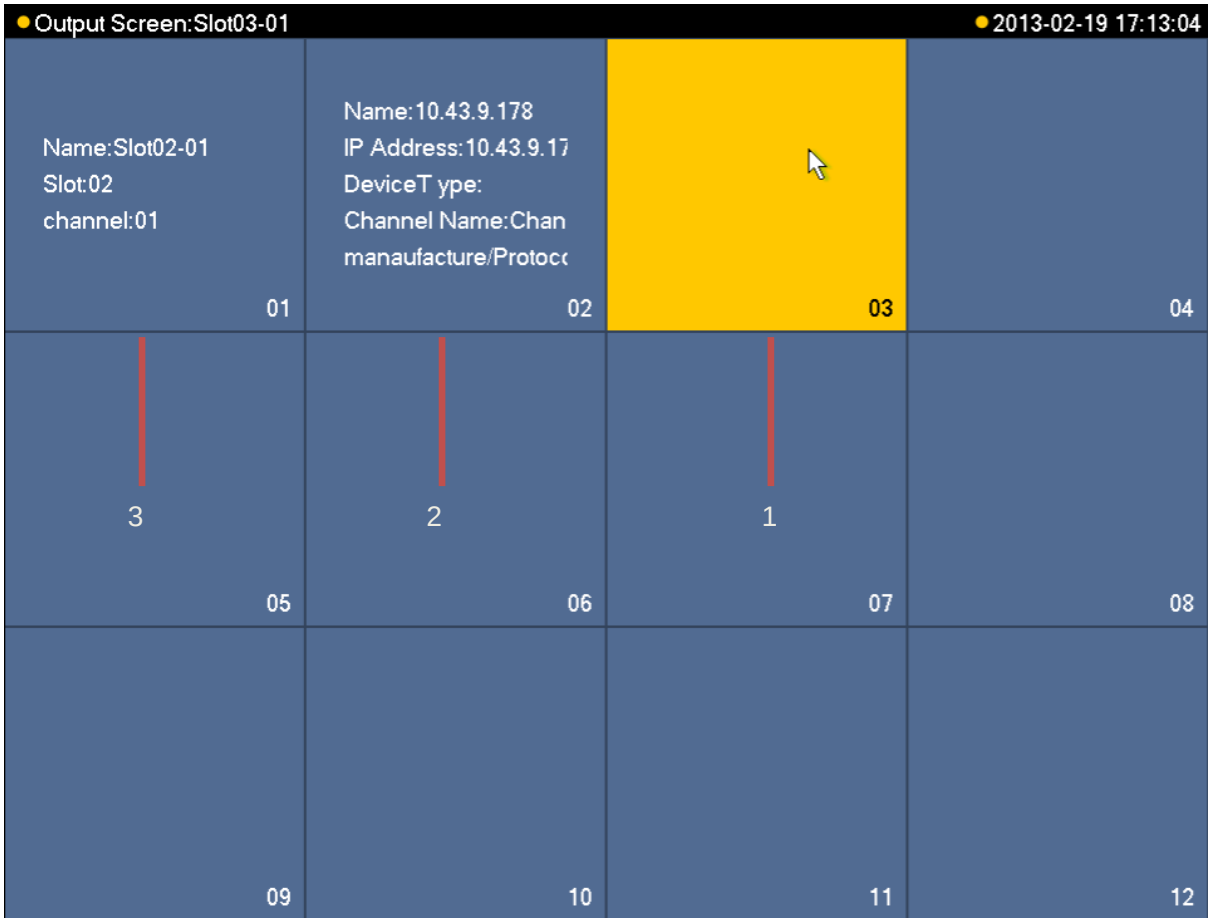


Figure 3- 6

No.	Name	Function Description
1	Blank Area	When current output interface's current output channel does not have corresponding input channel, the status info is blank. You may click this channel to view it, and its corresponding area will turn yellow.
2	Remote Input Display	If current output interface's output channel has been set up remote input device device channel, then device ID, IP address, device type, channel name, manufacturing protocol will be displayed. When you click this channel, you will see icon which allow you to close displayed contents in this channel.
3	Local Input Display	If current output interface's output channel has been set up local input device channel, then name, slot, channel will be displayed. When you click this channel, you will see icon which allow you to close displayed contents in this channel.

Chart 3- 4

3.1.8 Display Setting

Video Matrix has no output by default after first boot up. You may set it on main menu.

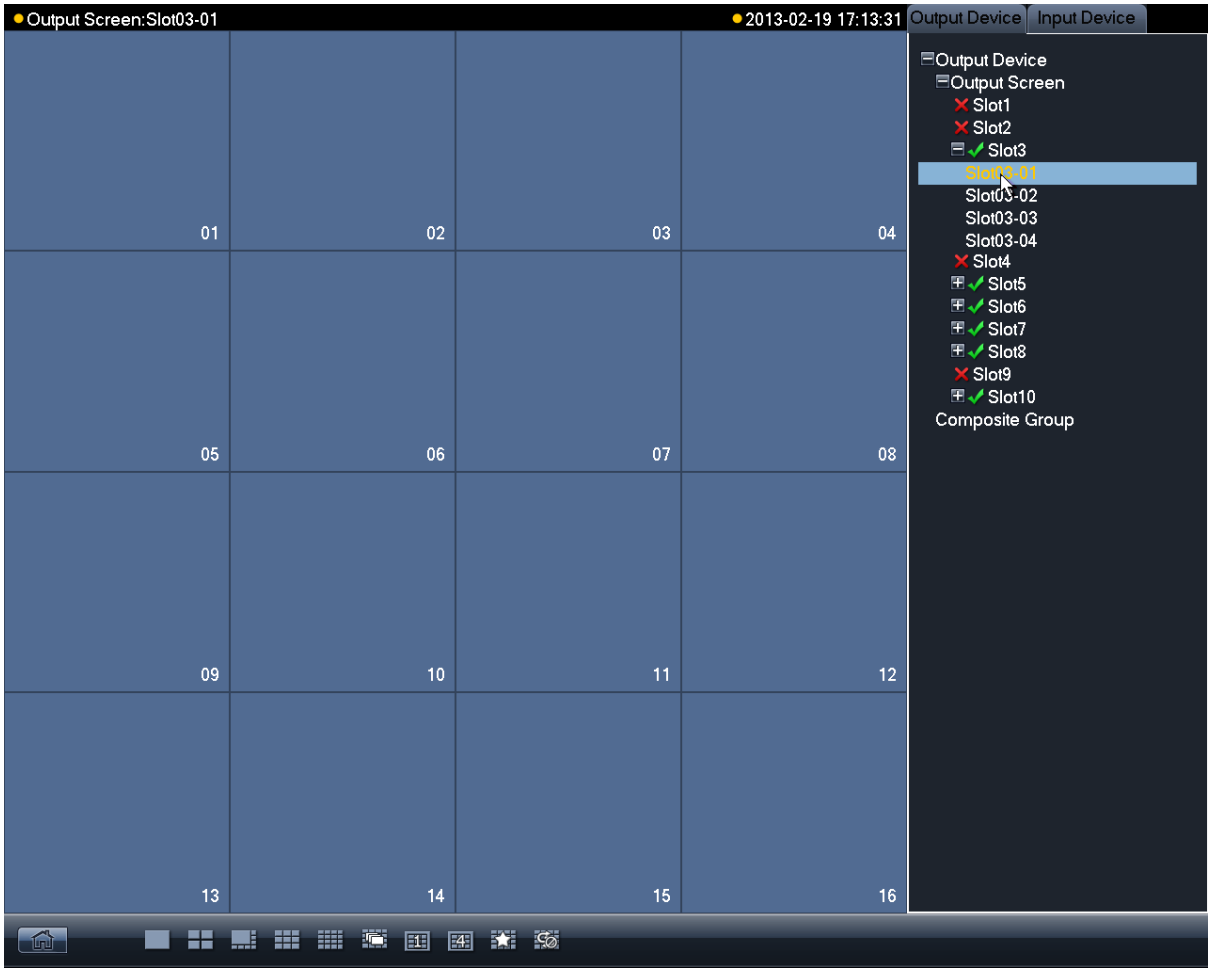


Figure 3- 7

In output list, click output channel name to select designated split window. Please see Figure 3- 7.

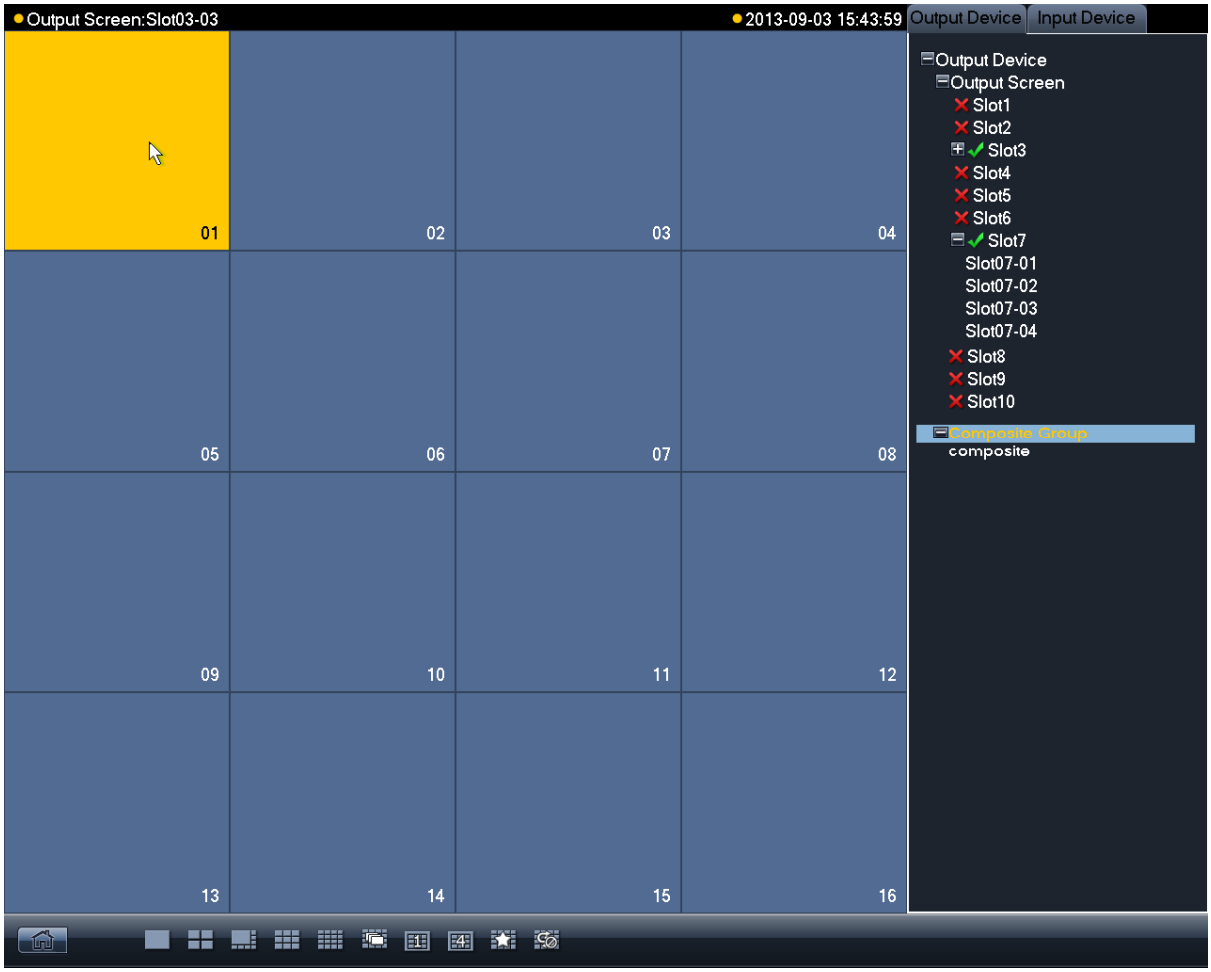


Figure 3- 8

In display window, select corresponding channel and then its corresponding window turns yellow. Please see Figure 3- 8.

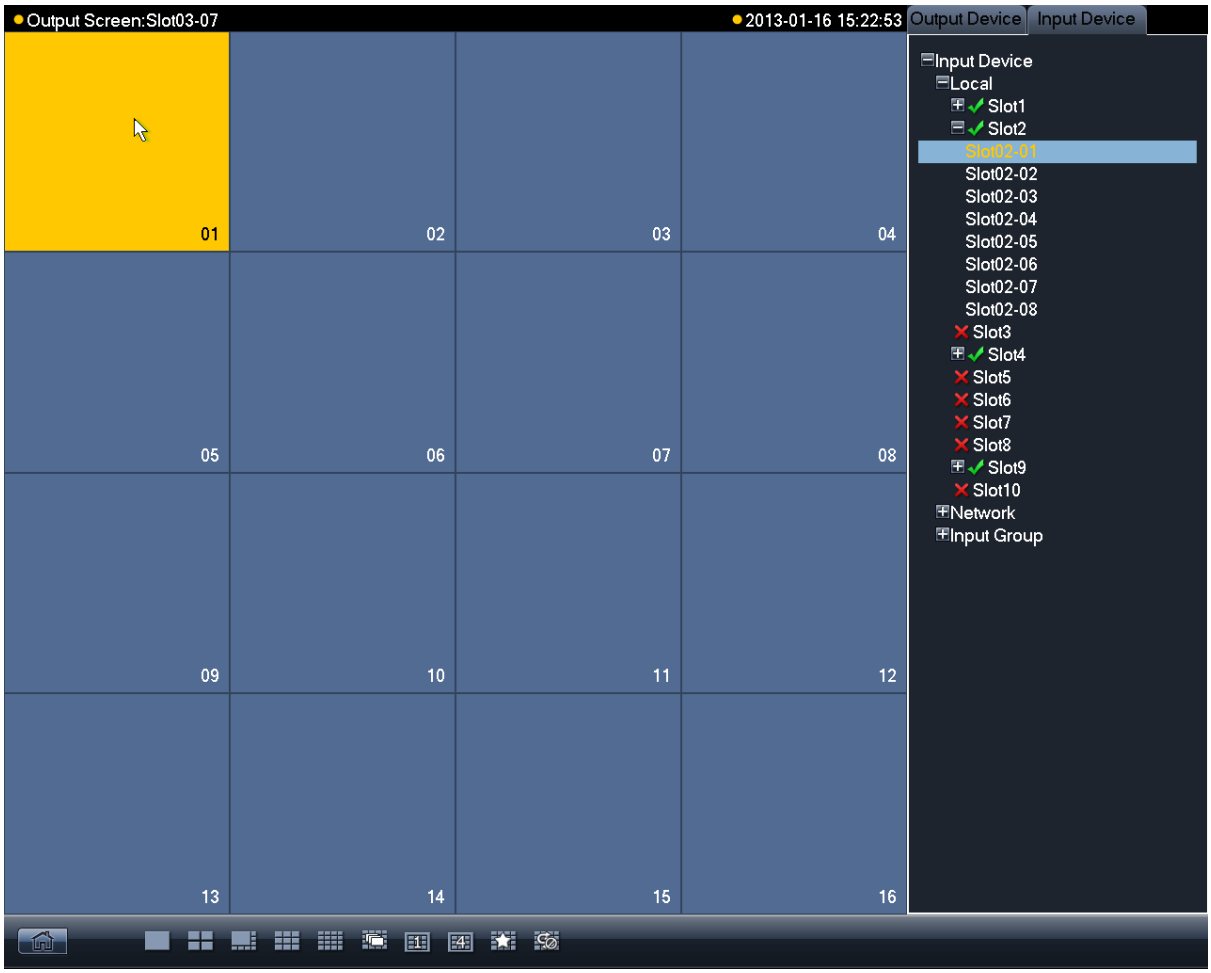


Figure 3- 9

Switch to input device list. Please see Figure 3- 9.

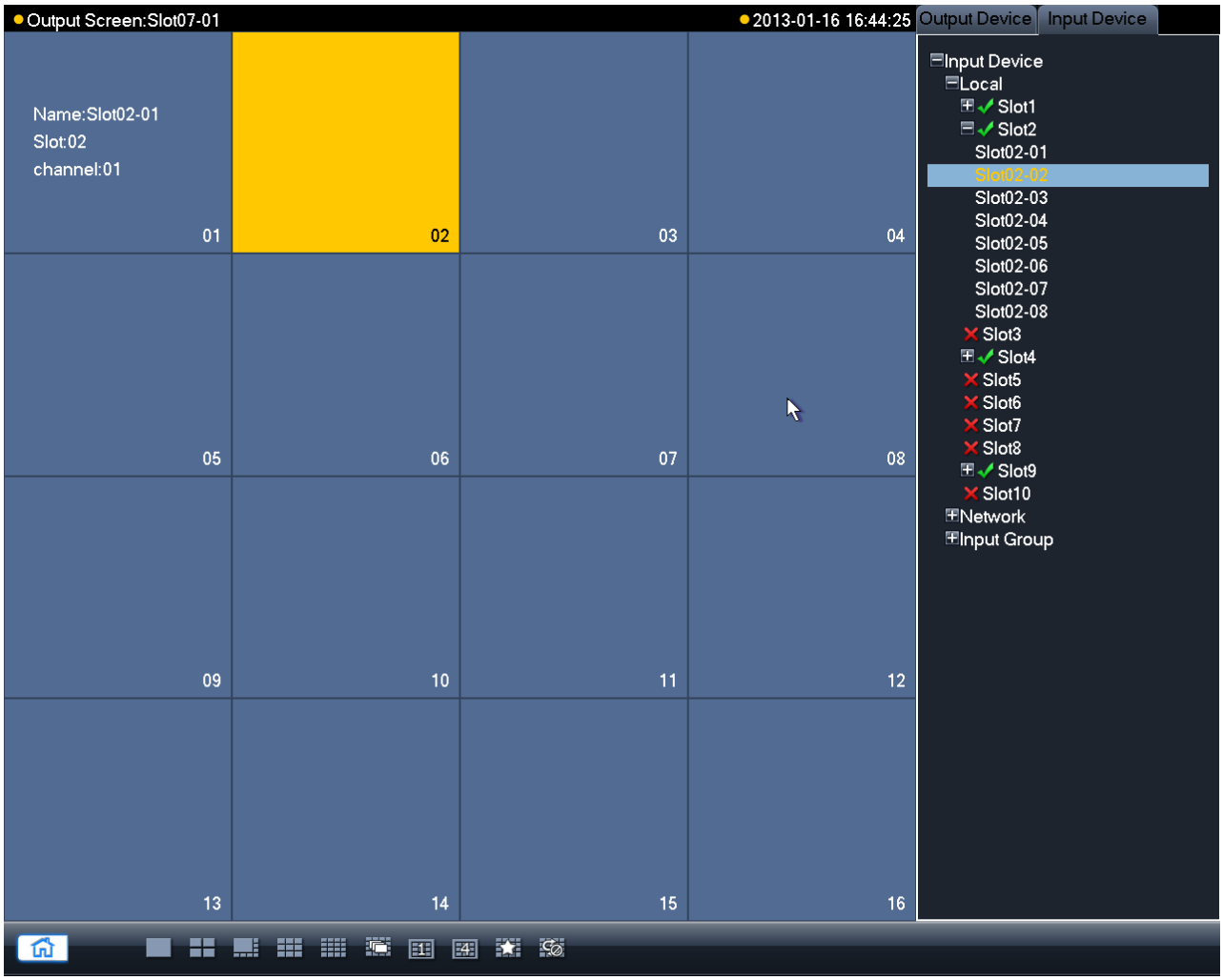


Figure 3- 10

Double click corresponding input channel and then you may config video to output interface. Please see Figure 3- 10.

Double click homepage, you will see Figure 3- 11.

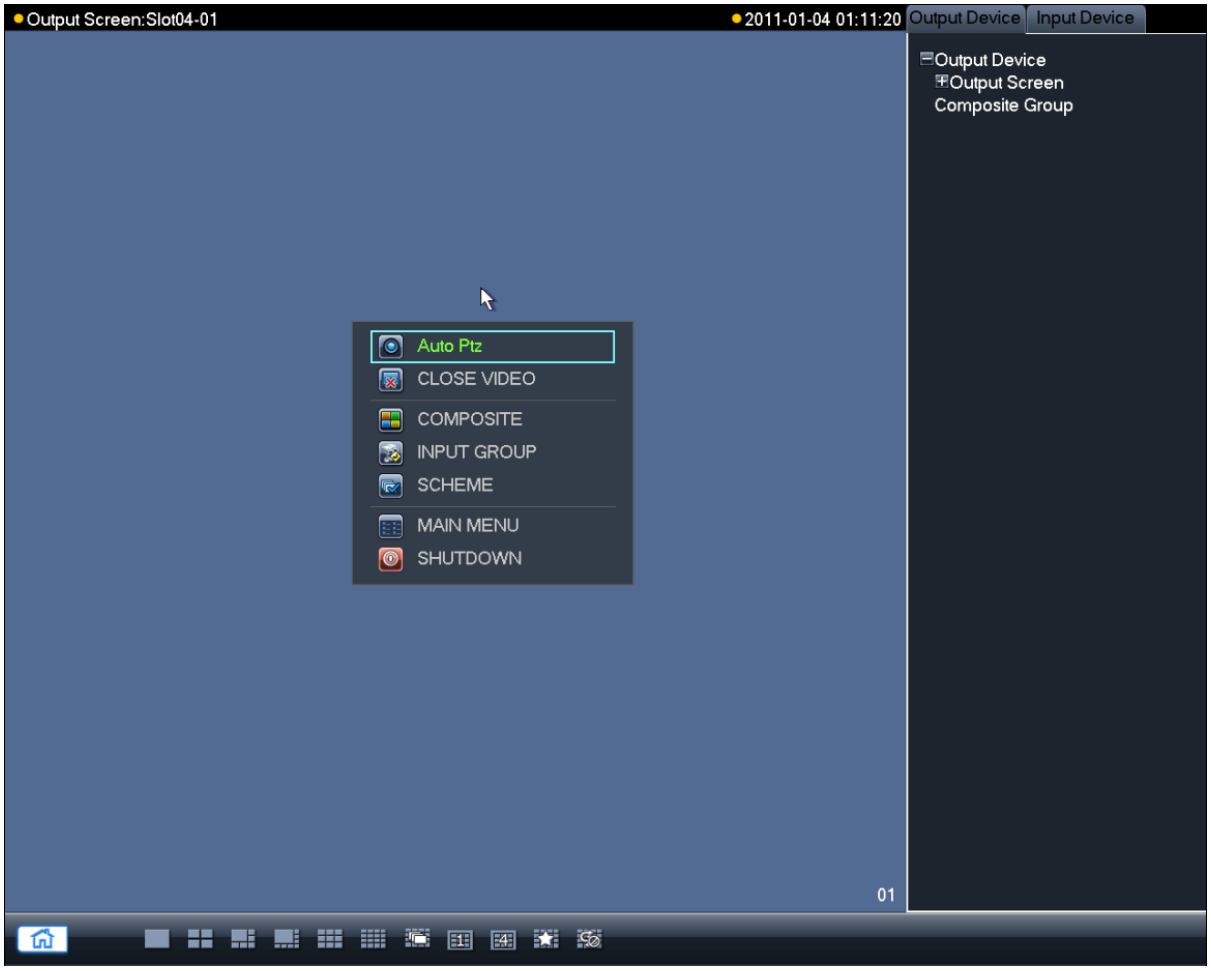


Figure 3- 11

- E-zoom: When input device supports e-zoom, you can use this function.
- Close Video: Delete current output screen's channel configuration.
- Cubeless: Cubeless video wall.
- Input Group: Config input group. You can display all video config of input group on the output screen. When signal of input is more than the max split of output screen, auto tour starts.
- Scheme: Config scheme. Save all output screen config of current device.
- Main Menu: Display main menu.
- Shutdown: Shutdown device.

The following sections are descriptions of input group and scheme. For other functions, please refer to later chapters.

3.1.9 Input Group

Step 1. Click input group and you will enter Figure 3-13.

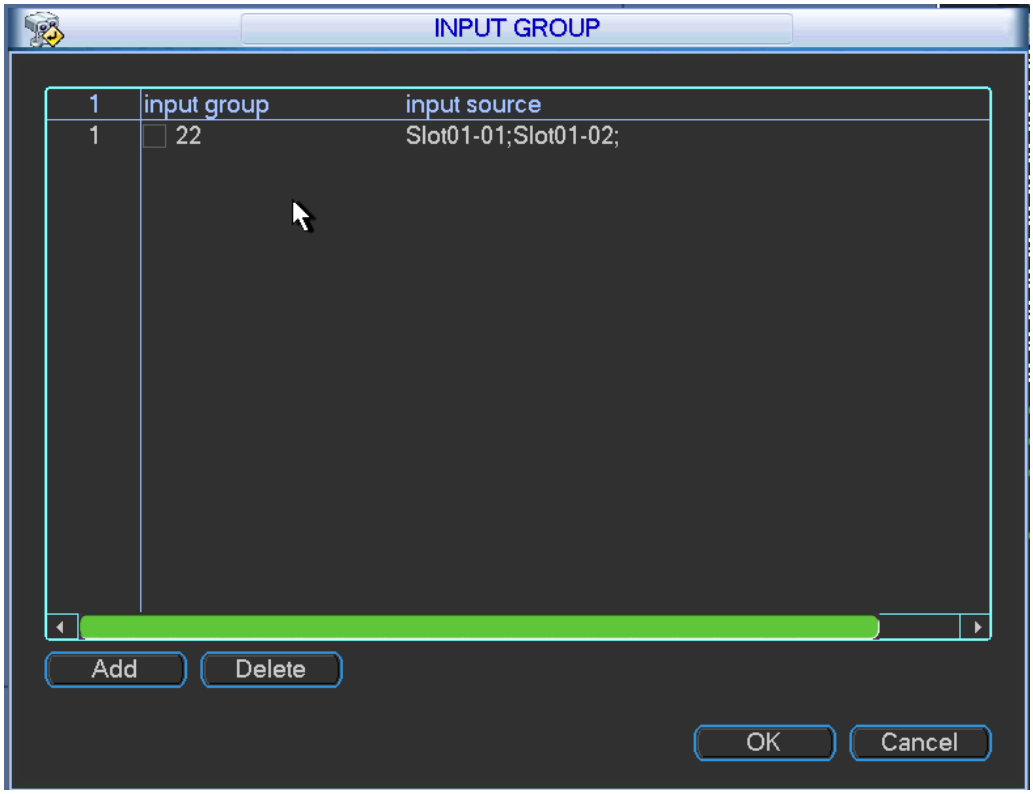


Figure 3- 12

Step 2. Click add. You will see Figure 3- 13.

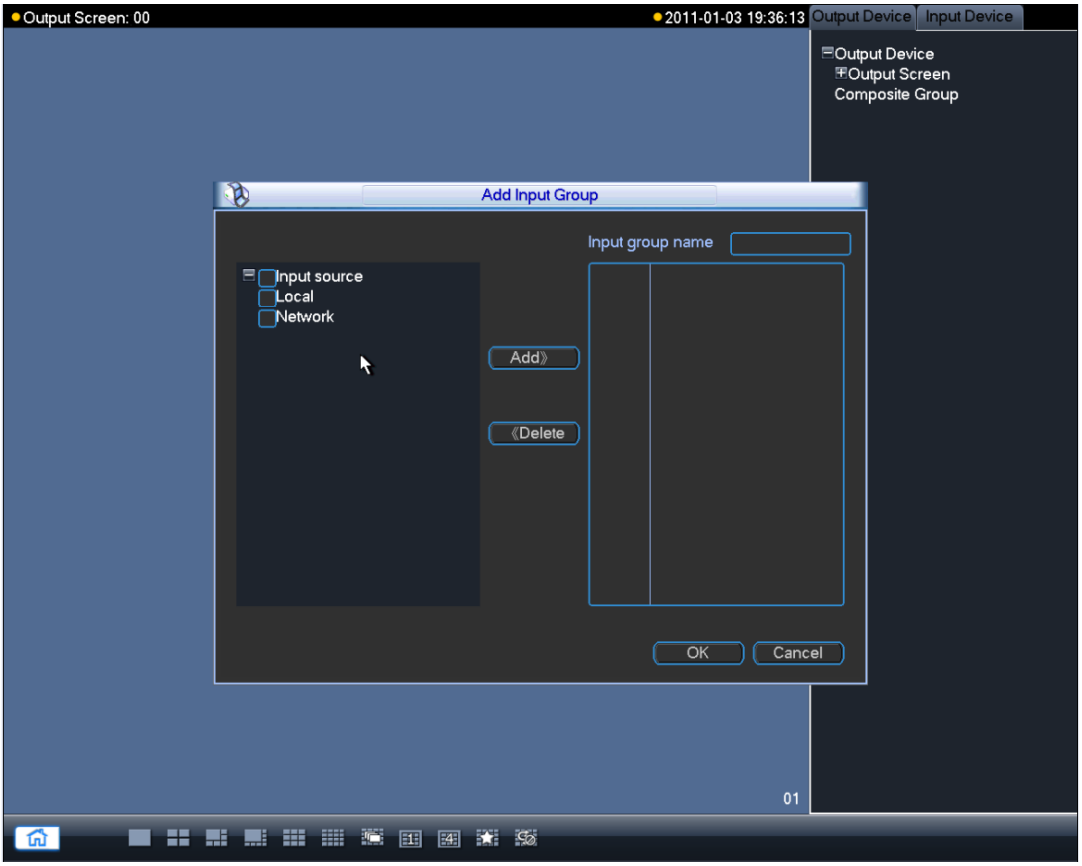


Figure 3- 13

Step 3. Select input source. ■ means selected. Click add, and fill in name of input group. Click OK. See Figure 3-15 and Figure 3-16.

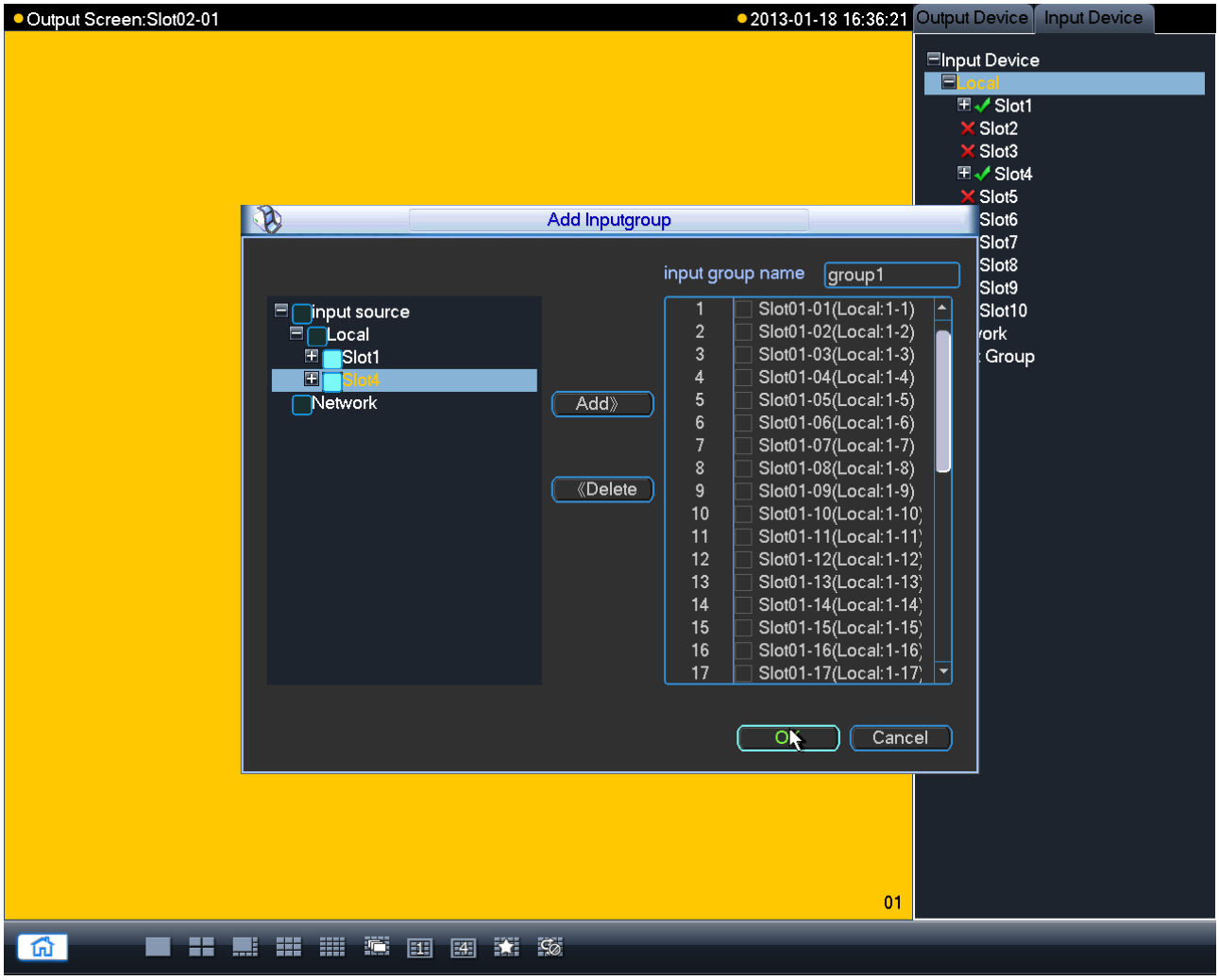


Figure 3- 14

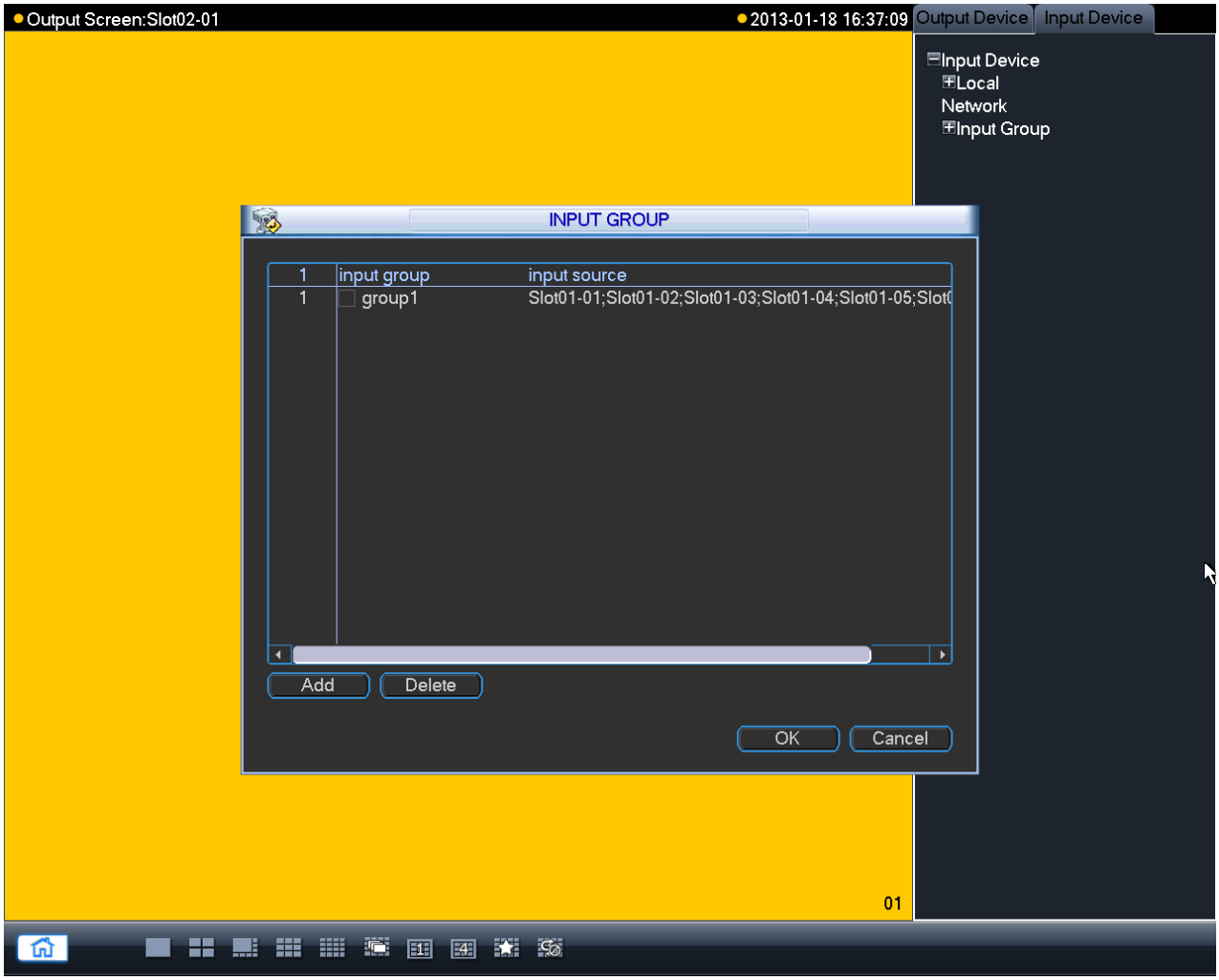


Figure 3- 15

Step 4. You may continue adding if you need. If you want to delete input group, you can check the small box in front of designated group and click delete. Click OK to confirm. When you are done, click OK to exit. You can open the input group you added in Figure 3-17.

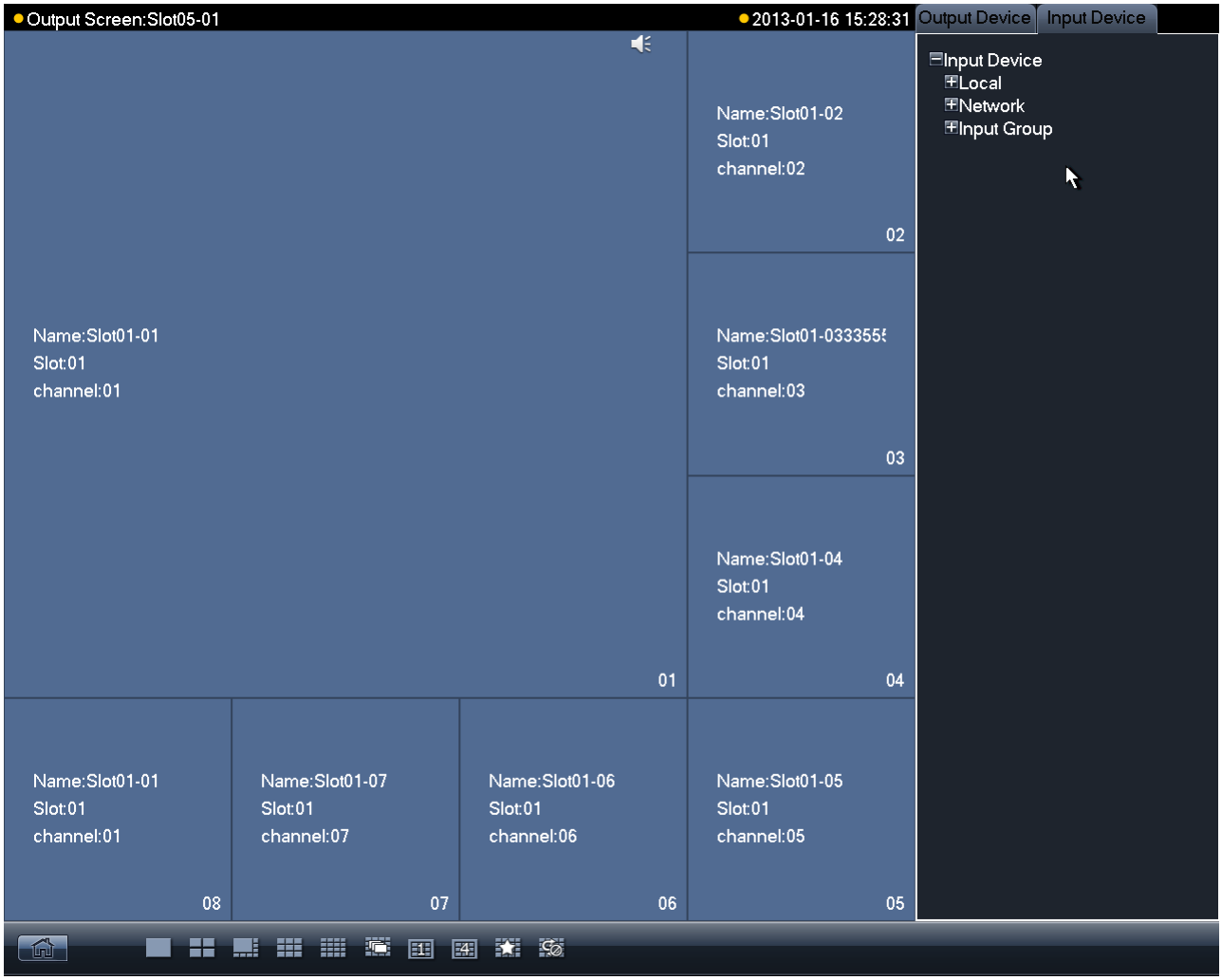


Figure 3- 16

Step 5. In output device list, double click output channel name and select one output channel. You will see its corresponding window turns yellow. Please see Figure 3- 17.

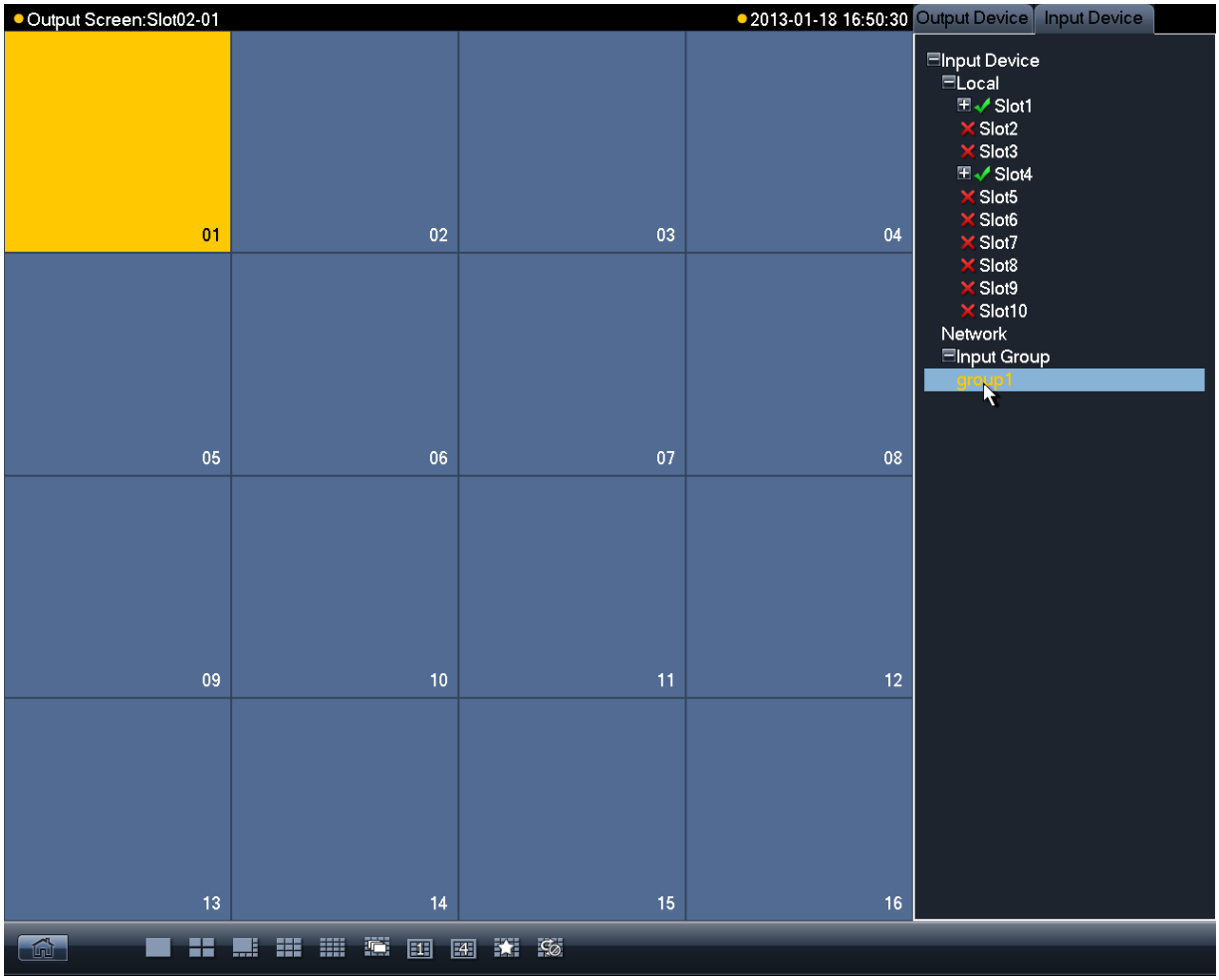


Figure 3- 17

Step 6. Switch to input device list. Double click configured input group, you will see configured signal source appear on output channel. See Figure 3-19.

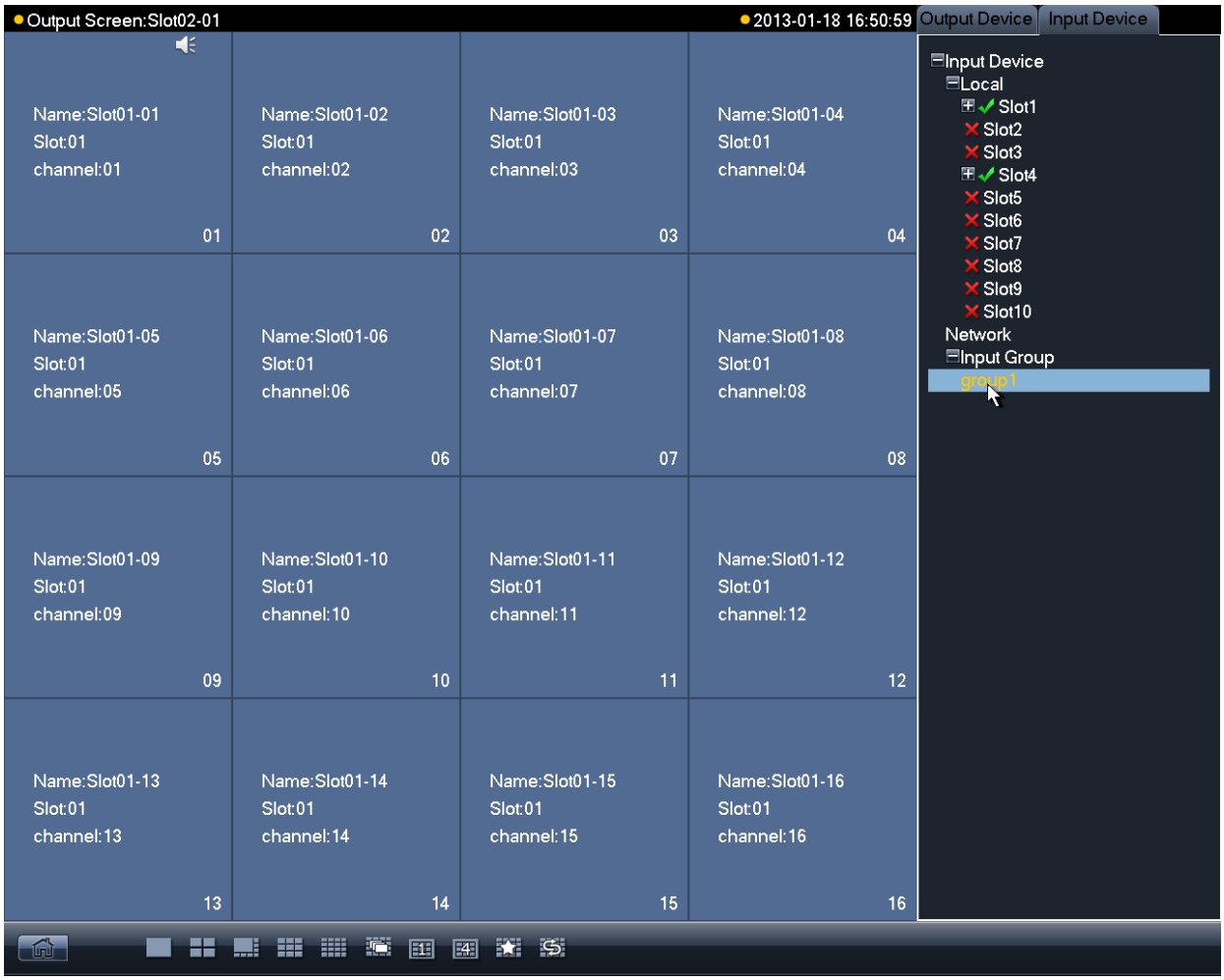


Figure 3- 18

Note:

When signal of input is more than the max split of output screen, auto tour starts.

3.1.10 Scheme

Step 1. Click scheme, and you will enter Figure 3- 19.

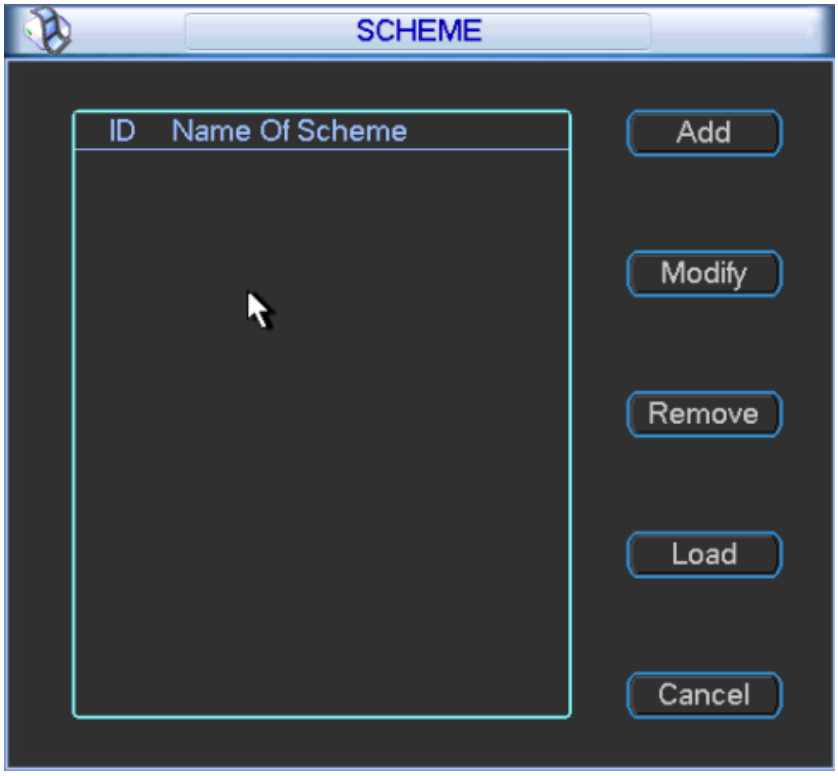


Figure 3- 19

Step 2. Click add to add new scheme. See Figure 3- 20.

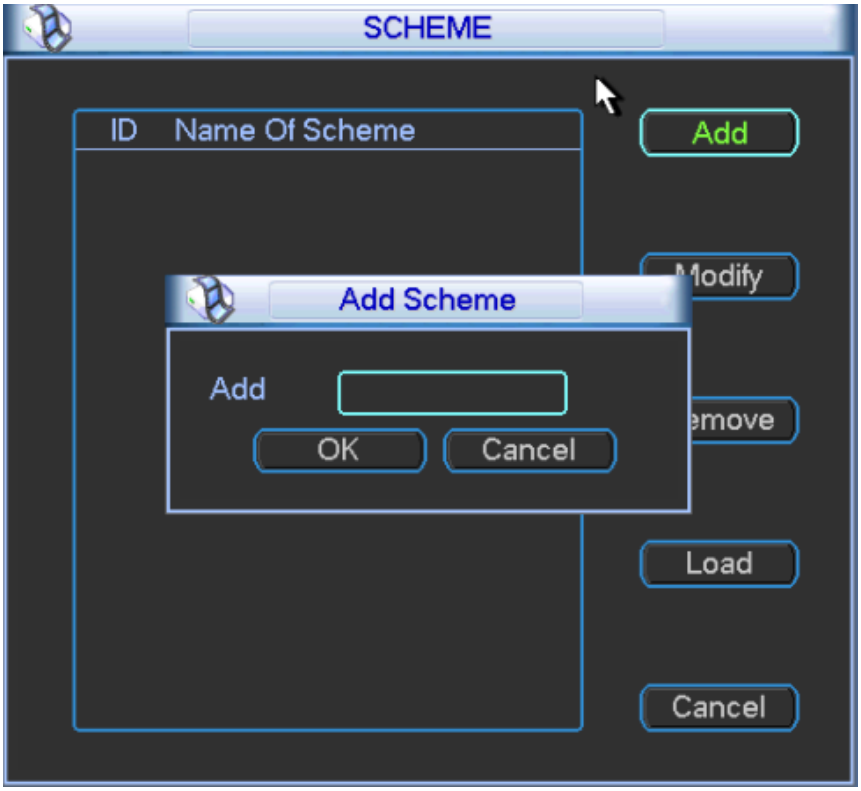


Figure 3- 20

Step 3. If the name has already existed, you may rename it. See Figure 3- 21.

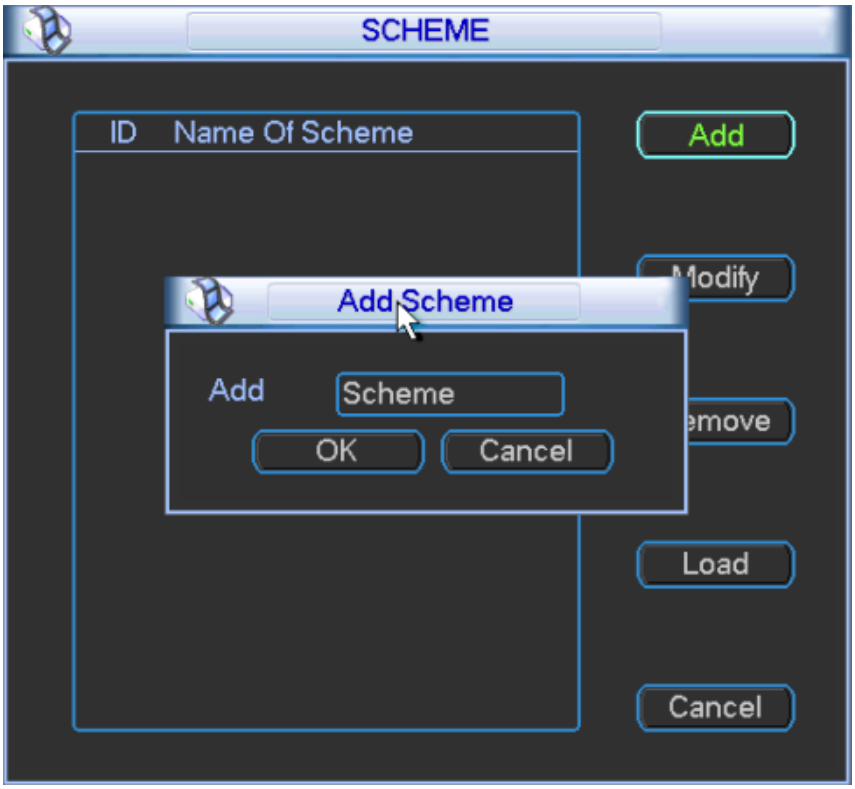


Figure 3- 21

Step 4. You may delete and load existing scheme.

Note: If the scheme is not configured, you cannot save it.

3.2 Advanced Menu Operation

3.2.1 Menu Navigation

Main Menu	1st Level Submenu	Option Note
Info	HDD Info	SATA interface status, HDD total capacity, free space， video start/end time and etc.
	BPS	Wave pattern means that calculation of each channel's current bit stream size and used capacity per hour.
	Log	It displays system log for important event. You may appoint log for event requires recording.
	Version	It displays system hardware features, software version, release date and etc.
	Online User	To view online user info.
	Status	To view fan speed, card information and its temperature info, source info, net percentage, CPU percentage and memory percentage.
Setting	General	It includes system time, video record saving method, local device No. and etc.

	Encode	AV encoding mode, frame rate, quality and other parameter setting
	Schedule	It includes timing setting for general video record, motion detect and external alarm.
	RS232	To set serial function, baud rate and other parameters.
	Network	To set network address, video data transmission protocol and other parameters and PPPoE, DDNS function.
	Detect	To set motion detect' sensitivity, area and handling (alarm output and boot up video record) parameter, video loss, black screen detection and etc.
	Pan/Tilt/Zoom	To set communication protocol, baud rate and other parameters with PTZ device.
	Display	Setting of menu output and monitoring tour parameter
	Default	Choose to restore factory settings for all or partial configs △Note：User accounts do not have recovery function.
Advanced	HDD Manage	HDD management, emptying HDD and etc. △Note：If you edit HDD property, then you must reboot the system to make change effective.
	Abnormality	To set up alarm for abnomaly event such as no HDD, HDD error.
	Record	To boot up or shutdown channel schedule.
	Account	To modify user group and user account.
	Auto Maintain	To set up auto maintenance for item requires it.
	Cubeless video Wall	To config cubeless video wall output.
	RAID	To config Raid for record storage.
Remote Device		To add, delete remote devices.
Shutdown		To Log off menu user, shutdown system, reboot system and switch user.

3.2.2 Menu Operation

After you logged in, the system main menu is shown as below. Please see Figure 3- 22. There are total five icons: setting, advanced, remote device, info, and shutdown.

⚠Note: 1. Setting in all submenus will come effective only after you click save, otherwise you will lose all modified settings. 2. If a check box is filled with ■ or checked, then it is available in corresponding text; otherwise, it is not available in the text.

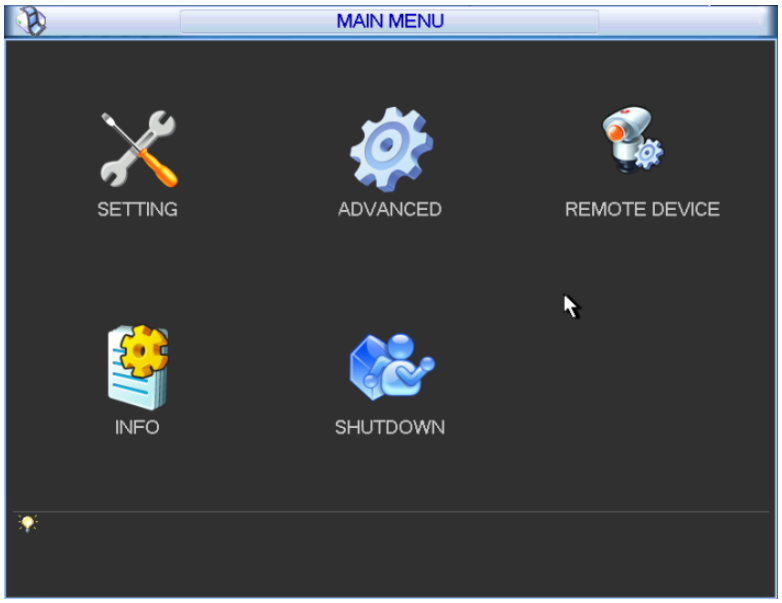


Figure 3- 22

3.2.3 Info

After you enter information menu, the submenu is shown as below. Please see Figure 3- 23. There are total five icons: HDD info, bit per second (BPS), log, version, online user and status.

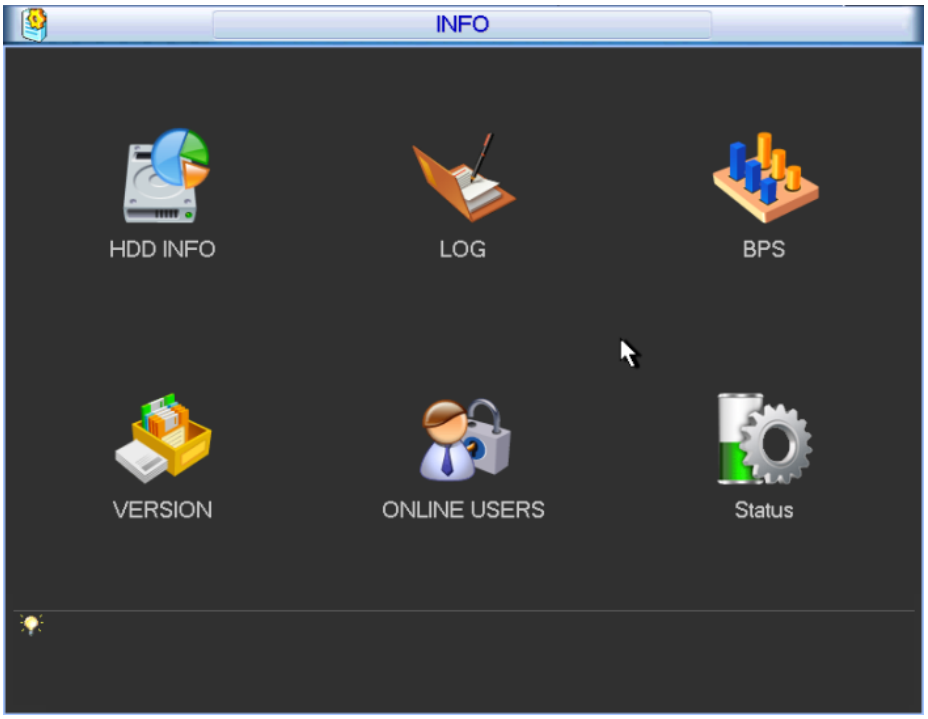


Figure 3- 23

3.2.3.1 HDD Info

It displays HDD interface status, total capacity of all HDDs, free space, video record start and end time, status and etc. Please see Figure 3- 24.

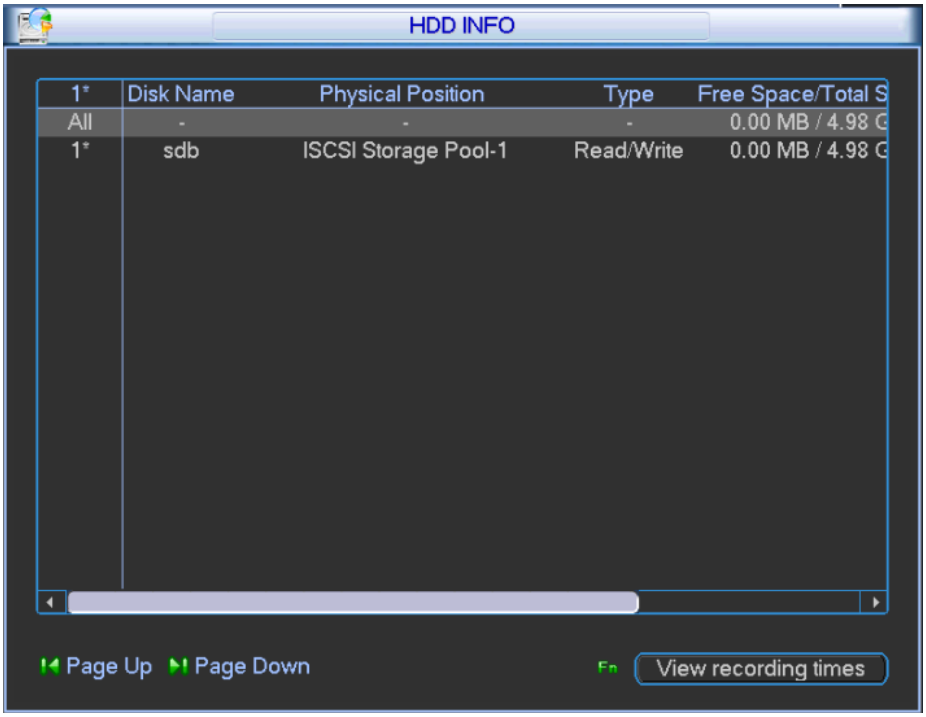


Figure 3- 24

In HDD info, add “*” after SN means is it current working disk (i.e. 1*). Status info shows whether there is conflict in the disk. If disk is damaged, system shows as “?”.

After system booted up, if there is any conflict, system goes to HDD information interface directly. Please note, system does not ask you to deal with it forcedly.

When HDD confliction occurs, you can check whether system time and HDD time are identical or not. If they are not identical, please go to General to adjust system time or go to HDD Management to format HDD and then reboot device. Please see Figure 3- 25.

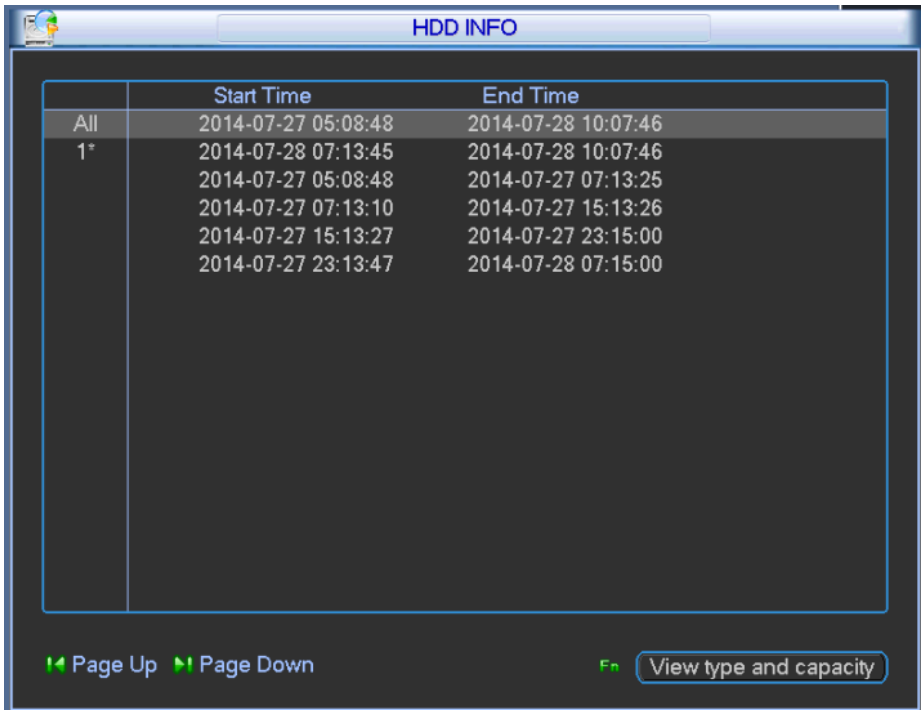


Figure 3- 25

⚠ **Note: You may left click view recording times button to switch to view type and capacity.**

3.2.3.2 Log

The interface displays system log file.
Log types include system, config, storage, alarm, record, account, clear, and playback.
Pleased select start time and end time, then click search button. You can view the log files in list format. System max displays 15 logs in one page. Please use page up/down button to turn pages. Please see Figure 3- 26.

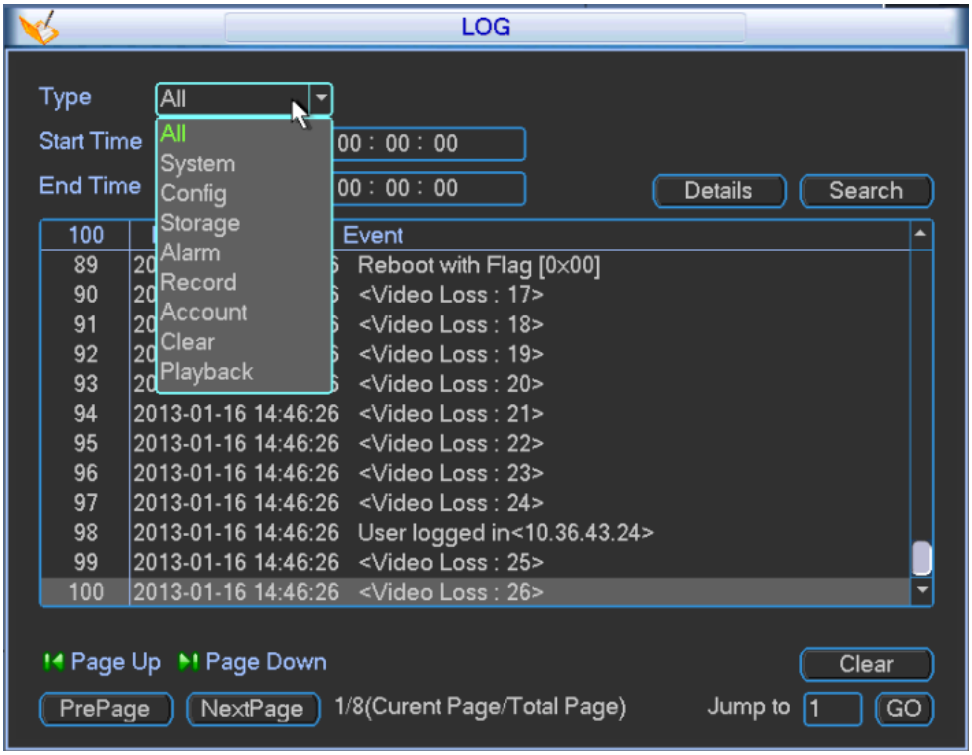


Figure 3- 26

3.2.3.3 **BPS**

This interface real time displays bit stream (Kb/S) and used space (MB/H), while wave pattern better shows changes in bit stream. Please see Figure 3- 27.

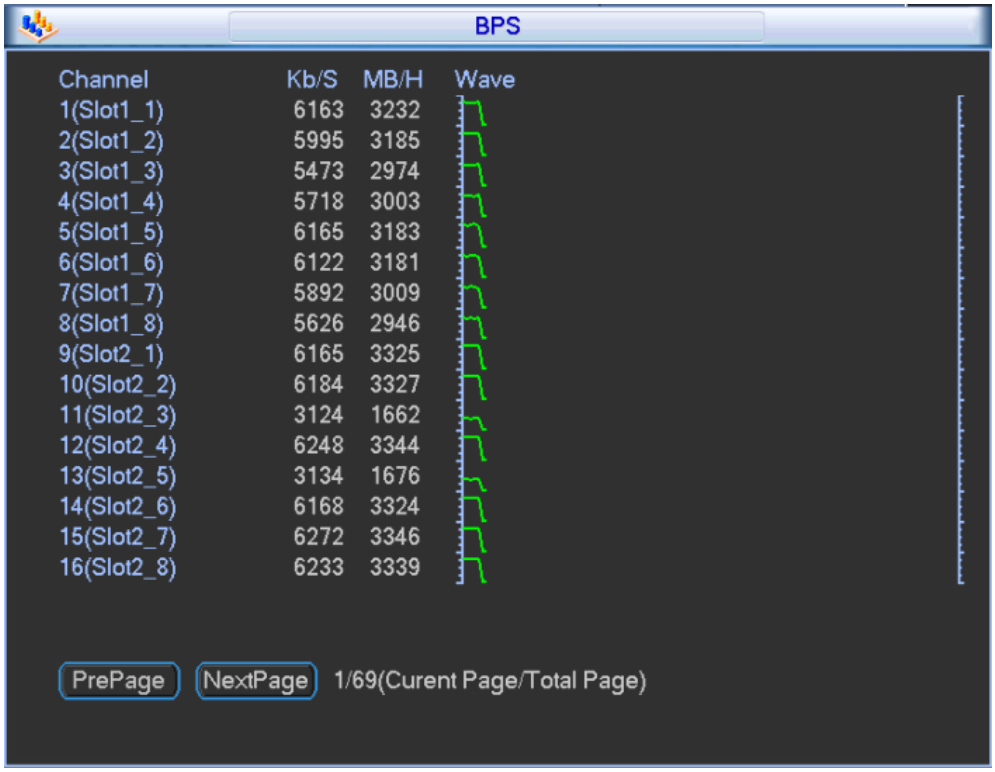


Figure 3- 27

3.2.3.4 Version

The interface displays system version, WEB version and their SN. You may click start to upgrade system after connect a USB device to device.

- **Note: The upgrading file in USB must be named update.bin.**

3.2.3.5 Online Users

In this interface, you can view and management online users connected to device. You may also disconnect or shield selected (with √ in box) users (for a set period up to 65535s). Please see Figure 3- 28.

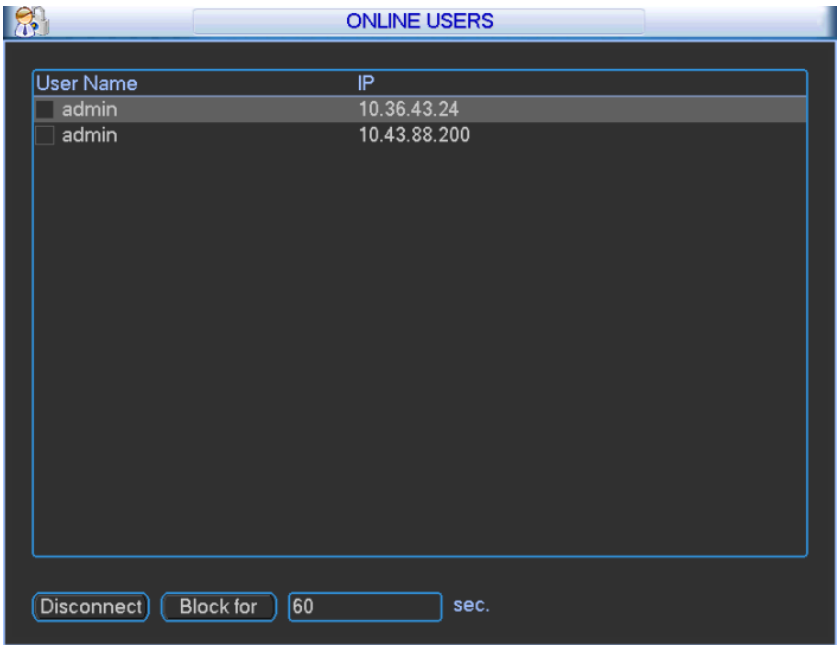


Figure 3- 28

3.2.3.6 Status

Please see Figure 3- 29.

Figure 3- 29

- Fan speed: It displays current speed of two fans.
- Card information: It displays card information of each slot, including type, encoding/decoding. It also displays current status of each card, including data exchange and online status.
- Temperature Information: It displays current temperature and status of each card.
- Source Information: It displays usage of two group of power.
- Time: It displays current time.
- Net percentage: It displays net sending and receiving percentage of each network port.
- CPU percentage: It displays usage percentage of each CPU.
- Memory percentage: It displays percentage of memory.

3.2.4 System Setting

System setting includes submenu: general, encode, schedule, RS232, network, detect, pan/tilt/zoom (PTZ), display, and default. Please see Figure 3- 30.

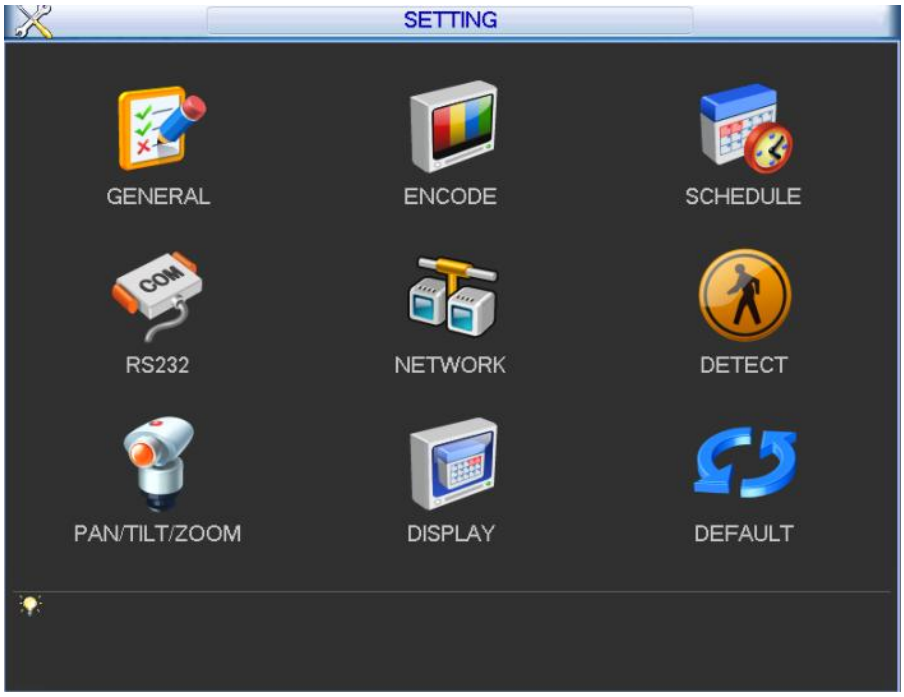


Figure 3- 30

⚠ **Note: Only authorized user can enter system setting.**

3.2.4.1 General

General setting interface is shown as follow; please see Figure 3- 31.

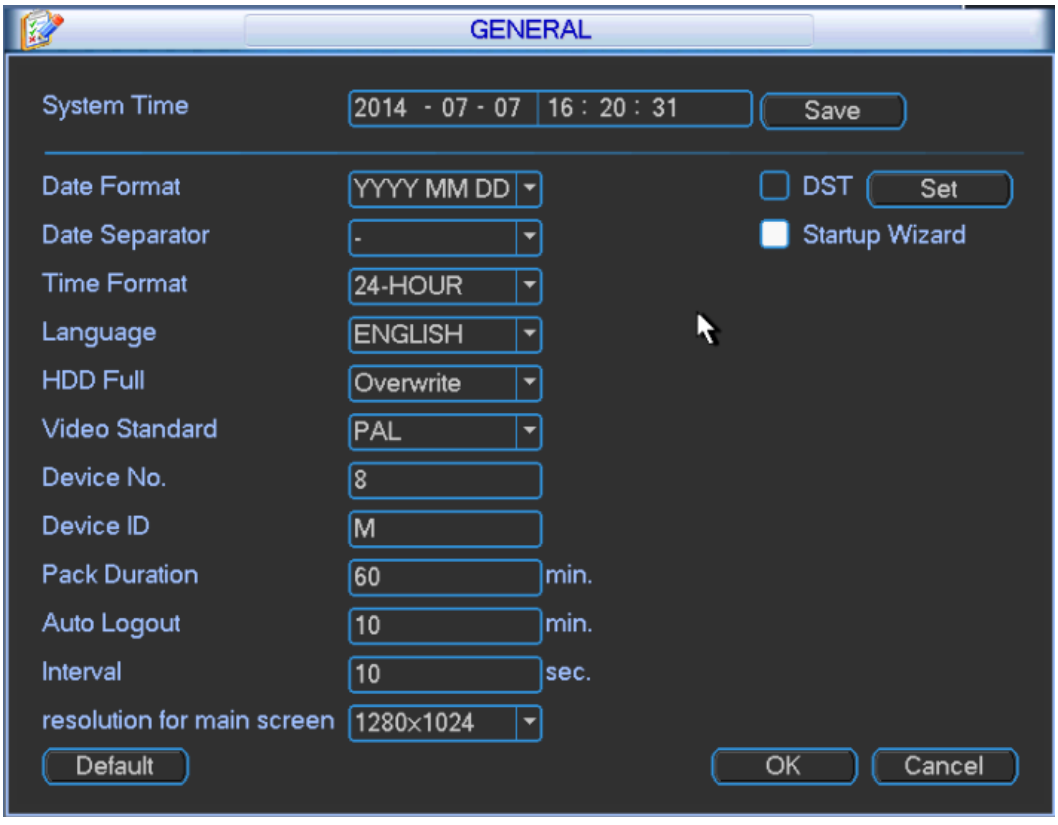


Figure 3- 31

- System time: You can set system date and time. After you modify setting, you must save your change to make changes effective.
- Date format: There are three types: YYYY-MM-DD: MM-DD-YYYY or DD-MM-YYYY.
- Date separator: There are three denotations to separate date: dot, beeline and solidus.
- Time format: There are two types: 24-hour mode or 12-hour mode.
- Language: To switch menu language (as English and Simplified Chinese)
- HDD full: You may select working mode when hard disk is full. There are two options: stop recording or rewrite. If current working HDD is overwritten or the current HDD is full while the next HDD is no empty, then system stops recording, If the current HDD is full and next HDD is not empty, then system overwrites the previous files.
- Video standard: There are two formats: NTSC and PAL.(different models have different options)
- Device NO.: Used to set vehicle license plate.
- Device ID: You may edit device ID.
- Pack duration: You may specify each record's duration. Default value is 60 minutes. Max value is 120 minutes.
- Auto logout: You may set standby interval which is a specified period of time between the moment once login user becomes inactive and the auto logoff of this user. It ranges from 0 to 60 minutes. 0 is log off immediately once this use becomes inactive. Users are required to log in again for operations in this case.
- Interval: To set interval between each tour of monitoring. It ranges from 10 to 120s.
- Resolution for main screen: Default is 1280*1024.
- Startup wizard: Once you check the box here, system will go to the startup wizard directly when the system restarts the next time. Otherwise, it will go to the login interface.
- DST: Here you can set DST time and date. Please enable DST function and then click set button. You can see an interface is shown as in Figure 3- 32. Here you can set start time and end time by setting corresponding week setting. In Figure 3- 32, enable date button, you can see an interface is shown as in Figure 3- 33. Here you can set start time and end time by setting corresponding date setting.

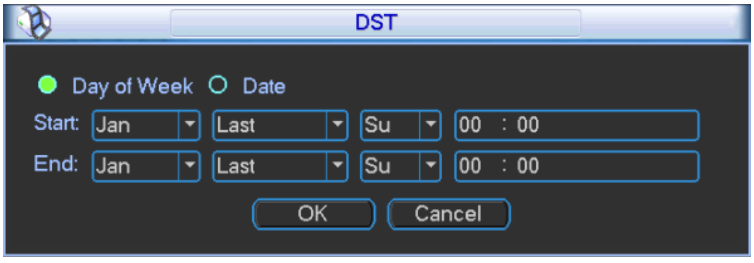


Figure 3- 32

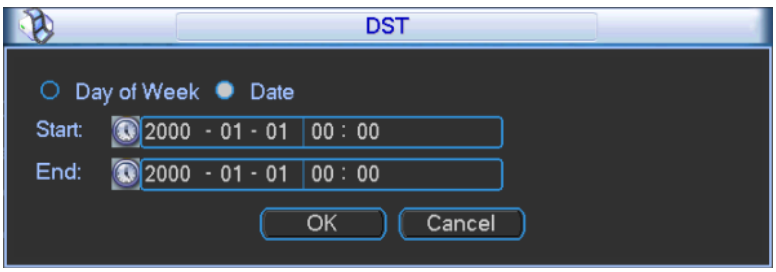


Figure 3- 33

⚠ **Note: Since system time is very important, do not modify time casually unless there is a must!**

Before your time modification, please stop record operation first!

3.2.4.2 Encode

Encode setting interface is shown as below. Please see Figure 3- 34.

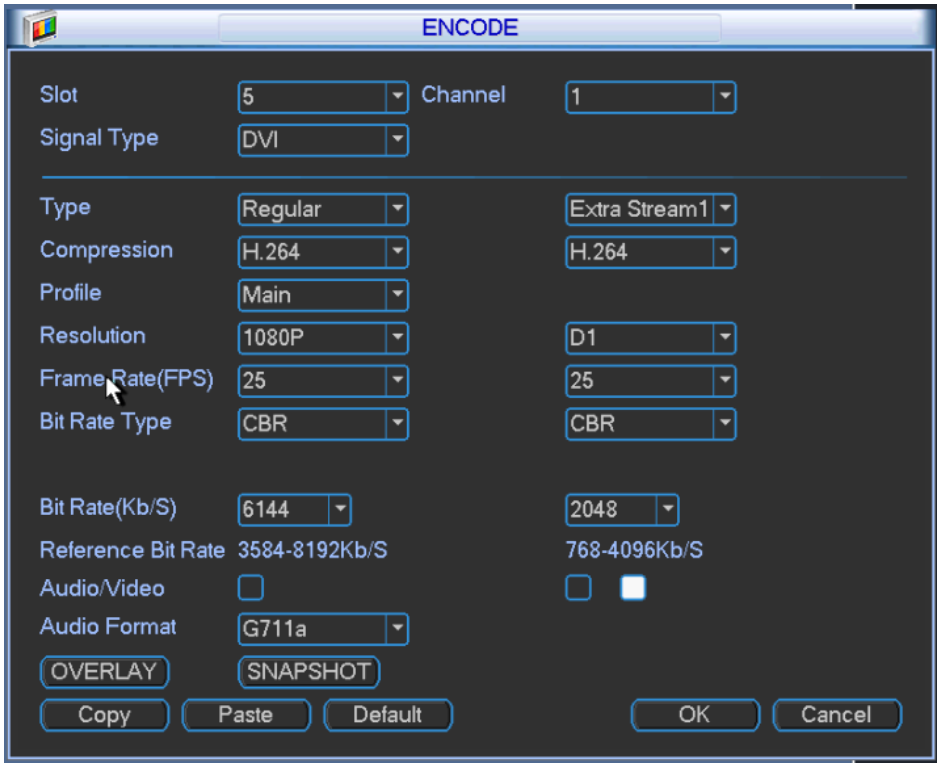


Figure 3- 34

- Slot: To select the slot you want.
- Channel: To select the channel you want.
- Signal type: Please select from the dropdown list.
- Type: Select from regular, detect and alarm.
- Compression: System supports H.264.
- Profile: Main and Baseline.
- Resolution: System supports various resolutions, you can select from the dropdown list. The standard definition main stream supports D1/HD1/2CIF/CIF/QCIF and the high definition main stream supports 1080P/720P/D1 and etc. Please note the option may vary due to different series.
- Frame rate: Pal standard: 1 frame/s – 25 frame/s. NTSC standard: 1 frame/s – 30 frame/s.
- Bit rate type: System supports two types: CBR and VBR. You cannot set image quality under CBR. In VBR mode, you can set video quality. There are six levels ranging from 1 to 6. The sixth level has the highest image quality.
- Bit rate: To set bit stream value to change image quality. The higher the rate, the better the image quality. There is recommended bit stream value for you to refer.

- Video/audio: You can enable or disable the video/audio. Main bit stream video by default is ON. For extra bit stream, you must select video prior to selecting audio.
- Audio format: You can select audio format: G711a, G711u and PCM.

Note: In encode setup, you cannot set encode parameter for remote device.

3.2.4.2.1 Overlay

Click overlay button, you can see an interface shown in Figure 3- 35.

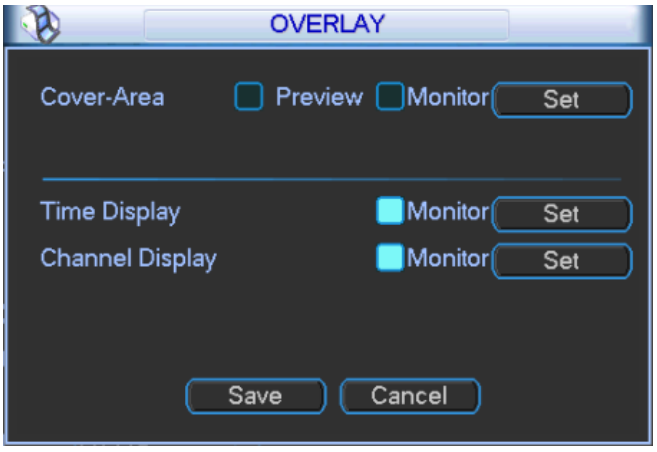


Figure 3- 35

Cover area (Privacy mask): Display as ■. To set cover area. You can drag you mouse to set proper area size. In one channel video, system max supports 4 zones in one channel.

- ✧ Preview: Preview means the cover area cannot be viewed by user when system is in preview status.
- ✧ Monitor: Monitor means the cover area cannot be view by the user when system is in monitoring status.
- ✧ Time display: You can select whether system displays time or not in decoding data for playback. Please set button and then drag the title to the corresponding position in the screen.
- ✧ Channel display: You can select whether system displays channel number or not in decoding data for playback. Please click set button and then drag the title to the corresponding position in the screen.

⚠ **Note: Titles cannot overlay each other.**

3.2.4.3 Schedule

After system booted up, it is in default of not recording. You can set record type and time in menu → system settings → schedule. Please see Figure 3- 36.

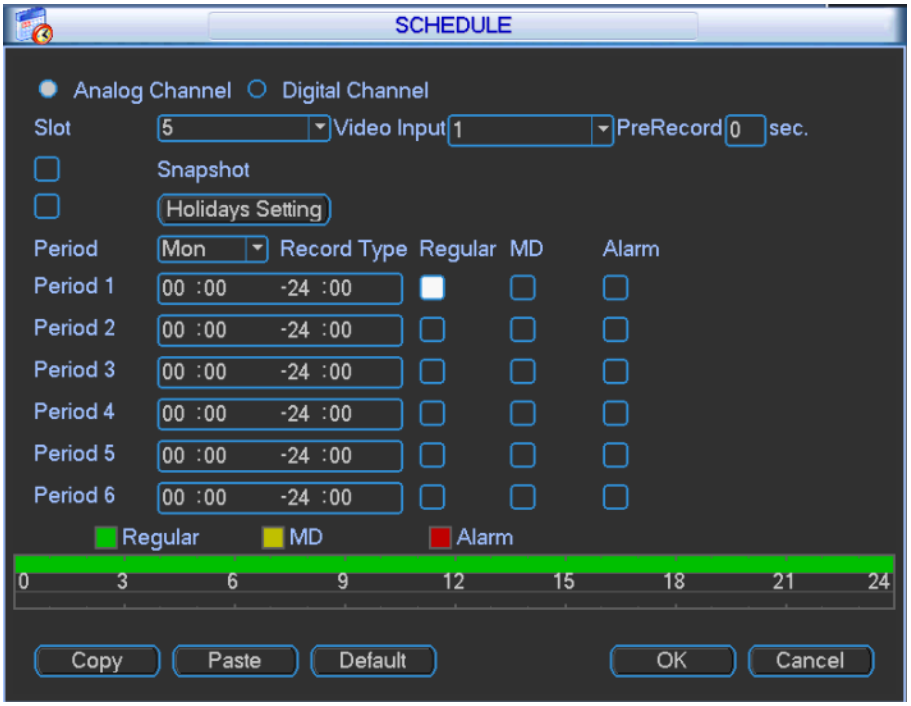


Figure 3- 36

- Analog channel: Please select the channel number first.
- Slot: Please select the slotl number first. You can select “all” if you want to set for the whole slots.
- Video input: Please select the channel number first. You can select “all” if you want to set for the whole channels.
- Snapshot: Enable it by checking ■ and then you may schedule snapshot. It snapshots 1/s by default. You can modify it in encode setup.
- Holidays: Enable it by checking ■. You may set vacation mode up to one month.
- Period: You may set period for general recording as video recording is operating within this time period. You may set by day of week while each day has setting in six periods. You can select “all” if you want to set all days at once.
- Pre-record: System can pre-record the video before the event occurs into the file. The value ranges from 0 to 30 seconds depending on the bit stream.
  ⚠Note: Pre-record time depends on its bit stream as pre-record time may not be reached in case of large bit stream.
- Record types: There are three types: regular, motion detect (MD) and alarm.

At the bottom of the menu, there are color bars for your reference. Green color stands for regular recording; yellow color stands for motion detect.
Note: Settings in analog and digital channels are similar.

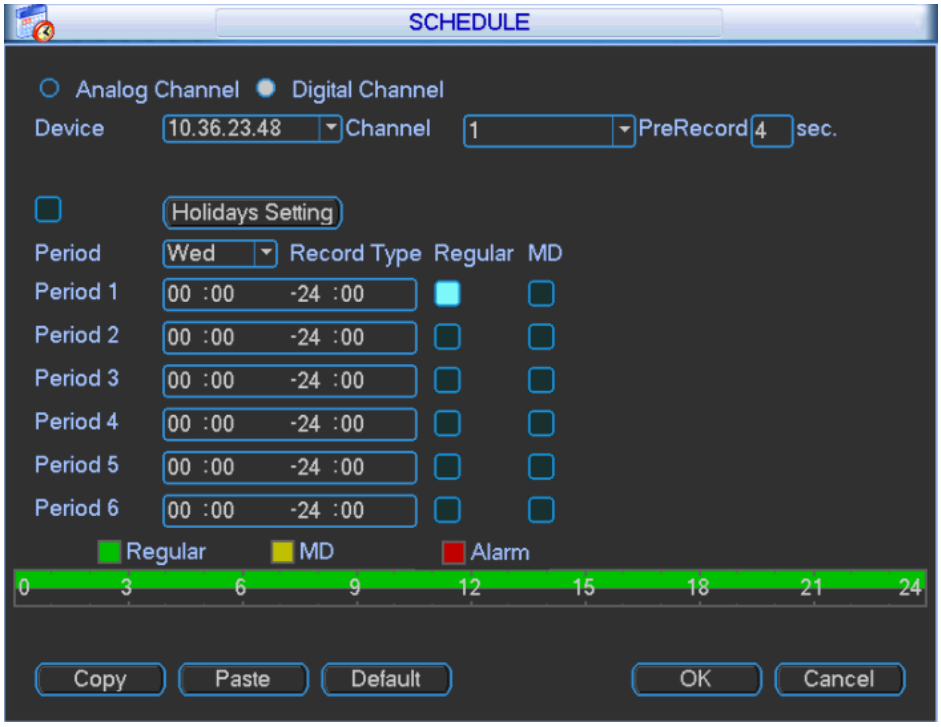


Figure 3- 37

- Device: Remote device IP address.
- Channel: Remote device channel no.

Quick Setting

1) This function allows you to copy one channel setting to another. After setting in channel 1, you can click copy button and turn to channel 3 and then click paste button or vice versa.
2) You can finish setting for one channel and then click save button or you can finish all setting and then click save button to memorize all the settings.

3.2.4.4 RS232

RS232 interface is shown below as in Figure 3- 38.

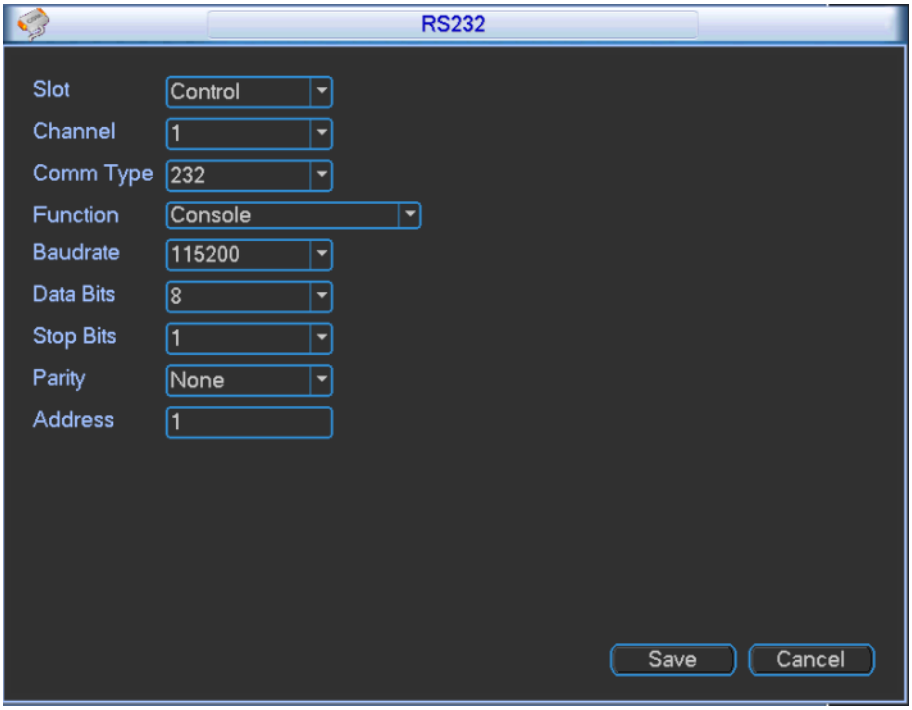


Figure 3- 38

- Function: There are various devices for you to select. Console is for you to use the COM or mini-end software to upgrade or debug the program. The keyboard is for you to control the device via the special keyboard. Adapter is to connect to the PC to transfer data directly. Net keyboard is for you to use the special keyboard to control the device. MatrixCom is to connect to the peripheral matrix control. PELCO is for you to control matrix via PELCO.
- Baud rate: You can select proper baud rate.
- Data bit: You can select proper data bit. The value ranges from 5 to 8.
- Stop bit: There are two values: 1/2.
- Parity: there are four choices: odd/even/space/mark.

System default setting is:

- Function: Console
- Baud rate:115200
- Data bit:8
- Stop bit:1
- Parity: None.
- Address: You can set address.

3.2.4.5 **Network**

Network interface is shown below as in Figure 3- 39.

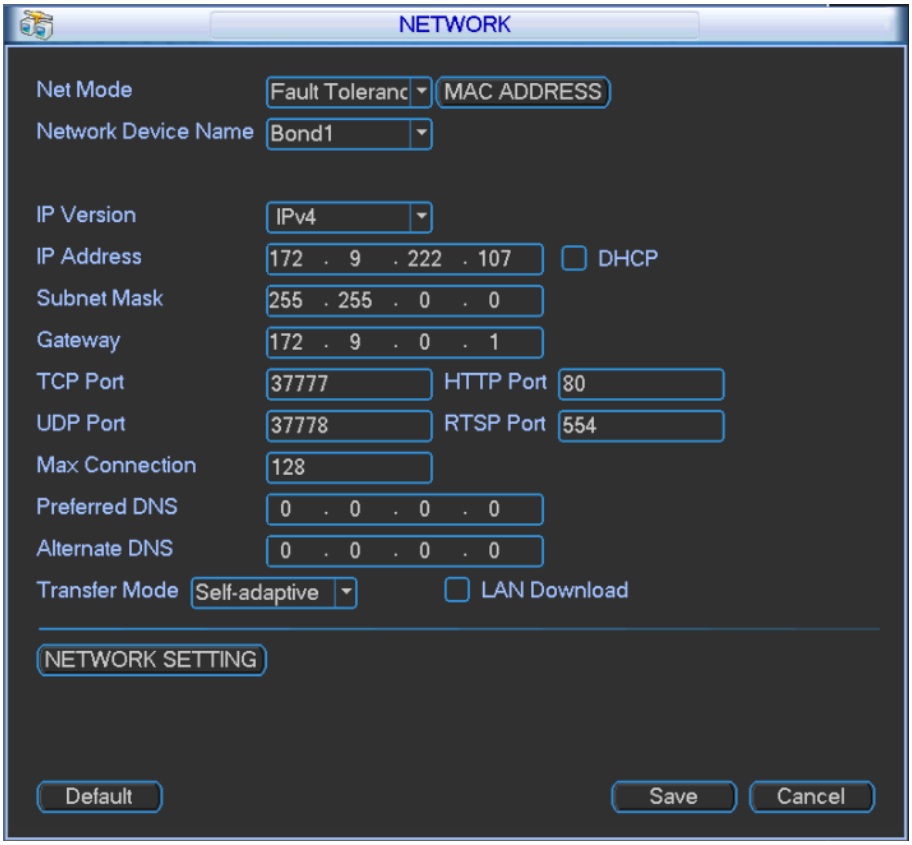


Figure 3- 39

- Network Mode: It includes multi-addresses, fault tolerance, load balance, net bridge and link aggregation.
- Aggregation Set: Under net bridge mode under.
- Net bridge Set: Under net bridge mode only. This setup can bind any two network cards to one net bridge as one network card can only bind one net bridge. Bound net bridge will be shown in Ethernet dropdown box. Bound network card as net bridge will be not shown.
- Ethernet Card Name: You can select from 1~~2.
- Default Ethernet port: You can select from 1~~2. Under multiple addresses and bridge mode only.
- Aggregation strategy: Under aggregation link mode only. Strategies available are MAC-address-based, IP-address-and-port-based, IP-address-and-MAC-address-based. IP-address-and-port-based.
- IP version: IPv4 and IPv6.
- IP address: Here you can input IP address and then set corresponding subnet mask and default gateway.
- DHCP: It is to auto search IP. When enable DHCP function, you cannot modify IP/Subnet mask /Gateway. These values are from DHCP function. If you have not enabled DHCP function, IP/Subnet mask/Gateway display as zero. You need to disable DHCP function to

view current IP information. You must set IP-related parameters again if you disabled DHCP. Besides, when PPPoE is operating, you cannot modify IP/Subnet mask /Gateway.

- TCP port: Default value is 37777. You may set this port.
- UDP port: Default value is 37778. You may set this port.
- HTTP port: Default value is 80.
- Max connection: connections: 0-128. System supports maximal 128 users. 0 means there is no connection allowed.
- Preferred DNS server: Set DNS server IP address.
- Alternate DNS server: Set DNS server alternate IP address.
- Transfer mode: Here you can select the priority among fluency/video qualities/self-adaption.
- LAN download: Under sufficient bandwidth, system can process the downloaded data first if you enable this function. The download speed is 1.5X or 2.0X of the normal speed.
- LAN service: Click to enter LAN service setting as shown in Figure 3- 40.

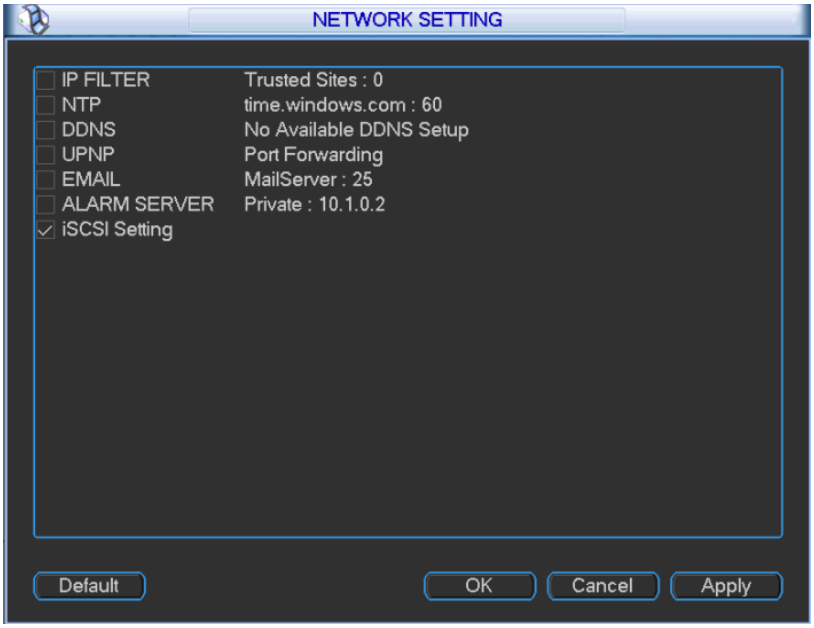


Figure 3- 40

3.2.4.5.1 IP Filter

Only IP listed on trusted sites can connect to this device. Trusted sites supports up to 64 IP addresses.

If you disable trusted sites, then there will be no limit for IP address to visits this device. Please see Figure 3- 41.

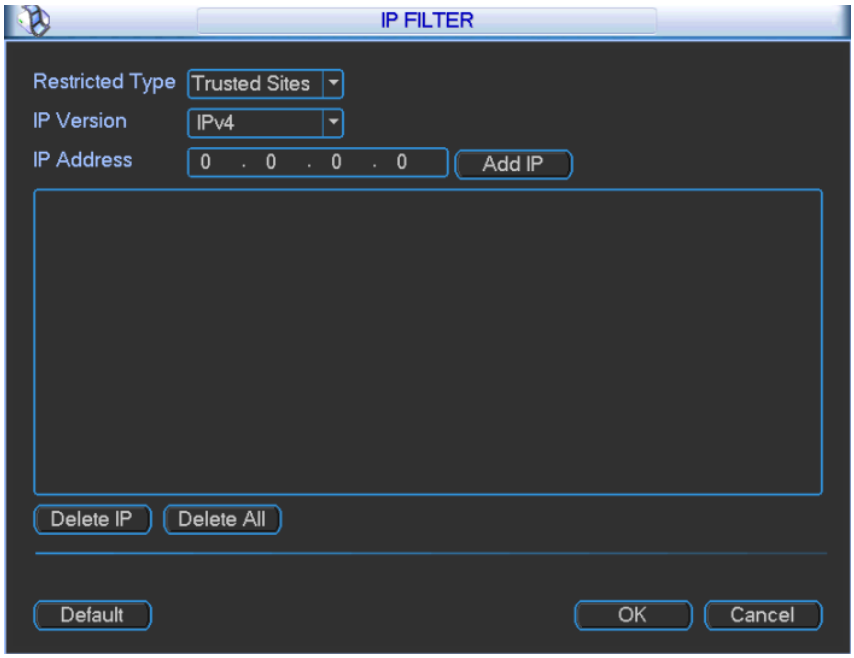


Figure 3- 41

3.2.4.5.2 NTP Setting

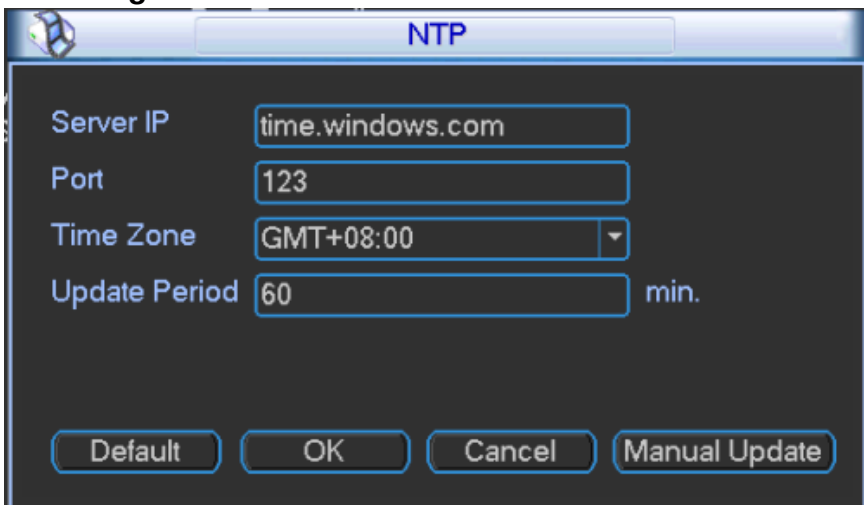


Figure 3- 42

You need to install SNTP server (Such as Absolute Time Server) in your PC first. In Windows 7 OS, you can use command “net start w32time” to boot up NTP service.

NTP setting interface is shown as in Figure 3- 42.

- Host IP: Input your PC address where SNTP server is installed.
- Port: This SNTP supports TCP transmission only. Port default value is 123.
- Time zone: select your corresponding time zone here.

Here is a sheet for your time zone setting.

City /Region Name	Time Zone
London	GMT+0
Berlin	GMT+1
Cairo	GMT+2
Moscow	GMT+3

New Deli	GMT+5
Bangkok	GMT+7
Beijing (Hong Kong)	GMT+8
Tokyo	GMT+9
Sydney	GMT+10
Hawaii	GMT-10
Alaska	GMT-9
Pacific Time(P.T)	GMT-8
American Mountain Time(M.T)	GMT-7
American Central Time(C.T)	GMT-6
American Eastern Time(E.T)	GMT-5
Atlantic Time	GMT-4
Brazil	GMT-3
Middle Atlantic Time	GMT-2

- Update interval: minimum value is 1. Max value is 65535. (Unit: minute)

3.2.4.5.3 Multicast

After multicast is enabled, it will automatically get multicast address and add ins group. Open preview to monitor via multicast.

3.2.4.5.4 DDNS

DDNS setting interface is shown as in Figure 3- 43.

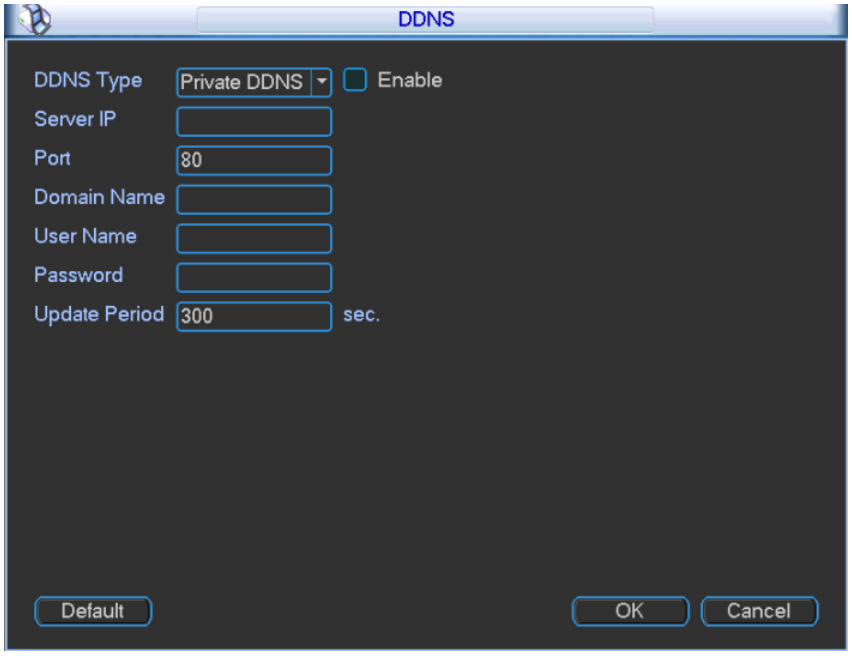


Figure 3- 43

You need a PC of fixed IP in the internet and there is the DDNS software running on this PC. In other words, this PC is a DNS (domain name server).

In network DDNS, please select DDNS type (currently support CN99 DDNS,NO-IP DDNS, Private DDNS and Dyndns DDNS which can coexist)and highlight enable item. In host IP, input DDNS name allowing you to connect to WEB search page of the device.

⚠ Note: Private DDNS function shall work with special DDNS server and special Professional Surveillance Software (PSS).

3.2.4.5.5 UPNP

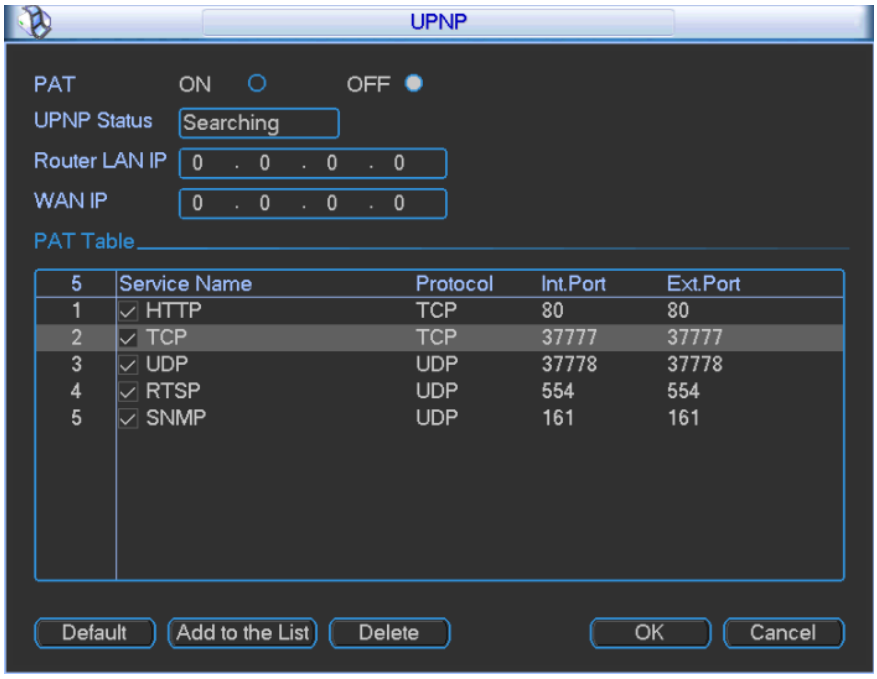


Figure 3- 44

The UPNP protocol is to establish a mapping relationship between the LAN and the WAN.
Please see Figure 3- 44.

- UPNP on/off ： Turn on or off the UPNP function of the device.
- Status: Display UPNP function status, including success, fail and searching.
- Router LAN IP: It is the router IP in the LAN.
- WAN IP: It is the router IP in the WAN.
- PAT table： Display info of added ports.
  You may add new port and delete existing port.
  ⚠ **Note: Double clicke item; you can change the corresponding mapping information. Please see** Figure 3- 45**.**

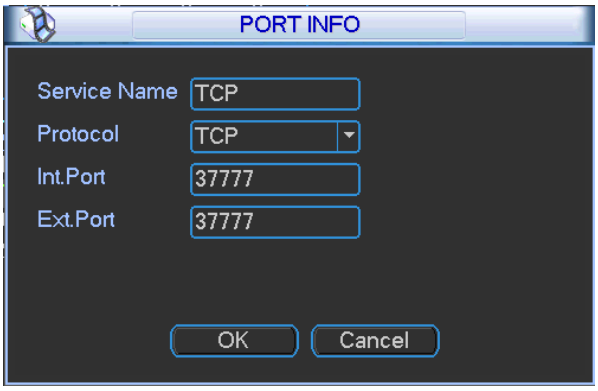


Figure 3- 45

3.2.4.5.6 Email

Email setting interface is shown as in Figure 3- 46.

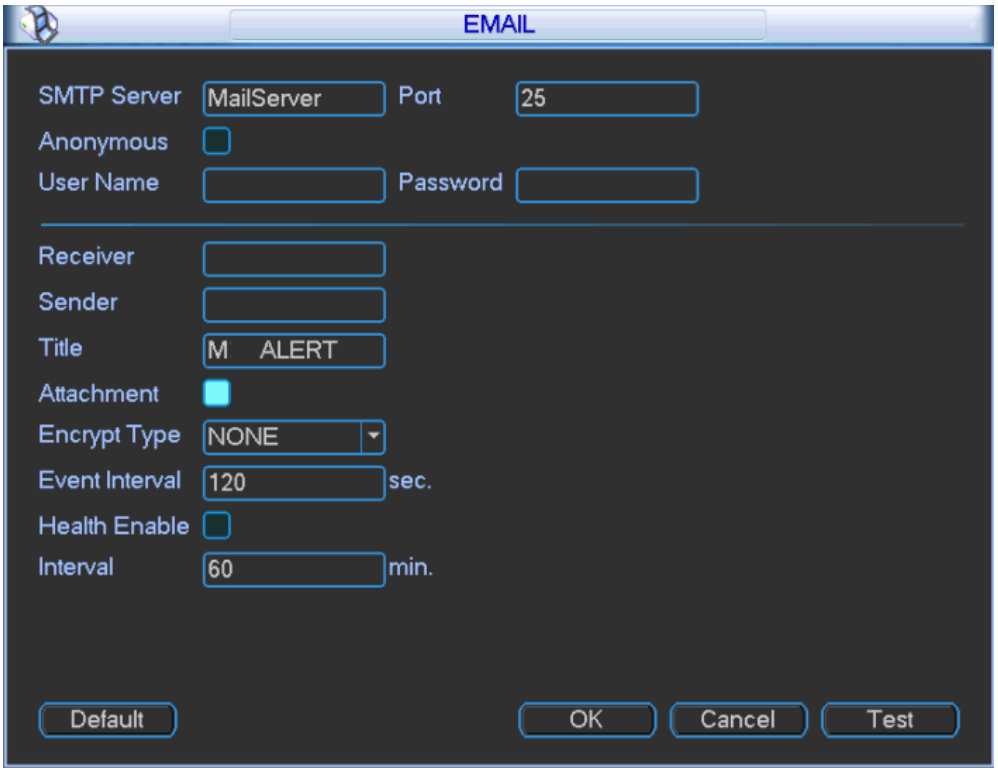


Figure 3- 46

- SMTP server: Please input your email SMTP server IP here.
- Port: Please input corresponding port value here.
- User name: Please input the user name to login the sender email box.
- Password: Please input the corresponding password here.
- Sender: Please input sender email address here.
- Title: Please input email subject here. System support English character and Arabic number. Max 32-digit.
- Interval: The send interval ranges from 0 to 3600 seconds. 0 means there is no interval.

Please note system will not send out the email immediately when the alarm occurs. When the alarm, motion detect or the Abnormality event activates the email, system sends out the email according to the interval you specified here. This function is very useful when there are too many emails activated by the Abnormality events, which may result in heavy load for the email server.

- Health email enable: Please check the box here to enable this function. This function allows the system to send out the test email to check whether the connection is OK or not. Select this function and then set interval for those test email. The send interval ranges from 30 to 1440 minutes.

  ⚠ **Note: Click test button to test whether current EMAIL config is OK.**

3.2.4.5.7 Alarm Center

This interface is reserved for you to develop. If alarm occurs locally, its alarm signal will be uploaded to alarm center. For you to use alarm center, please set server IP and port first. When

alarm occurs, the device will send data according to protocol format and client will receive designated data. Please see Figure 3- 47.

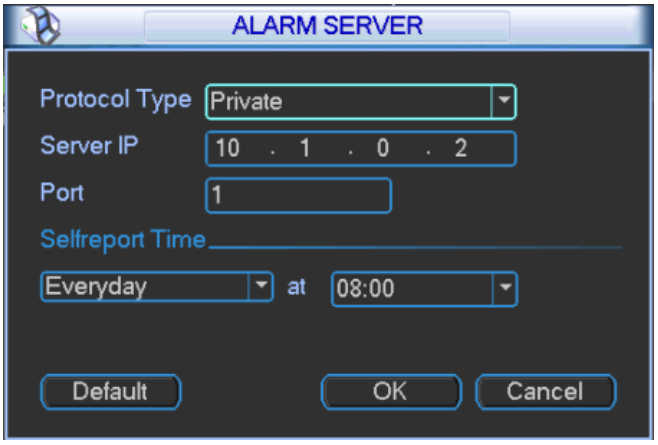


Figure 3- 47

3.2.4.5.8 iSCSI

1) Click system setting → network → network service setting → iSCSI setting. Set its parameter, including host IP, port.
2) Click storage path setting.
3) Select corresponding remote directory and then click OK to enable.
4) Input correct username and password. Click Add.
5) Click OK.

Please see Figure 3- 48 as guide.

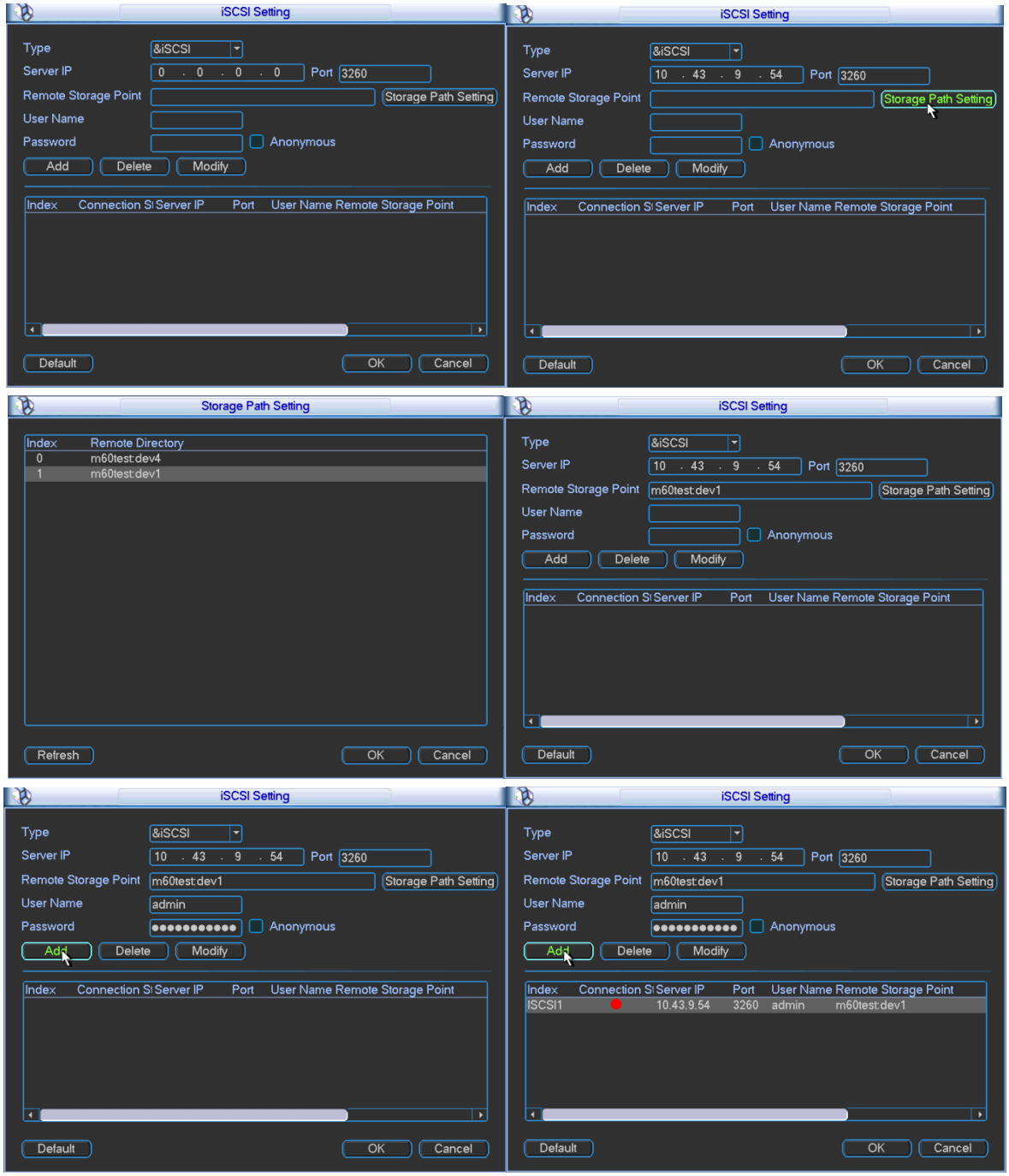


Figure 3- 48

3.2.4.6 **Video Detection**

Introduction:

1) Please set in menu → system settings → detect.
2) There are no settings of detection area, sensitivity or anti-dither in video loss and camera mask.
3) You can drag your mouse to set motion detect area. You may right click to save your selection and exit setting. Please click save before you exit.

3.2.4.6.1 Motion detect

When the system detects dynamic signal that reaches preset sensitivity via analyzing video image, motion detect alarm will turn on. The interface is shown below as in Figure 3- 49.

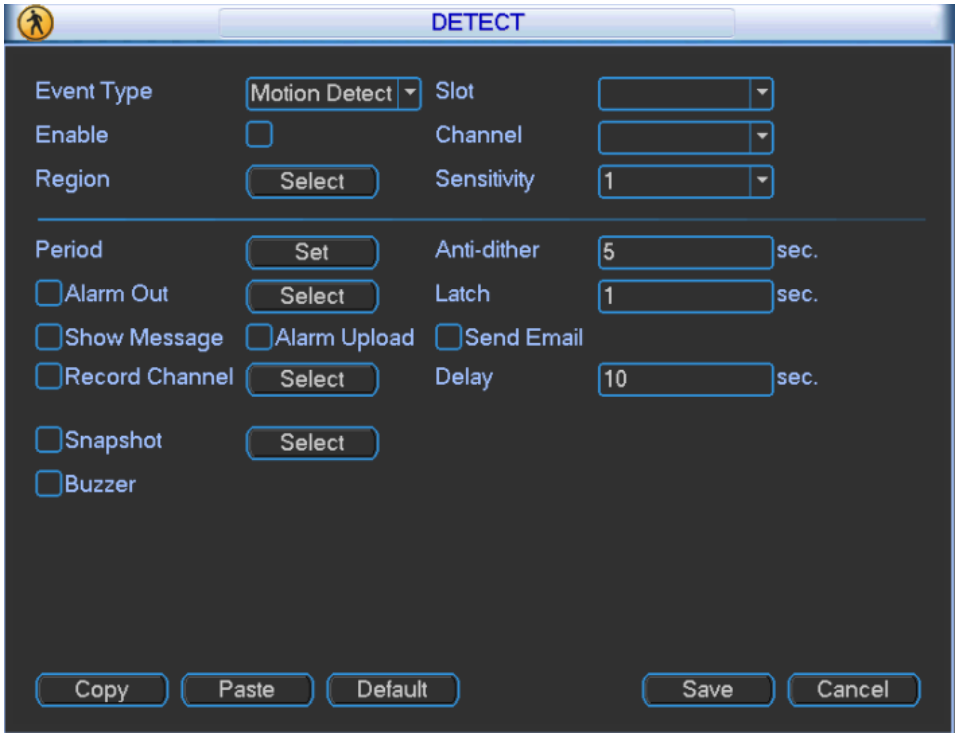


Figure 3- 49

⚠ Note: Please make sure you have enabled motion detect function as the check box filled by ■.

- Event type: from the dropdown list you can select motion detect type.
- Slot: select slot to set.
- Enable: ■ means selected.
- Channel: select the channel to activate motion detect or select all to include all channels under selected slot.
- Region: Move cursor to set, and click enter. The interface is shown as in Figure 3- 50. The green zone is current cursor position. Grey zone is the motion detect zone. Black zone is the disarmed zone. Do remember click save button to save current setting. If you click ESC button to exit the region setting interface system will not save your zone setting.

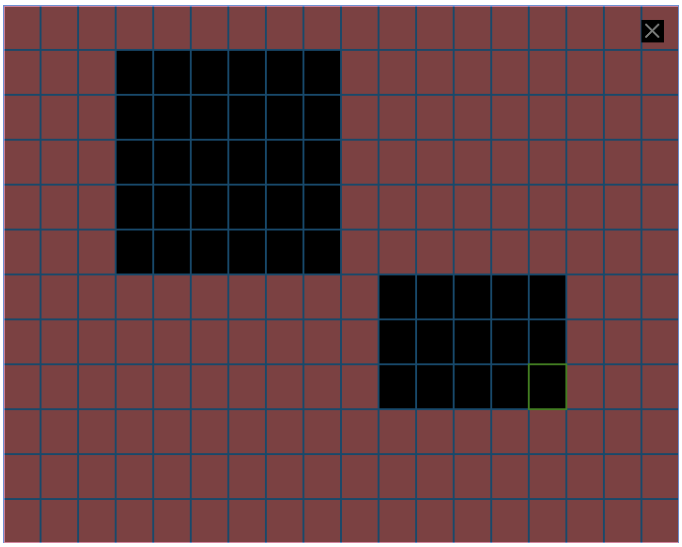


Figure 3- 50

- Sensitivity: System supports 1-6 levels. The sixth level has the highest sensitivity.
- Period: Click set button, you can see an interface is shown as in Figure 3- 50. You may set period of motion detect and during other periods, motion detect will remain off.
  Select designated days of week with six periods per day available for selection. You must check the front box to activate corresponding period. Select all if you want set all periods at once.
  Besides the above method, you also may set period by week day and week end.
  Week day and weekend setting:
  1. From the dropdown list you can select week day or weekend and then click the set button at the right. You will see setting for you to define your week day and weekend. For example, you may set Monday to Friday as week days and Saturday and Sunday as weekends. Please save your setting. Please see Figure 3- 52 and Figure 3- 53.
  2. Set periods for your week days and weekends.

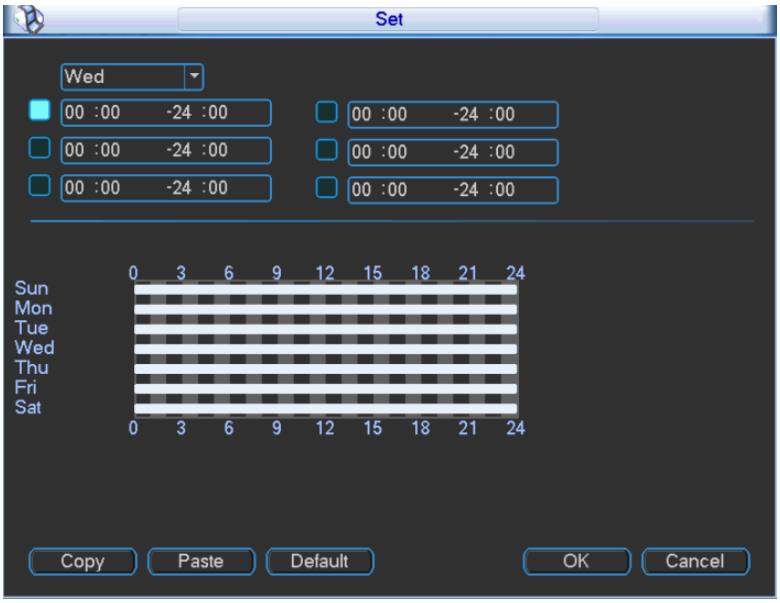


Figure 3- 51

Figure 3- 52

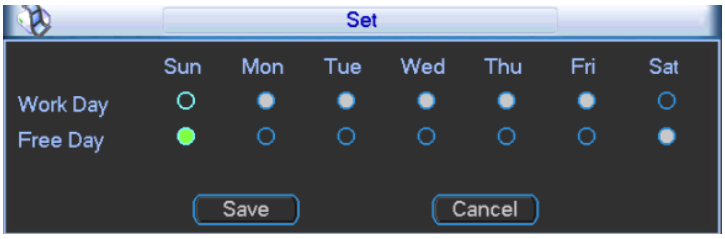


Figure 3- 53

- Anti-jitter: Here you can set anti-jitter time. If anti jitter is set to be 10s, then when motion detect is triggered, this signal will lasts 10s. Currently this function is on motion detect only. The value ranges from 5 to 600s.
- Alarm output: Select alarm output channel (reselectable). When alarm occurs, system will automatically enable this alarm channel.
- Delay: When motion ends, alarm delays for a certain period before it stops. Unit is second with range between 10 to 300.
- Show message: System can pop up a message to alarm you in the local host screen if you enabled this function.
- Alarm upload: System can upload the alarm signal to the network (including alarm centre) if you enabled this function.
- Send email: System can send out email to alert you when alarm occurs.
- Record channel: Select designated record channel (same channel can be selected more than once). When alarm occurs, system will automatically record selected channel.
- Delay: When motion detect stops, recording will continue for a set period of time which ranges from 10s to 300s.
- Snapshot: Enable snapshot by checking ■. Snapshot when motion detection starts. Click select to set certain channels. See Figure 3- 54.

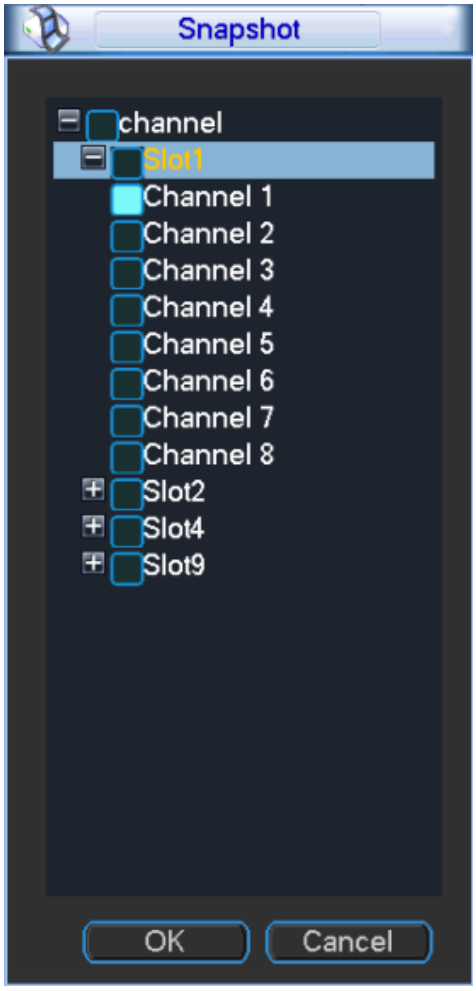


Figure 3- 54

- Buzzer: Buzzer rings when motion detection alarms.

3.2.4.6.2 Video Loss

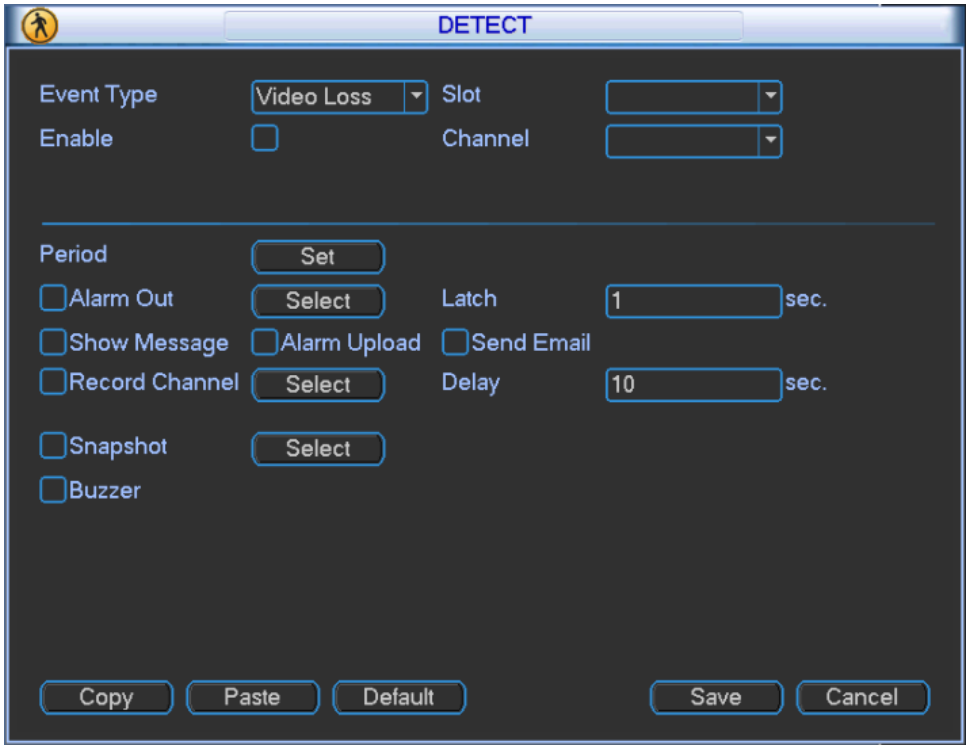


Figure 3- 55

In Figure 3- 55, select video loss from the type list. This function allows you to be informed when video loss occurred. You can enable alarm upload, send email and screen prompt function.

⚠Note: You can refer to setting in motion detect.

3.2.4.6.3 Camera Masking

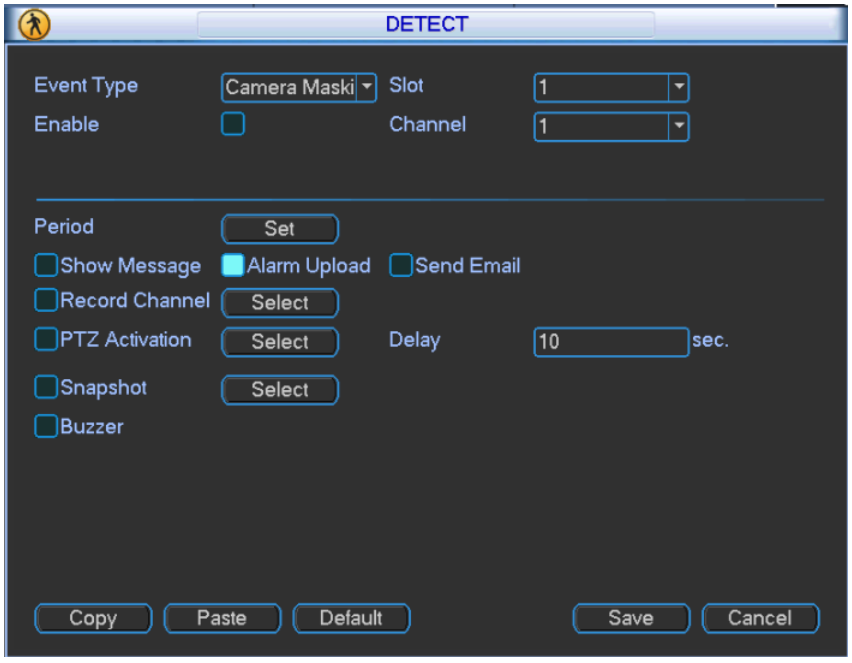


Figure 3- 56

Camera masking interface is shown as in Figure 3- 56.
When someone viciously masks the lens, or the output video is in one-color due to the environments light change, the system can alert you to guarantee video continuity. You may enable alarm upload, show message and send email function for alert.

⚠Note: You can refer to setting in motion detect.

Explanation

1) In Detect interface, copy/paste function is only valid for the same type, which means you cannot copy a channel setting in video loss mode to camera masking mode. (i.e. Camera masking setting of channel 1 can be pasted to camera masking of other channels, but cannot be pasted to other settings
2) You can only perform default operation for detection type in your current channel. (i.e. When you operate in camera masking interface, your default operation will not affect detection settings other than camera masking.)
   ⚠ Note: In motion detect settings, copy/paste function is not valid for area parameters since video content in each channel are different.

3.2.4.7 **PTZ**

Step 1. PTZ and speed dome connection is right. Speed dome address setting is right.
Step 2. Speed dome A and B line connect properly with A and B line.
Step 3. In the main menu, click setting, and then click PTZ Control button. The interface is shown as in Figure 3- 57. Here you can set the following items:

- ✧ Slot: Select slot to connect.
- ✧ PTZ Comm: Select local serial.
- ✧ Protocol: select corresponding PTZ protocol(such as PELCOD)
- ✧ Address: default address is 1. (This address must be identical with speed dome, otherwise control over PTZ is invalid.)
- ✧ Baud rate: select corresponding baud rate. Default value is 9600.
- ✧ Data bits: select corresponding data bits. Default value is 8.
- ✧ Stop bits: select corresponding stop bits. Default value is 1.
- ✧ Parity: Default setting is none.

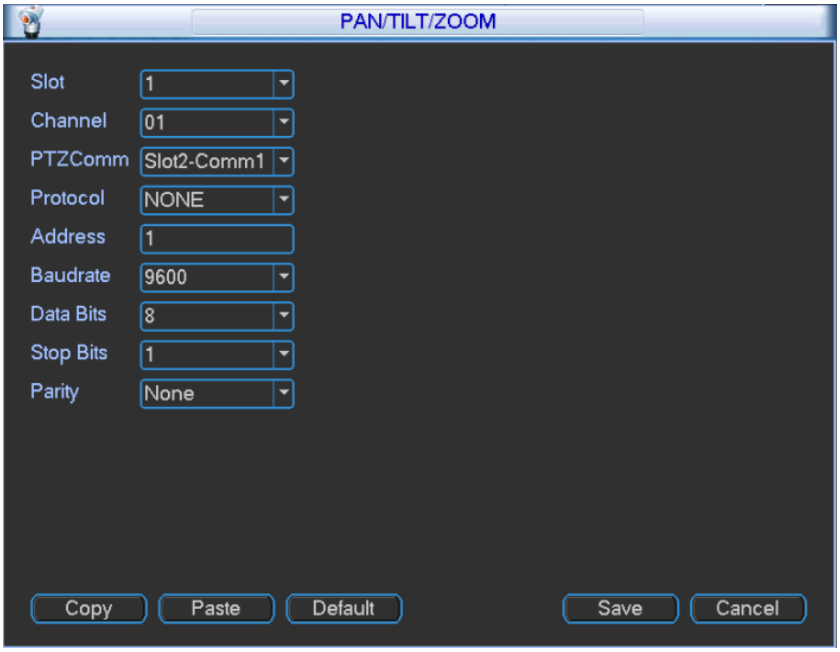


Figure 3- 57

When card of corresponding slot is fiber encoding card and HDCVI encoding card, you can set countercharge front-end function. See Figure 3- 58.

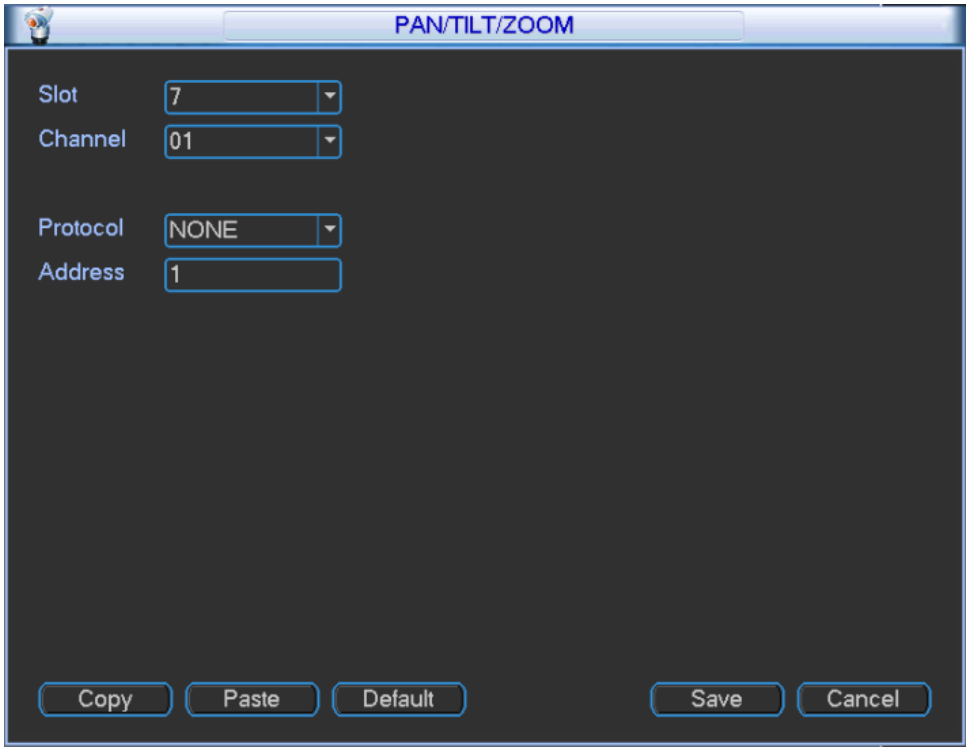


Figure 3- 58

After above setting is complete, as may countercharge front-end via video line, please refer to RS 485 control.

3.2.4.8 **Display**

Display is shown below as in Figure 3- 59, Figure 3- 60 and Figure 3- 61.

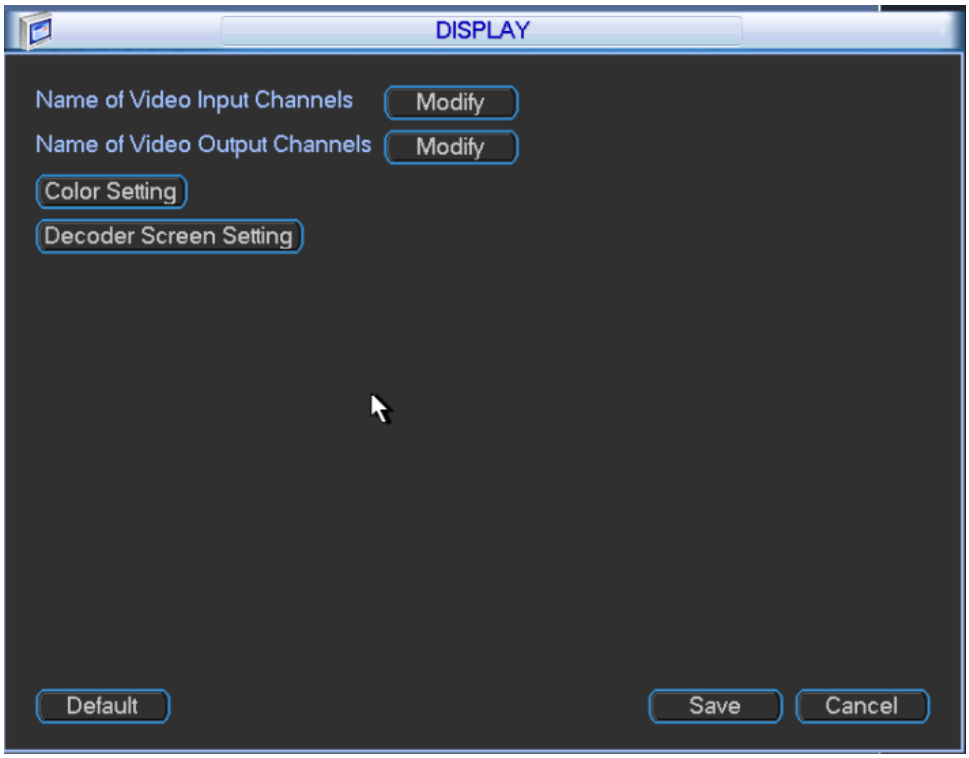


Figure 3- 59

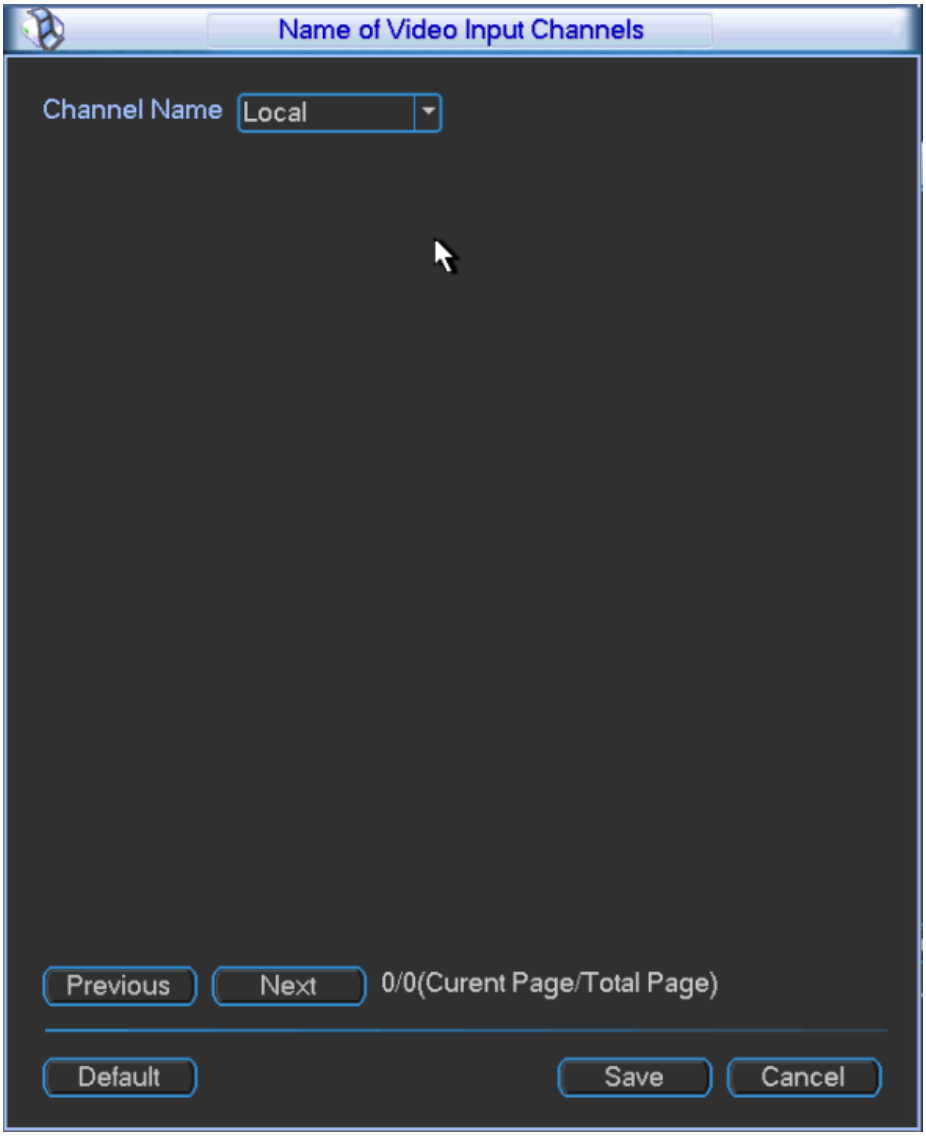

Name of Video Input Channels
Channel Name
Local
Previous
Next
0/0(Curent Page/Total Page)
Default
Save
Cancel

Figure 3- 60

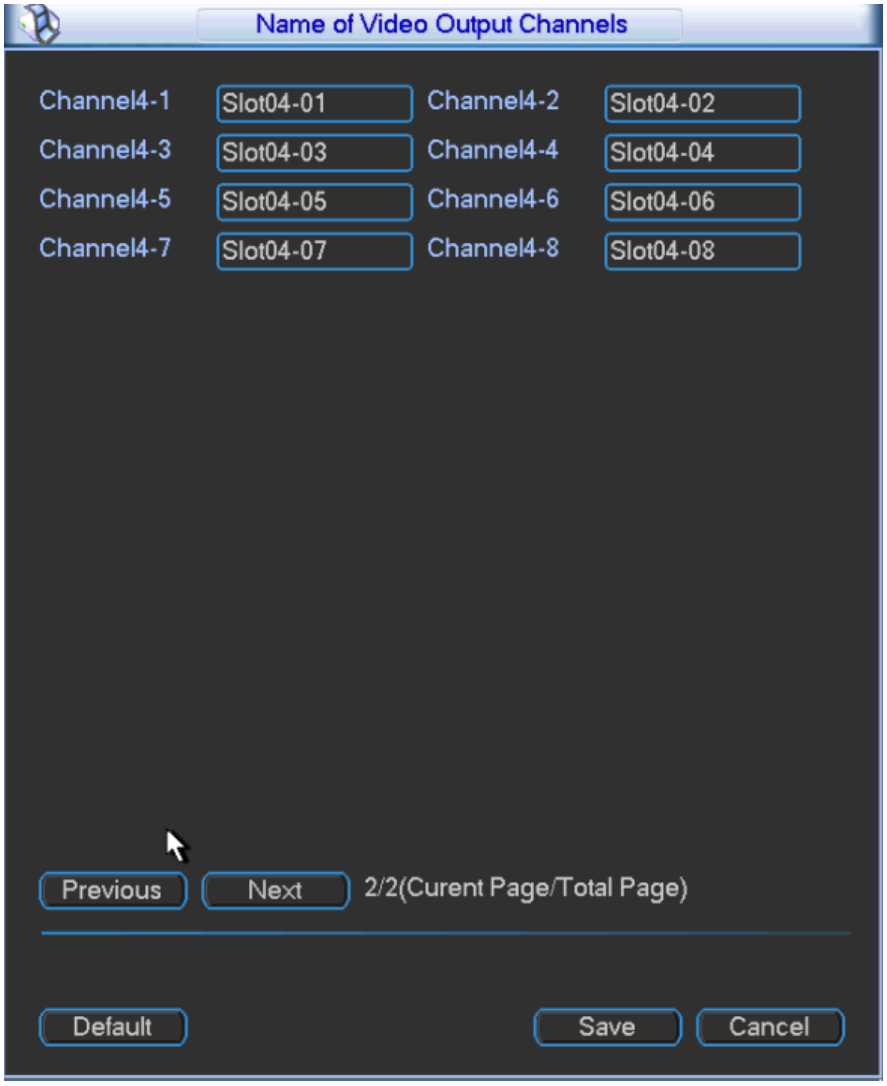


Figure 3- 61

- Channel/output name: Click channel/output name to enter channel name interface where you may edit channel name. (support maximal 20 characters, which may vary among versions)

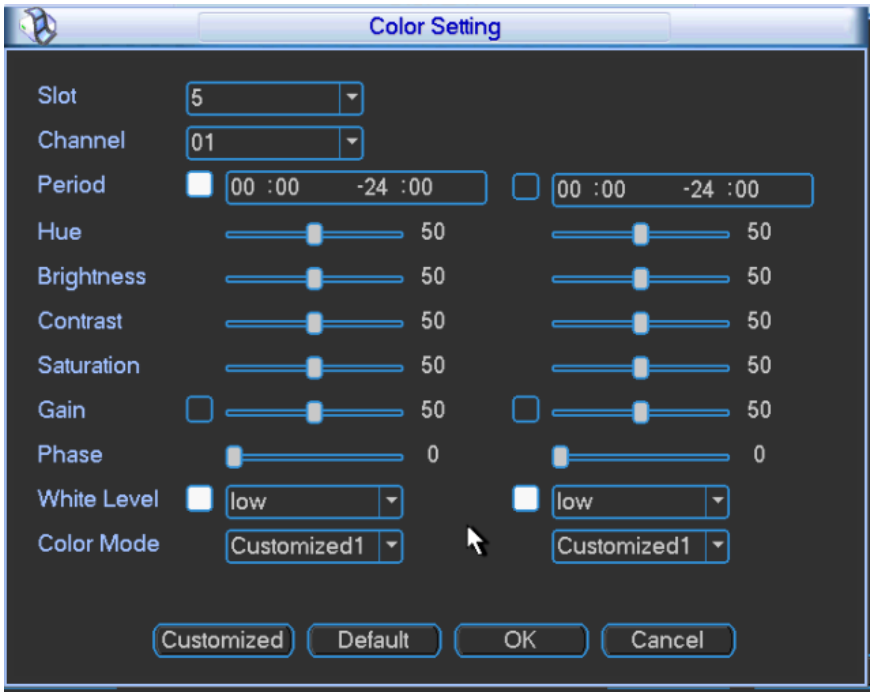


Figure 3- 62

- Color setting: Click to enter image color output setting. Please see Figure 3- 62.
- Decoder screen setting: Click to enter setting of decoder screen. Please see Figure 3- 63.

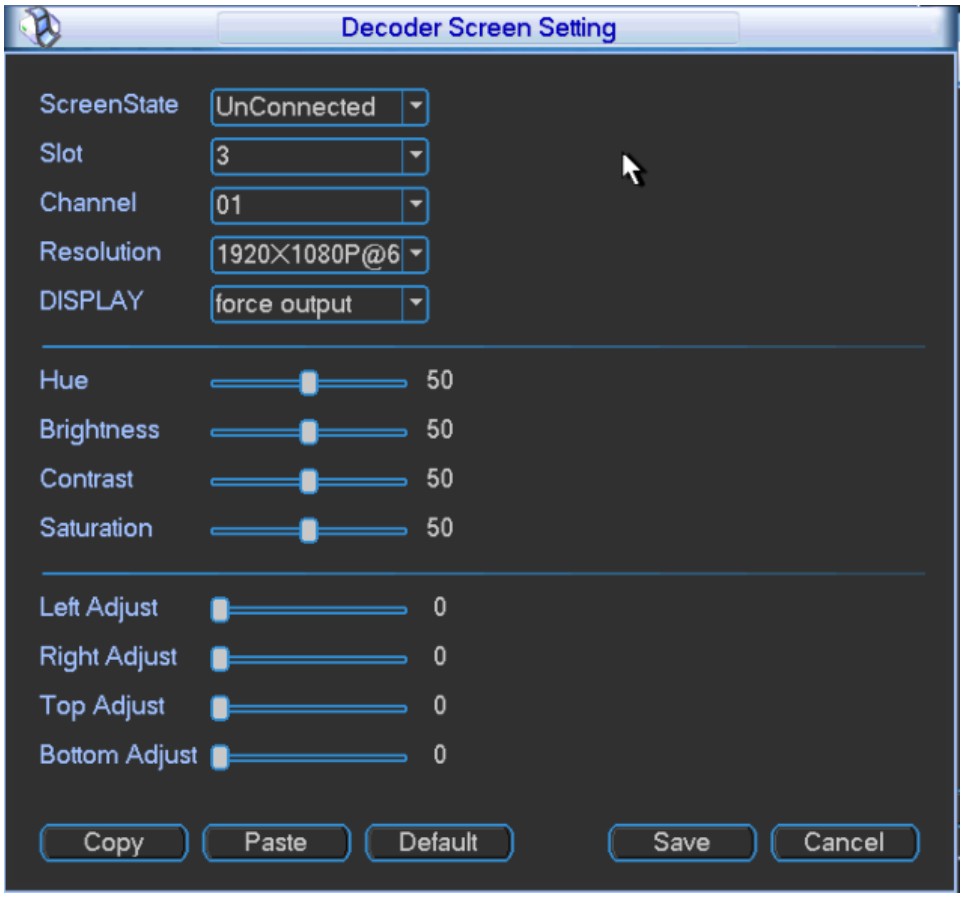


Figure 3- 63

3.2.4.9 Default

The default interface is shown in Figure 3- 64.

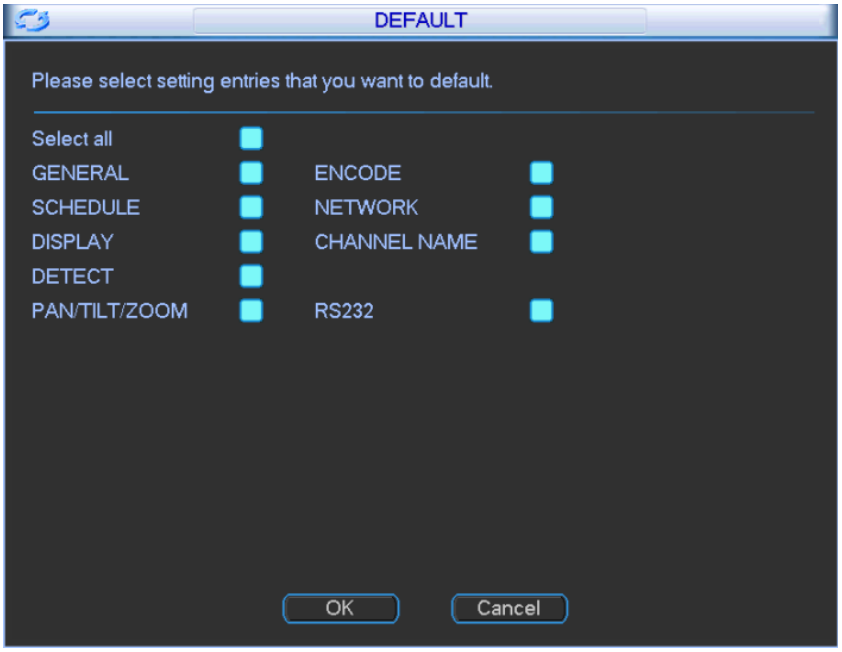


Figure 3- 64

Click default icon, system pops up a dialogue box. Please see Figure 3- 64.

Please highlight icon to select the corresponding function.

After all the settings please click save button, system goes back to the previous menu.

⚠Note: System menu color, language, video standard, IP address, user account will not maintain previous setting after default operation!

3.2.5 Advanced

Double click advanced icon in the main window, the interface is shown below as in Figure 3- 65. There are total six function keys: HDD manage, abnormality, record, account, auto maintain, cubeless video wall and Raid.

Figure 3- 65

3.2.5.1 HDD Management

Here is for you to view and implement hard disk management. In menu, click advanced setting and then click HDD manage. Please see Figure 3- 66.

You can see current HDD name, type, status, free capacity and total capacity. Operation include modify HDD property, change to read-write disk, read only disk, and clear disk. You must save your changes and reboot device before updated changes come effective. When HDD has error, you may recover HDD.

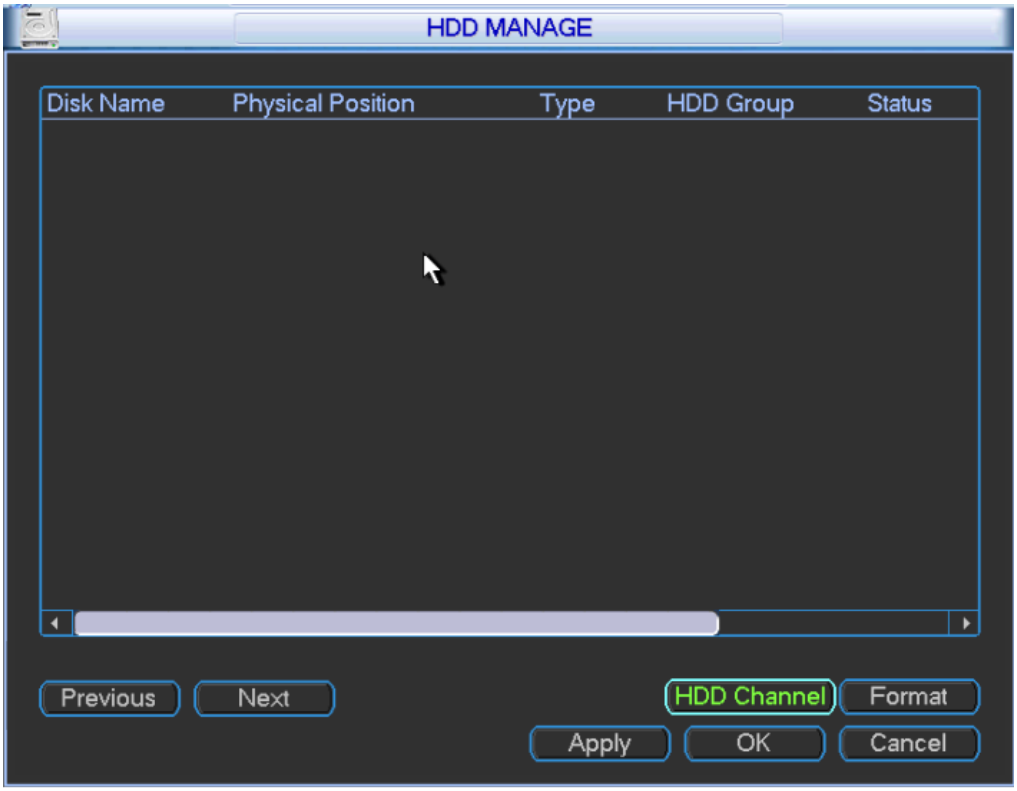


Figure 3- 66

Type: write-read disk and read-only disk.
HDD: Set current port input remote storage directory or external HDD no.
Channel
HDD channel: You can set HDD channel according to your actual condition. Slot sets local video input. Digital channel sets remote video input.
Please see Figure 3- 67.

Figure 3- 67

Format: Format disk, clear data.

3.2.5.2 **Abnormality**

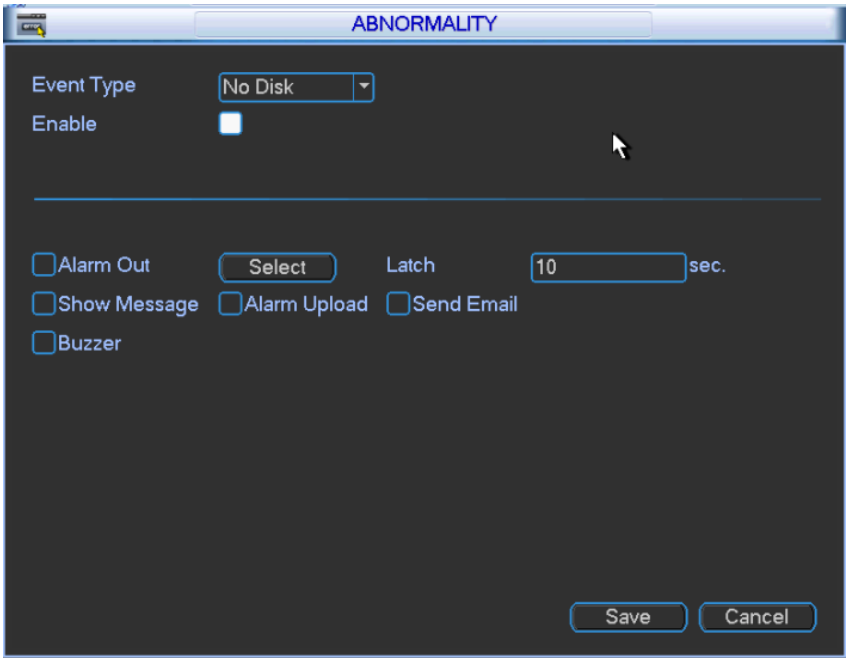


Figure 3- 68

Abnormality interface is shown as in Figure 3- 68. In menu, click advanced setting and then click Abnormality.

- Event type: There are several options for you such as disk error, no disk, disconnection, IP conflict, MAC conflict and etc. You can set one and more events.
- Enable: ■ as selected.
- Alarm Out: Select channel to alarm out. When alarm occurs, system automatically enables the alarm channel(s).
- Latch: Alarm latches one period and stops. Unit is second with range between 10 and 300.
- Show message: system can pop up the message in the local screen to alert you when alarm occurs.
- Alarm upload: System can upload the alarm signal to the network (including alarm centre) if you enabled current function.
- Send email: System can send out email to alert you when alarm occurs.
- Buzzer: ■ as selected. Highlight the icon to enable this function. The buzzer beeps when alarm occurs.

3.2.5.3 **Record**

You may manually control records from each slot, each channel and network devices. Please see Figure 3- 69.

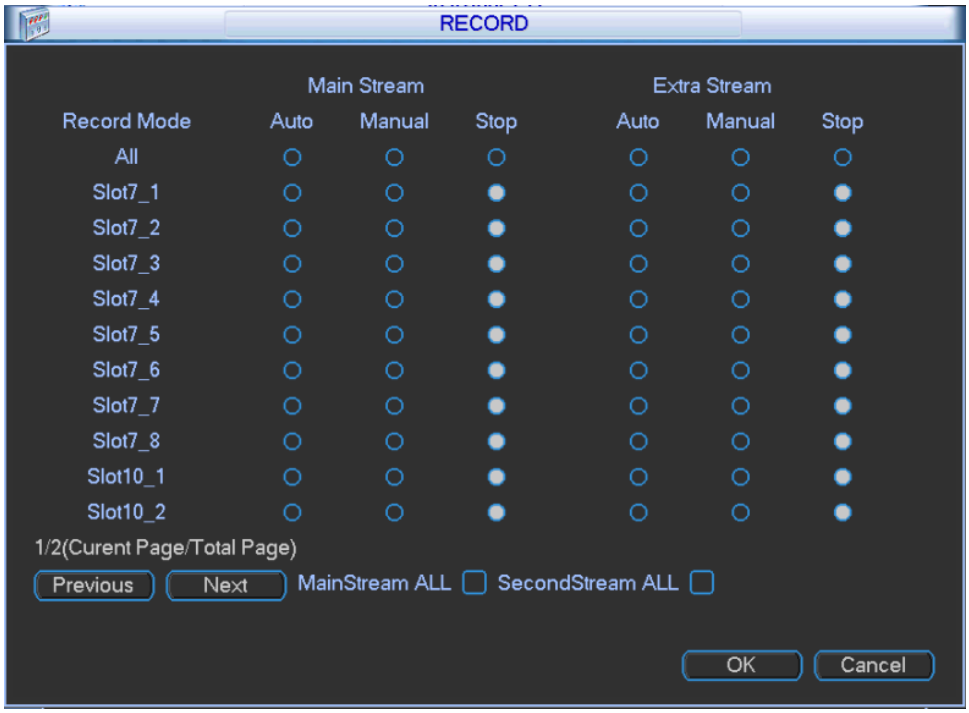


Figure 3- 69

3.2.5.4 Account

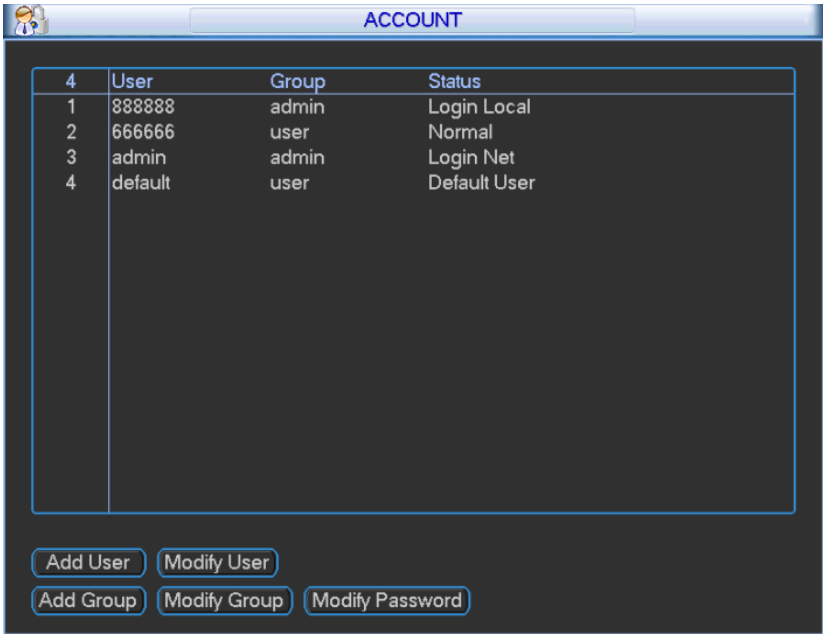


Figure 3- 70

Here is for you to implement account management. Please see Figure 3- 70.

For account management please note:

- For the user account name and the user group, the string max length is 6-byte. The backspace in front of or at the back of the string is invalid. There can be backspace in the

middle. The string includes the valid character, letter, number, underline, subtraction sign, and dot.

- System account adopts two-level management: group and user. No limit to group or user amount. For group or user management, there are two levels: admin and user.
- One user should belong to one group. User right cannot exceed group right.

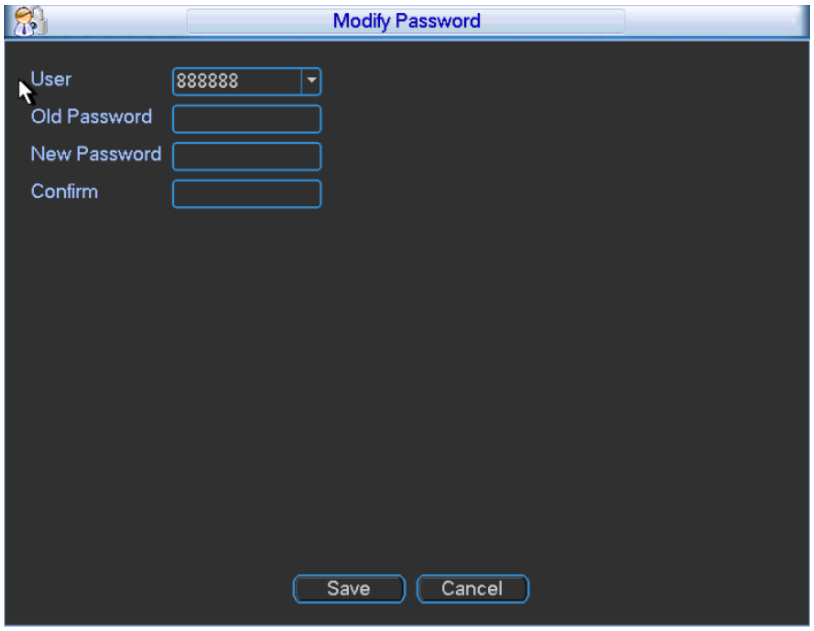


Figure 3- 71

Password Change

Please select the account from the dropdown list, input the old password and then input the new password twice. Click the Save button to confirm current modification. The password max length is 6-byte and first byte cannot be empty. Please see Figure 3- 71.

For the users of user account right, it can modify password of other users.

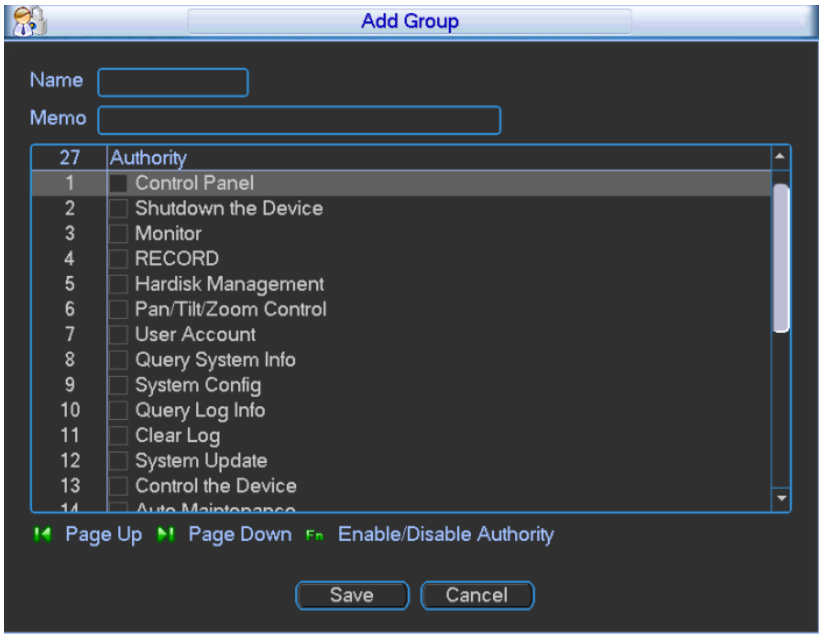


Figure 3- 72

Add Group

You can add group by inputting group name and then inputting some memo information if necessary.

Enter add group interface and select rights over control panel, shut down, real-time monitor, playback, record, record file backup, PTZ, user account, system information view, alarm input/output setting, system setting, log view, clear log, upgrade system, control device and etc. Please see Figure 3- 72.

Modify Group

The modify group interface is similar to Figure 3- 72.

Add User

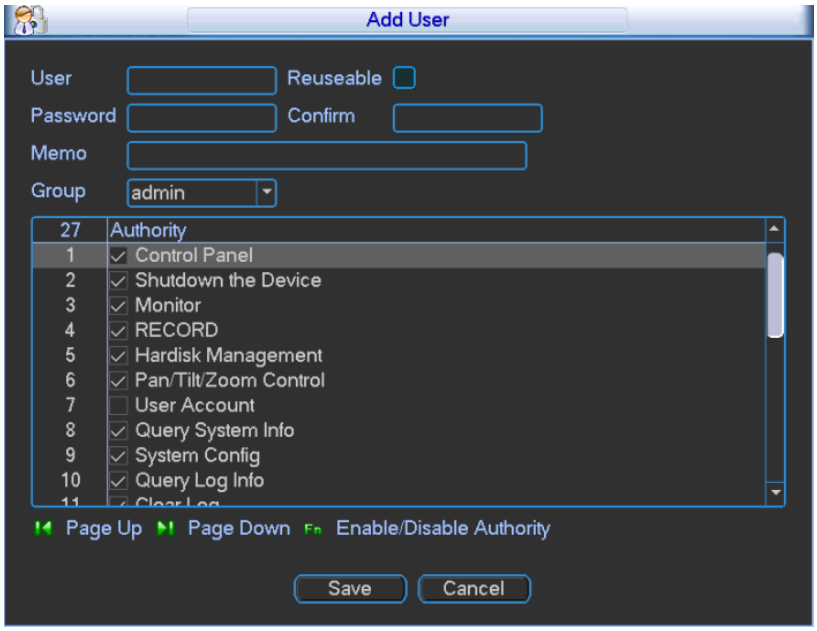


Figure 3- 73

Add user interface is shown above as in Figure 3- 73.

There are four default users: admin/888888/666666 and hidden user “default”. The first three users have passwords same as the usernames, respectively. Except user 6666, other users have administrator right. Hidden user “default” is for system interior use only and cannot be deleted. When there is no login user, hidden user “default” automatically login. You can set some rights such as monitor for this user so that you can view some channel view without login.

After you enter add user interface, please input the user name, password, and select the group it belongs to from the dropdown list. You may select same user more than once. You are able to use this selected user on different clients at the same time. Then you can check the corresponding rights for current user. User right cannot exceed group right.

For convenient user management, usually we recommend the general user right is lower than the admin account.

3.2.5.5 Auto Maintain

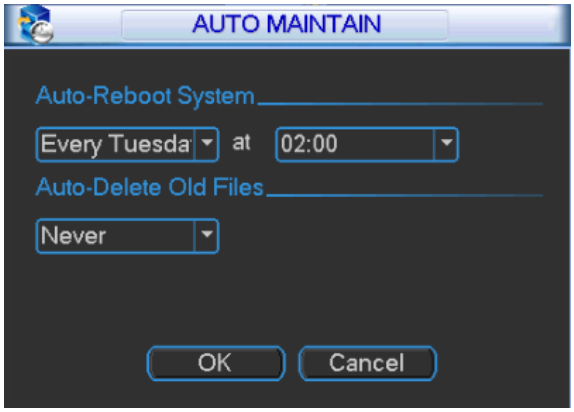


Figure 3- 74

Here you can set auto-reboot time and auto-delete old files setting. You can set to reboot device by specified time. You can set to delete files or expired files for the specified days.
You can select proper setting from dropdown list. Please see Figure 3- 74.
After all the settings please click save button, system goes back to the previous menu.

3.2.5.6 Cubeless Video Wall

Here you can set cubeless video wall function. Please see Figure 3- 75.

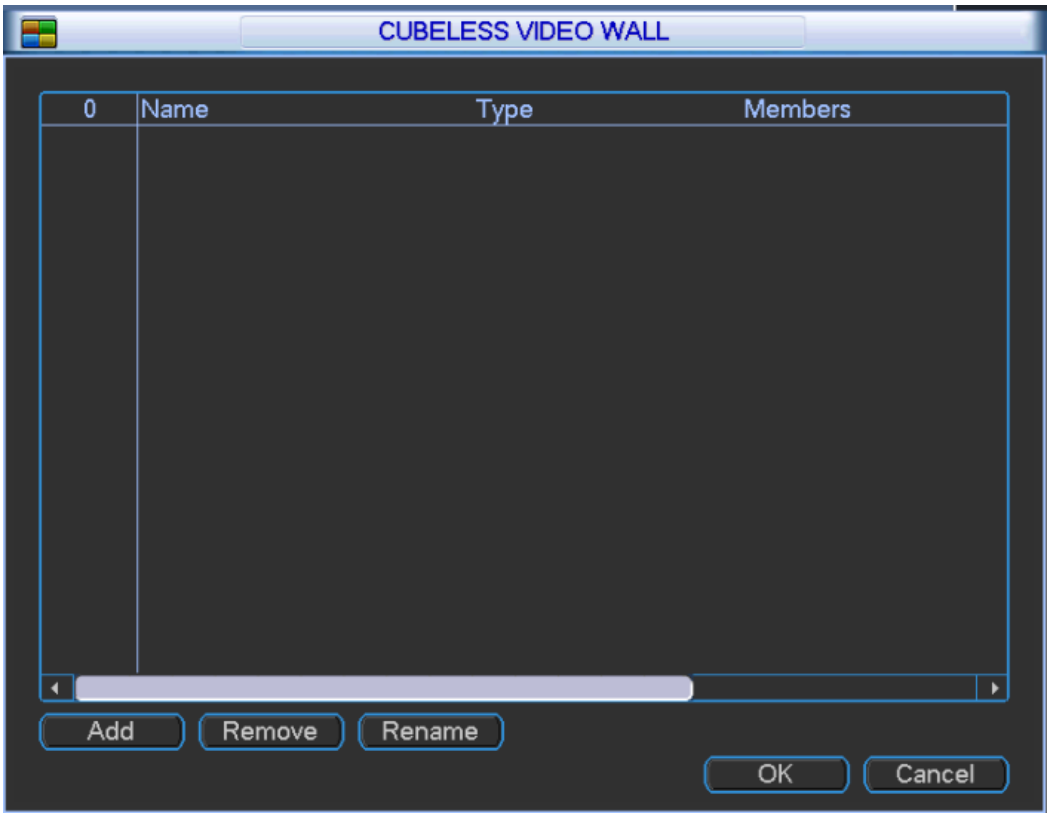


Figure 3- 75

Select config and click delete to delete config. Click add to add config of cubeless video wall. Please see Figure 3- 76.

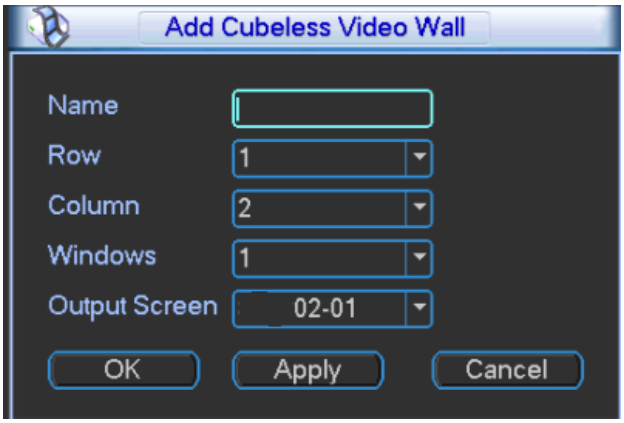


Figure 3- 76

- Name: Name of the cubeless video wall.
- Row: Set number of rows of the cubeless video wall.
- Column: Set number of columns of the cubeless video wall.
- Windows: Rank all splicing units.
- Output screen: Output channel of each splicing unit.

For example, the cubeless video wall is 2*2 as in Figure 3- 77.

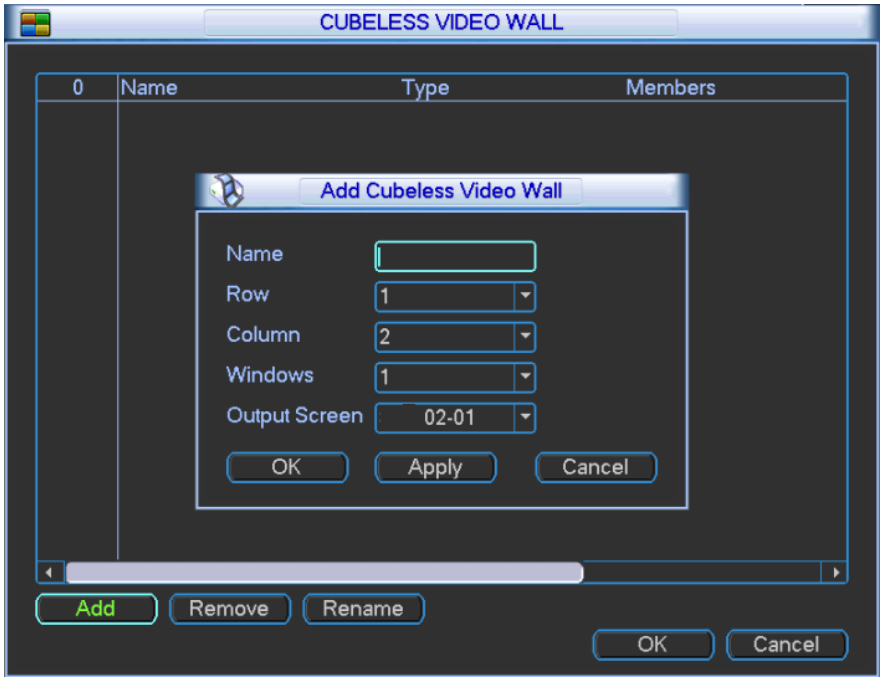


Figure 3- 77

Step 1. Set name, row and column of the cubeless video wall. Select output screen and click apply. (You must click apply every time you select output screen). Click OK. You will see Figure 3- 78.

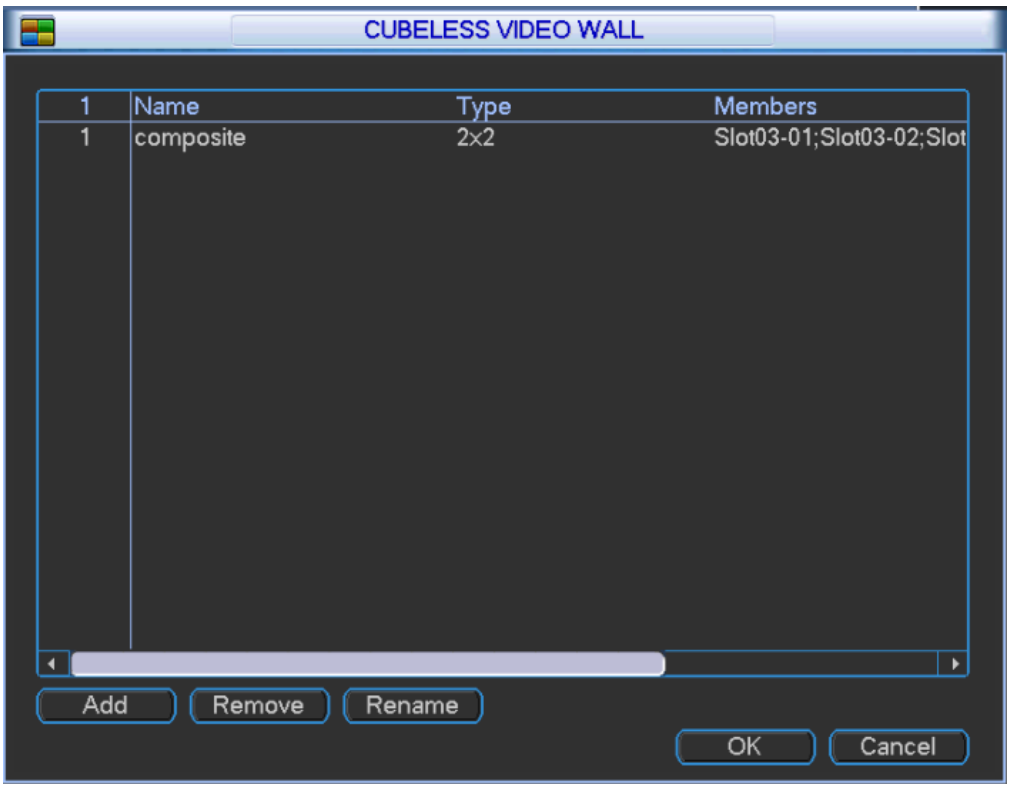


Figure 3- 78

Step 2. You can continue to add cubeless video wall or edit or delete added ones. Select cubeless video wall and click remove to delete it.

Step 3. You can edit name of cubeless video wall as in Figure 3- 79.

Figure 3- 79

Step 4. Click OK.

Step 5. Click OK to see the configured cubeless video wall. You can find it in output list.

3.2.5.7 **Raid**

Config Raid for record storage.

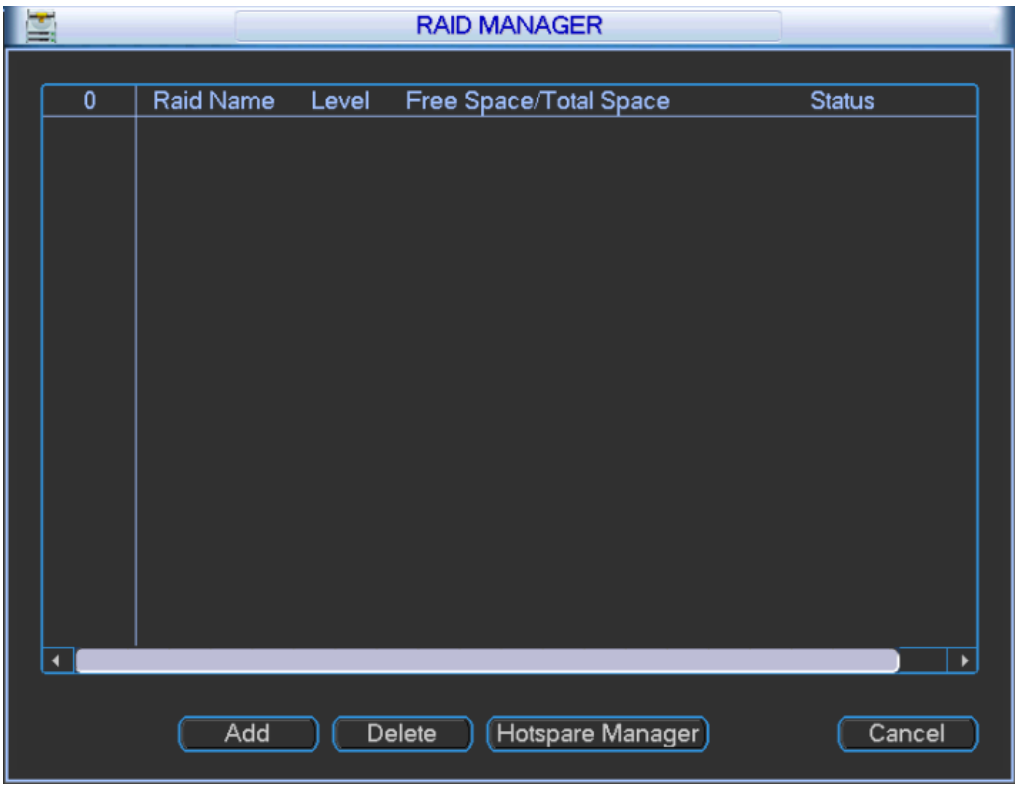


Figure 3- 80

Click Add to add new Raid. Select corresponding level.

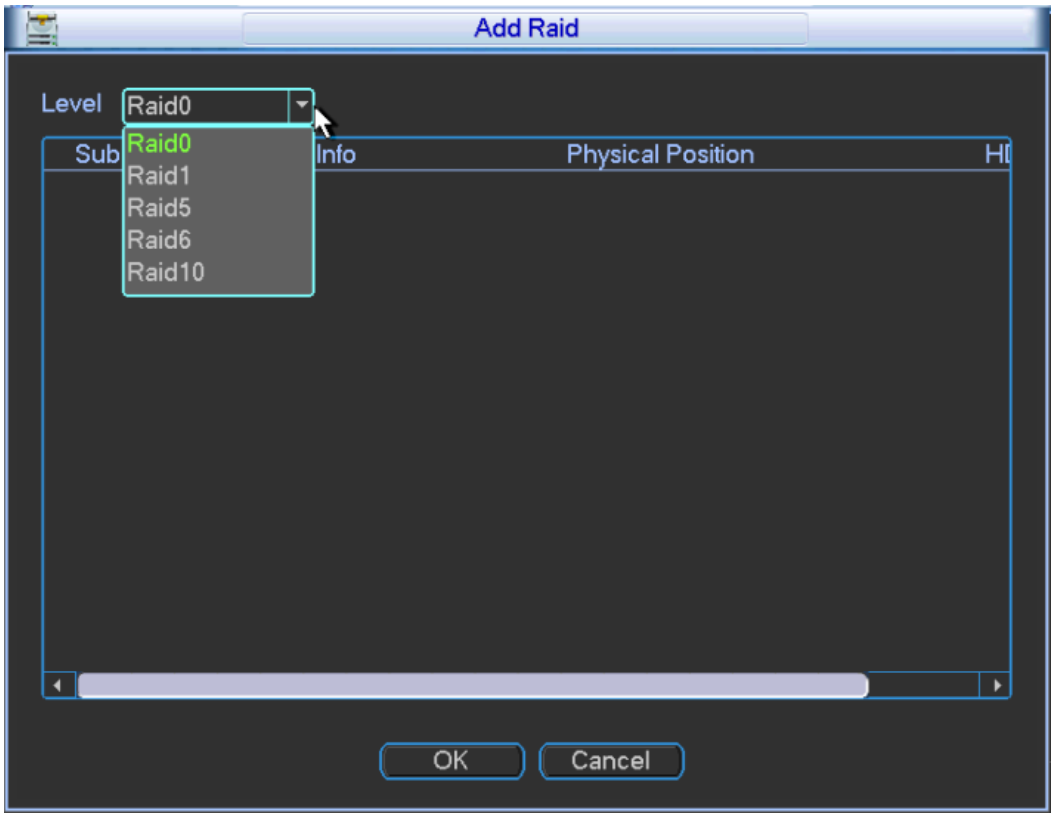


Figure 3- 81

Click hot spare manager to set Raid hot spare disk which improves security.

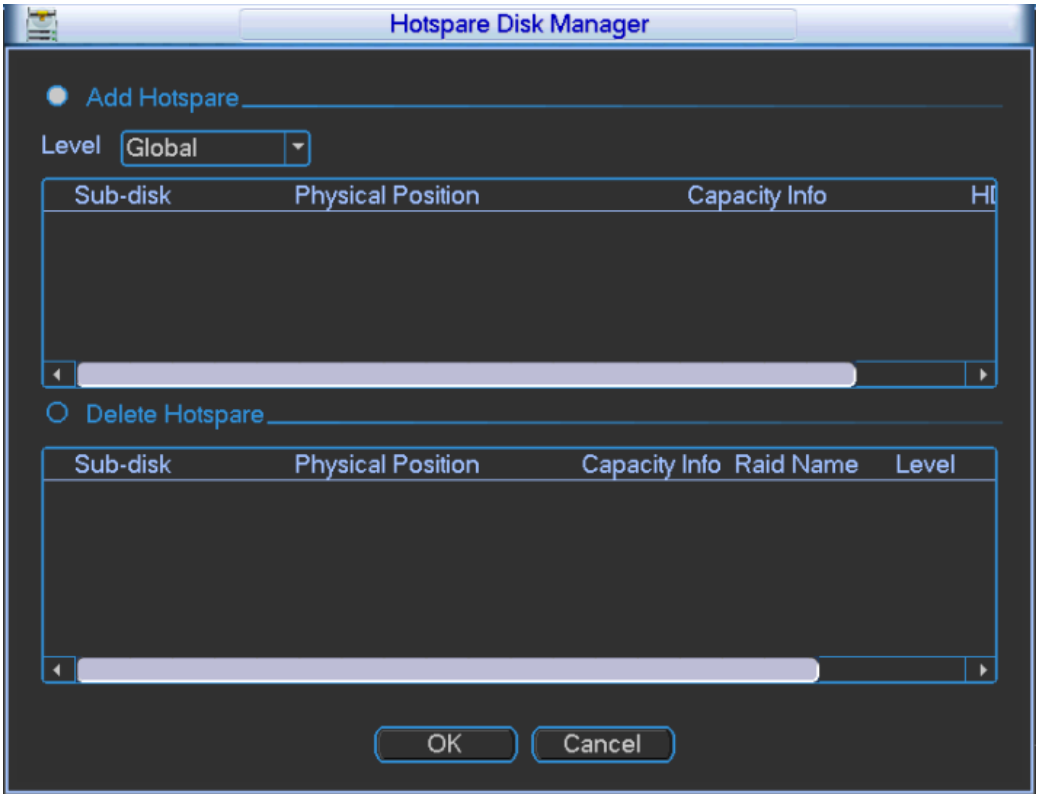


Figure 3- 82

3.2.6 Remote Device

⚠ **Note: This function must work with DVR or IPC.**

3.2.6.1 IP Search

1) In remote device interface, click IP search. You may search all remote devices in network. The display includes IP address, port, manufacturer protocol and type, please see Figure 3-83.
2) Check box ☑ in front of remote device you want to add. Multiple selections is allowed.
3) Click add to add device.
4) Click OK to complete operation.

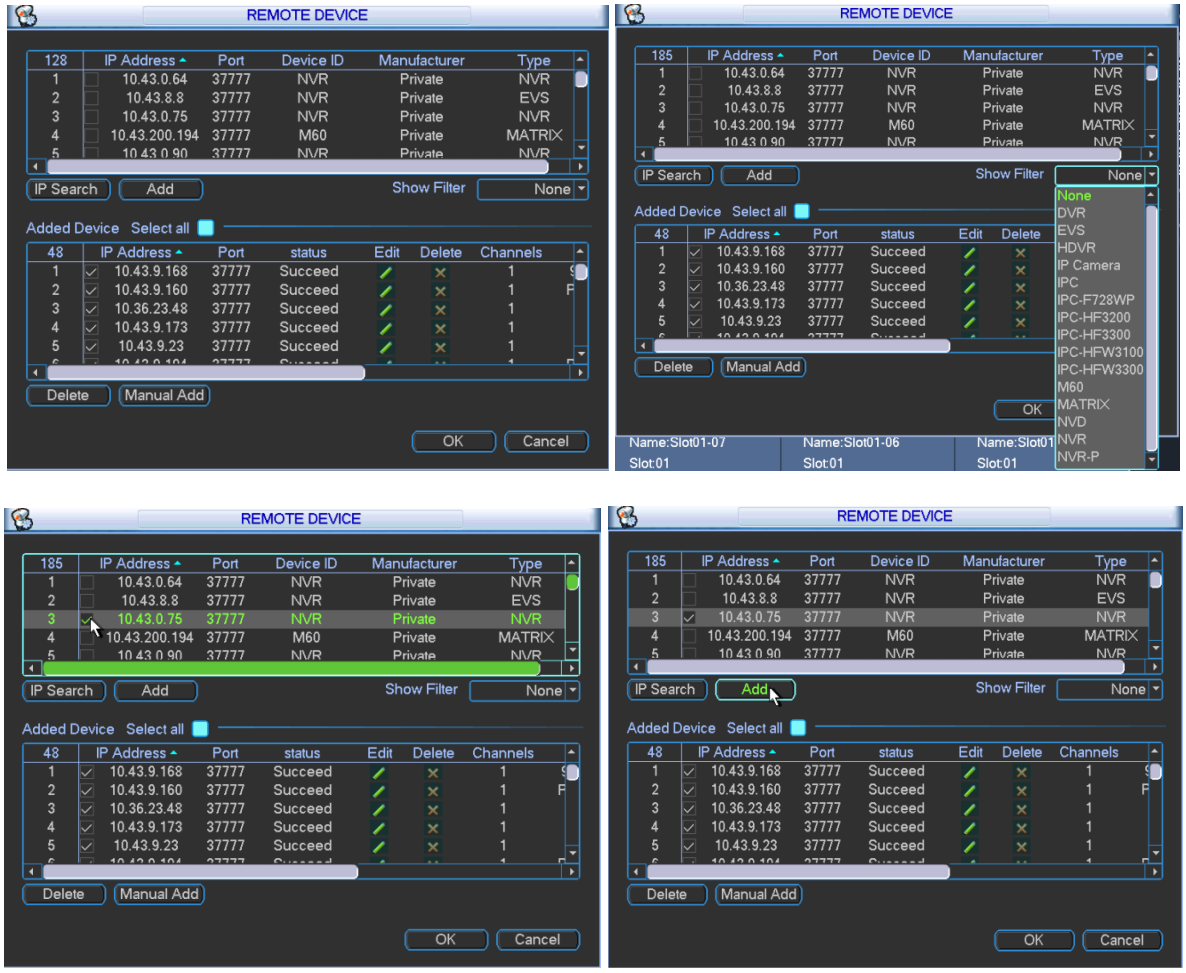


Figure 3- 83

3.2.6.2 **Manually Add**

1) In remote device, click manually add. A prompt pops up and you need to input device name, manufacturer, IP address, TCP port, username, password and channel number. Please see Figure 3- 84.
2) Make sure you save changes.
3) Add device into *added device*.
4) Click OKto complete operation.

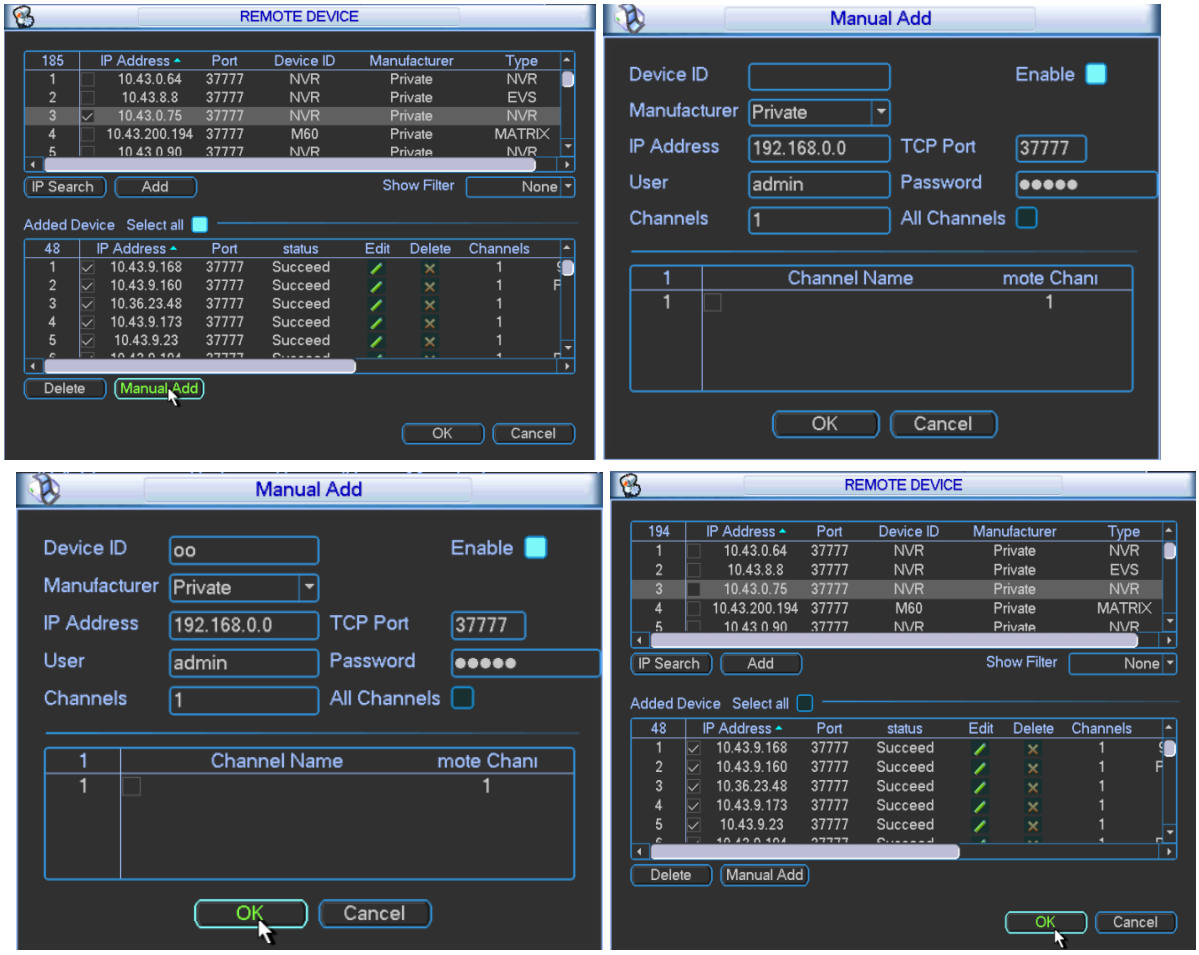


Figure 3- 84

3.2.7 **Shutdown**

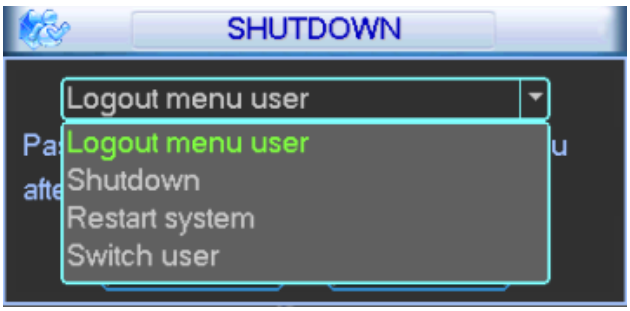


Figure 3- 85

Double click shutdown button, system pops up a dialogue box for you to select. Please see Figure 3- 85.

- Logout menu user: log out menu. You need to input password when you login the next time.
- Restart application: reboot .
- Shutdown: system shuts down and turns off power.
- Switch user: you can use another account to log in.

Shutdown menu includes the above four functions.

4 Web Operation

4.1 Network Connection

Before web client operation, please check the following items:

Step 1. Network connection is right for the device and PC.

Step 2. PC network setting is right, including IP address, subnet mask and gateway. (If there is no router in network, then allocate IP address in same net section. Otherwise, set gateway and subnet mask.)Please refer to Chapter 3: main menu→setting→network.

Step 3. Use order ping ***.***.***.***(IP address) to check connection is OK or not. Usually the return TTL value equal to 64.

Step 4. Set Internet Explorer: Tools-Internet Option-Security-Custom Level. Enable or prompt ActiveX and plug-in. IE7 and IE8 are preferred.

Step 5. Open the IE and then input IP address.

Step 6. It pops up security box asking you whether you accept webrec.cab control unit, please select “accept”, and system will start to install.

If system forbid this download, please check if there is other plug-in blocking the download and meantime lower IE browser security level.

Note:

When device upgrades new program, and before you open WEB, you must delete original control unit and then open WEB.

To delete control: go to C:\Program Files and select “webrec” folder.

4.2 Login

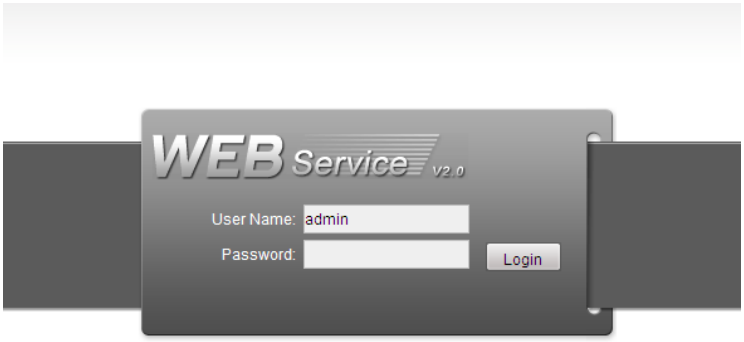


Figure 4- 1

Open IE and input address in the address field. For example, if your IP is 10.43.200.141, then please input http:// 10.43.200.141 in IE address field and press enter. Please see Figure 4- 1. Please input your user name and password. Default factory name is **admin** and password is **admin**.

Note: For security reasons, please modify your password after you first login.

4.3 Homepage

You will see the following interface after successful login in Figure 4- 2.

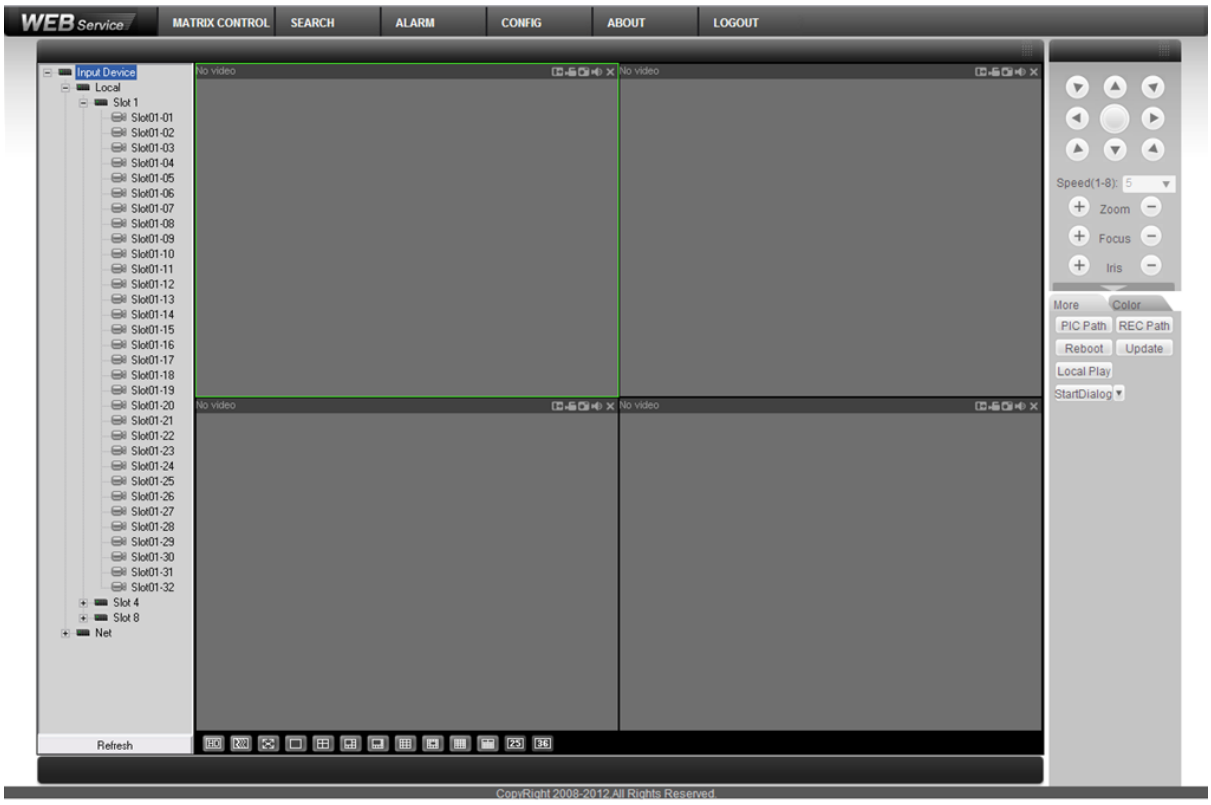


Figure 4- 2

System Menu

Figure 4- 3

The above Figure 4- 3 is system menu buttons.

Input List

Parameter	Note
Local	Device local connected input channel.
Network	Input channel add to video matrix platform via network.
Refresh	Refresh local and network to add device input list.

Real-Time Monitoring

Click any channel to real-time monitor the channel. Monitoring window functions are summarized:

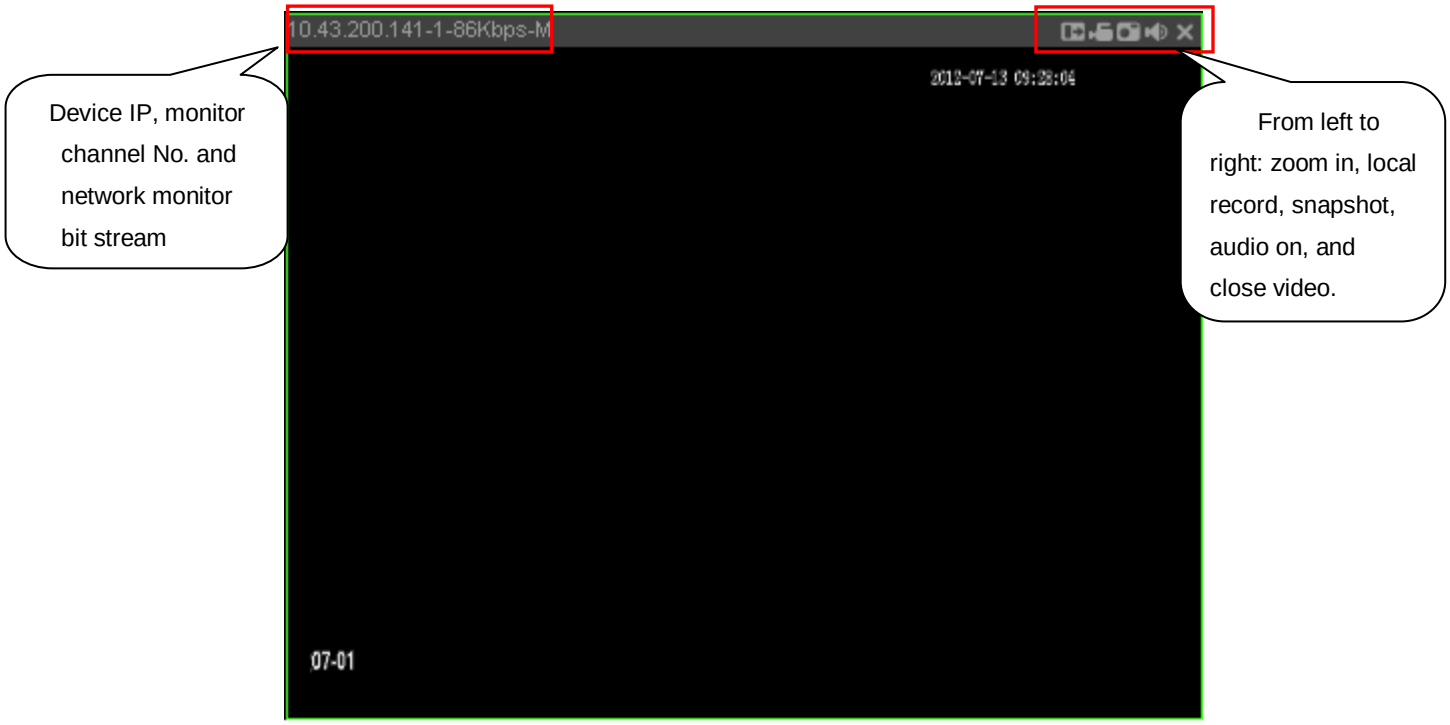


Figure 4- 4

Function	Note
Display device info	Display device IP, channel NO. and network monitor bit stream are displayed in playing video. Otherwise no video displays. (M is main stream, S is sub stream)
Zoom in	Click this button and drag mouse to select any part in window. The selected part will be zoomed in, and will return to original size with a right click.
Local record	Click this button to start recording. Records are saved in Record Download file in system disk as default.
Snapshot	Click this button to snapshot video. Snapshots are saved in Picture Download file in system disk as default.
Audio	Whether turn on audio or not. (Note: Audio here is not related to audio in system setting.)
Close video	Include monitor output, video input, matrix no. and video switch.

Monitoring Window Switch

Figure 4- 5

Please see Figure 4- 5. From left to right are:

- image quality
- fluency
- full screen
- single window

- four windows
- six windows
- eight windows
- nine windows
- thirteen windows
- sixteen windows
- twenty windows
- twenty-five windows
- thirty-six windows

You may flexibly adjust image fluency and real time performance.

PTZ Console

Before using PTZ Console, you must set PTZ protocol (please see PTZ setting in system settings), otherwise you cannot access PTZ control operation.

You may control the direction, step length, zoom, focusing, iris, preset, point-to-point tour, pattern, auto scan, lighting, wiper, horizontal rotation and other controls.

Step length: It is mainly used to control directions, for example rotation speed of step length 8 is much faster than of step length 1.

PTZ rotation: It supports 8 directions: up, down, left, right, upper left, upper right, lower left and lower right.

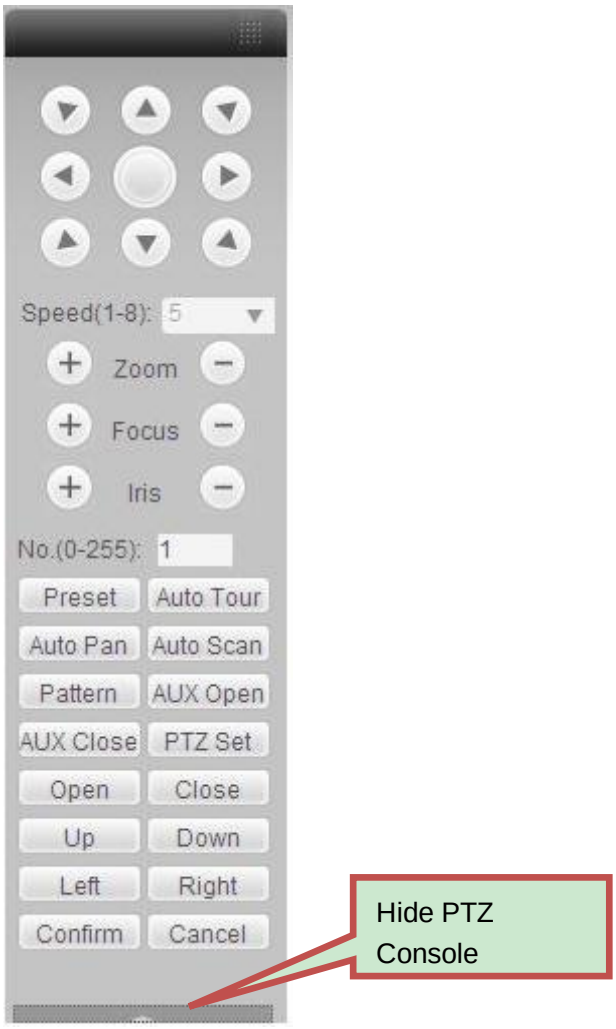


Figure 4- 6

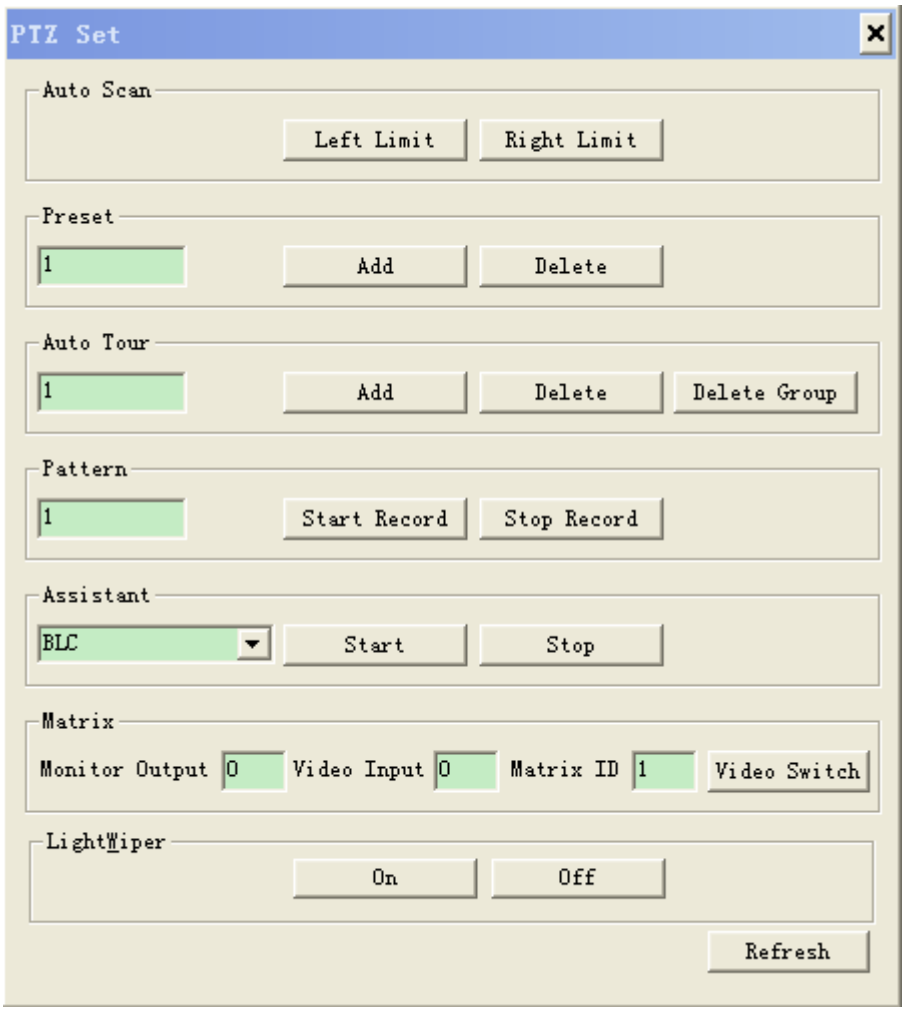


Figure 4- 7

Please see Figure 4- 6 and Figure 4- 7.

Auto scan: Select left border of camera auto scan via direction buttons, and click left border button to confirm. It is same for right border.

Preset: Rotate the camera to designated position via direction buttons. Input preset value in corresponding box, and click add button to save.

Auto tour: Input auto tour path value in point-to-point auto tour box. Input preset value in correspond box and then click add button. You may repeat this process to add multiple presets. You may delete preset by clicking on delete button.

Pattern: You may record down the above operations as Pattern X by click start to record button. Then you should refer to Figure 4- 6 to perform zooming, focusing, iris, direction and etc. You can stop recording by pressing stop button.

Assistant: select one item on assistant list and then click start or stop button. Please see Figure 4- 8.

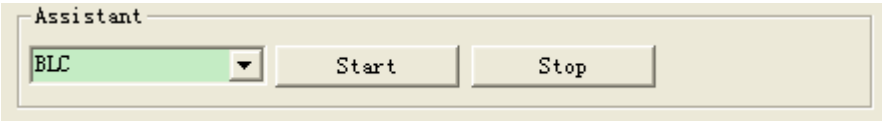


Figure 4- 8

Matrix: It includes monitor output, video input, matrix ID and video switch.

Light Wiper: Remote control over light and wiper.
On: Select speed dome image, click ON to overlay.
Off: Turn off overlay.
Up/down/left/right: Select menu item.

Image Settings
Image setting: select one channel with green box and you may set the brightness, contrastness, hue, and saturation. Please see Figure 4- 9.

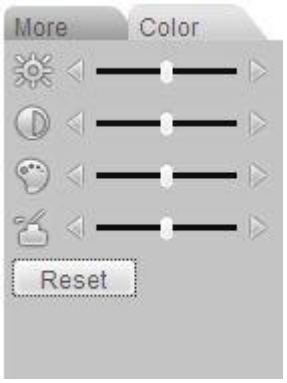


Figure 4- 9

Snapshot/Record Path
Click snapshot path or record path button to modify storage path. Please see Figure 4- 10.

Figure 4- 10

Reboot Device
Click reboot device. You will see a pop-up box as in the left picture in Figure 4- 11 and click OK to reboot.
Note: Before you reboot please be notified:
1. You must have authority to reboot device;
2. There is no other users logging in system menu locally.

If someone is logging in system menu or you do not have the authority, you will see the following box as in the right picture in Figure 4- 11**.**

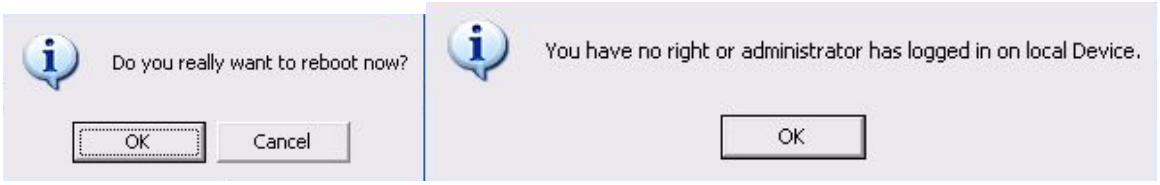


Figure 4- 11

Update

Step 1. Click update button,

Step 2. Select updating file. Please see Figure 4- 12, Figure 4- 13 and Figure 4- 14.

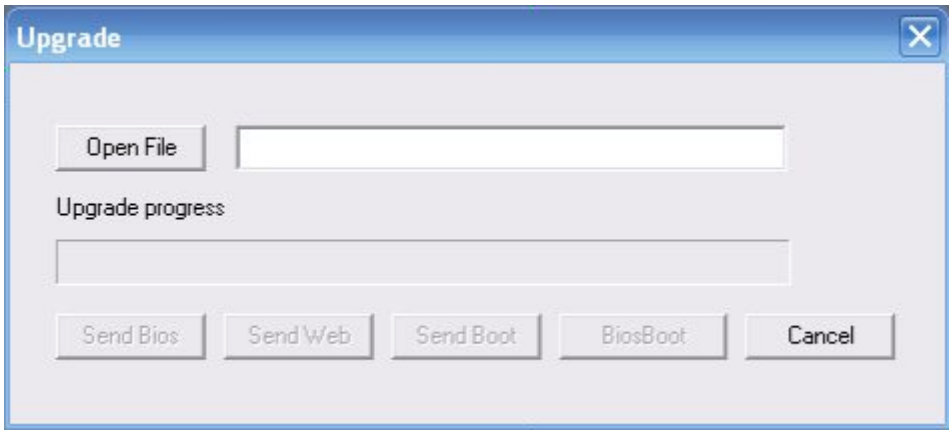


Figure 4- 12

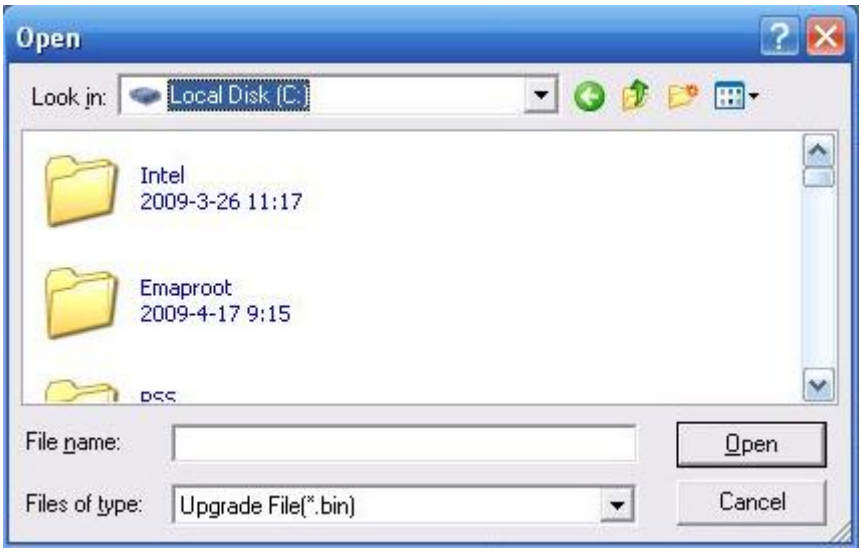


Figure 4- 13

Figure 4- 14

Step 3. Click BIOS to start updating.

Local Playback

Web support playback of record file saved on PC. Click local playback, you will see a prompt box as in Figure 4-16. You need to select file to playback.

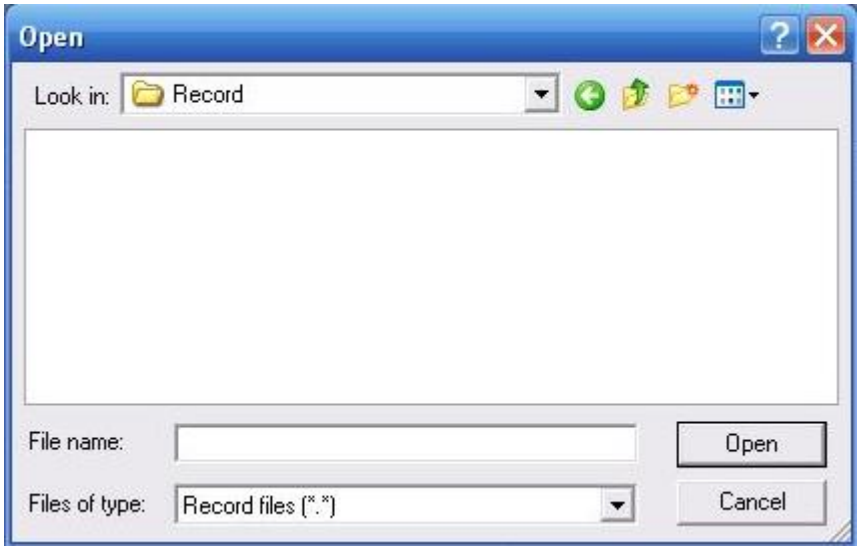


Figure 4- 15

4.4 Matrix Control

Via matrix, you can slit TV wall, and complete output and input config.

Step 1. Click matrix control to enter interface in Figure 4- 16.

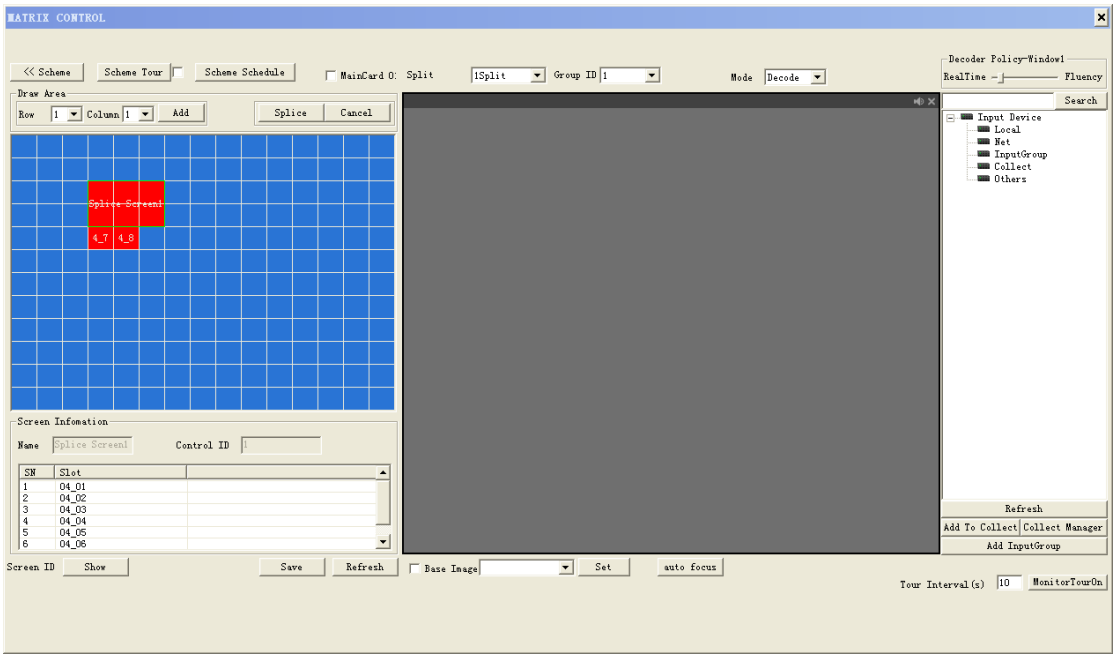


Figure 4- 16

Please see Figure 4- 16 and Figure 4- 17.If system has just upgraded, then click Save to see the following.

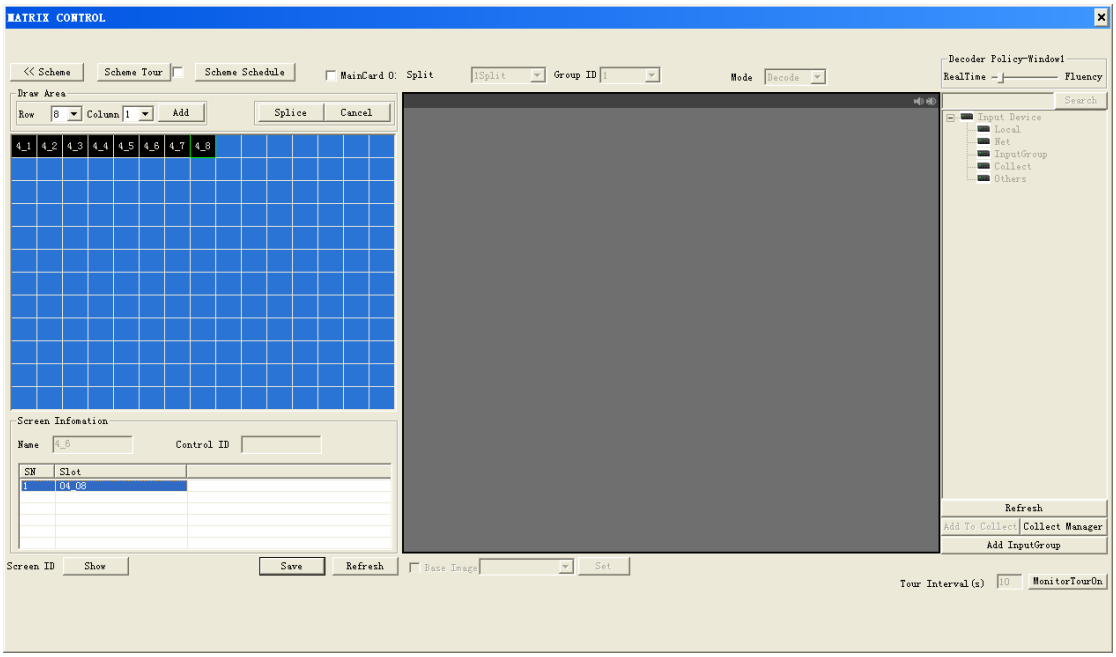
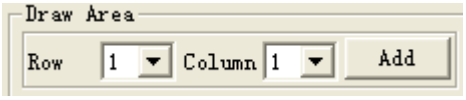


Figure 4- 17

Step 2. If you want to add new card or delete output screen and add again, please select



to add and click Save.

Step 3. Select slot to config. See Figure 4-19.

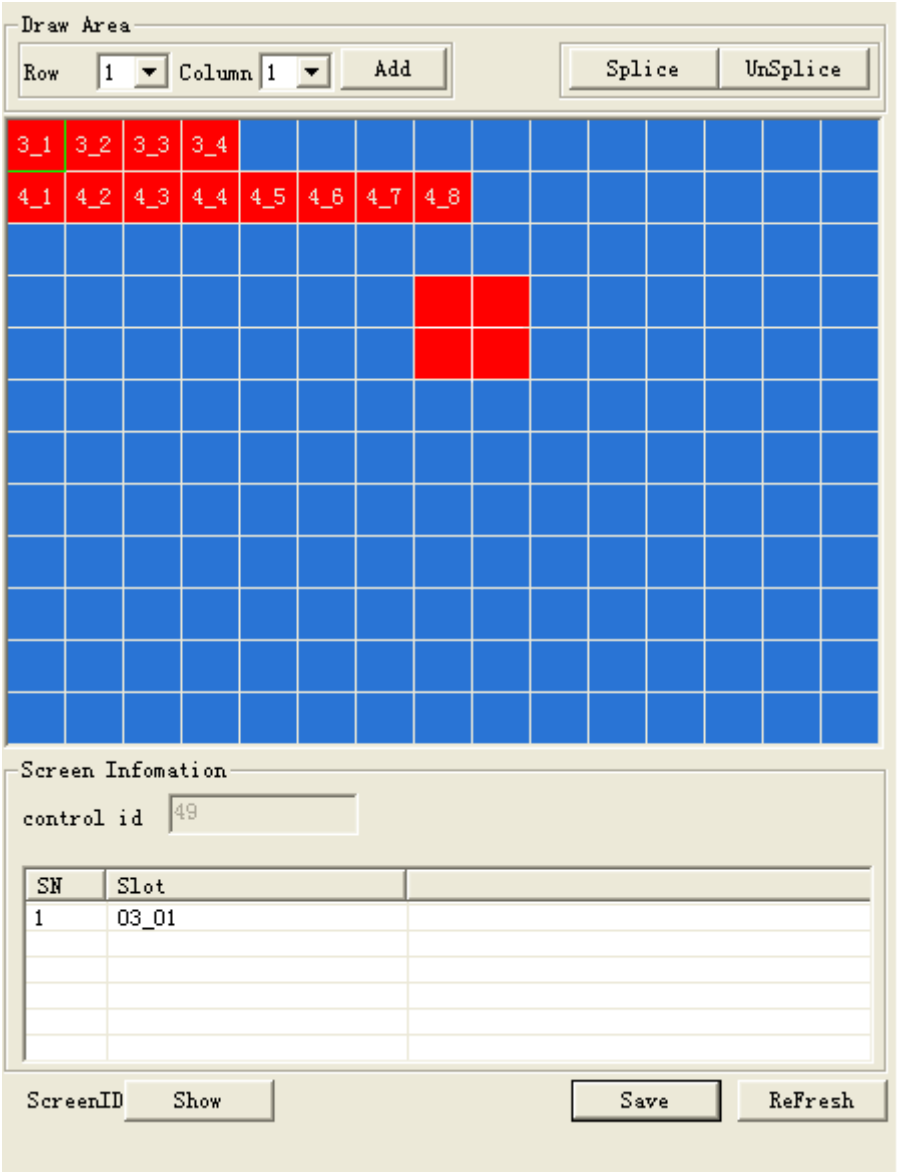


Figure 4- 18

The red area can be dragged to move.

Step 4. Click Splice, and select area to splice, click OK.

Step 5. Right click scheme to add. Later, you can right click a certain scheme to rename and delete, or double click scheme to operate. This step may also be performed after all operations are complete. Output screen and input device config will not be lost.

Step 6. If you have uploaded background and would use this function, check background, and select picture to upload. All output screen without input device will show this background.

Step 7. Select screen or output screen on the left and then select split mode and group no. Cubeless video wall can split into 1, 4, 8, 9, 16 and free split (free split is for tour and can use auto alignment).

Step 8. You can modify decode strategy, and you may drag according to live to fluent.

Step 9. Input device list, including local, net, input group and favorites. Select input device and drag to window to decode. If input device supports e-zoom function, then click e-zoom.

Step 10. You can refresh, add to favorites, sort favorites and add input group. Click add to favorites and sort favorites.

Step 11. Enable tour. You can set tour interval time with 10-120s.

4.5 System Settings

4.5.1 System Info

4.5.1.1 Version Info

Here you can view hardware features, software version and its release date. Please see Figure 4- 19.

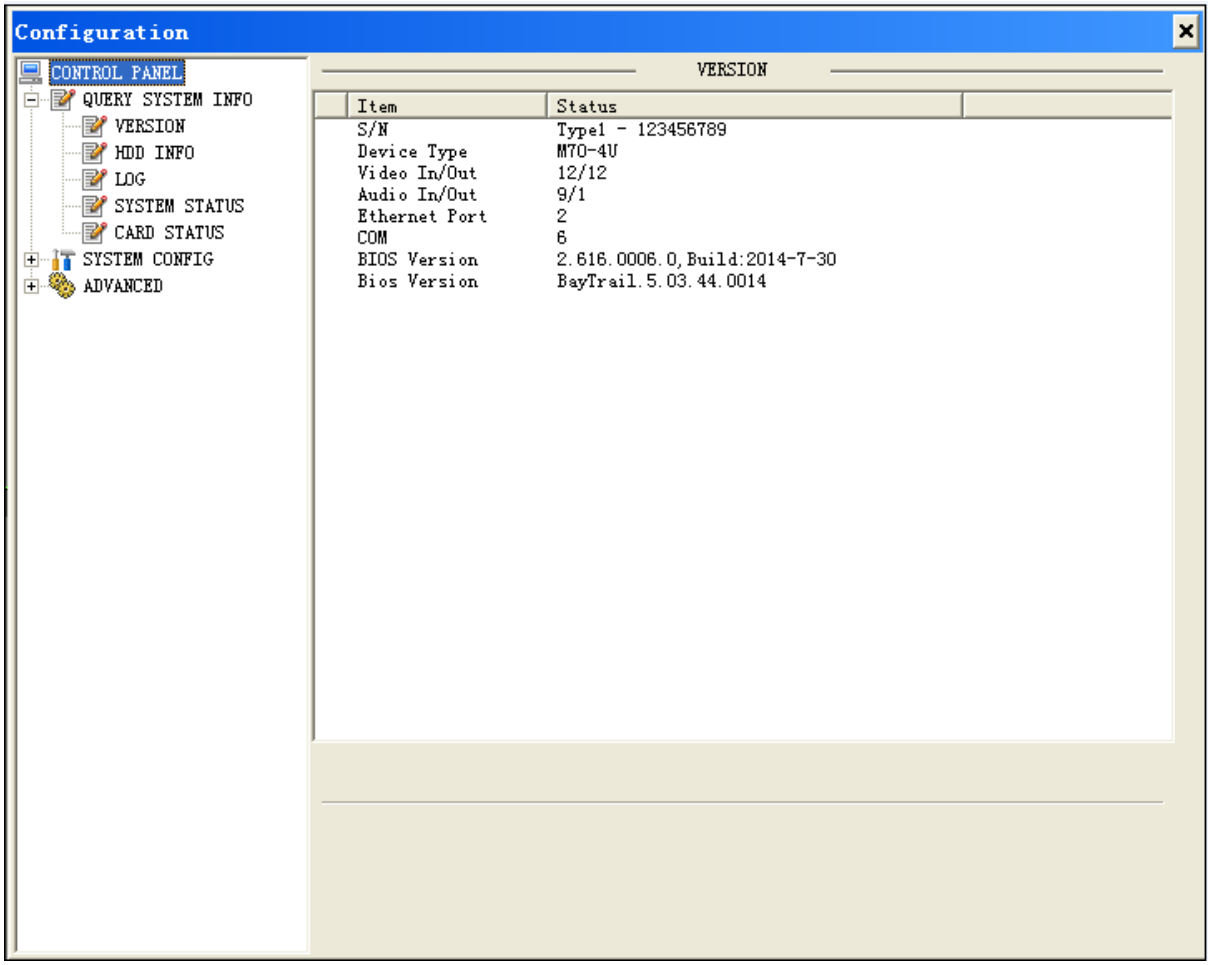


Figure 4- 19

4.5.1.2 HDD Info

Here you can view HDD status, free space and total space.

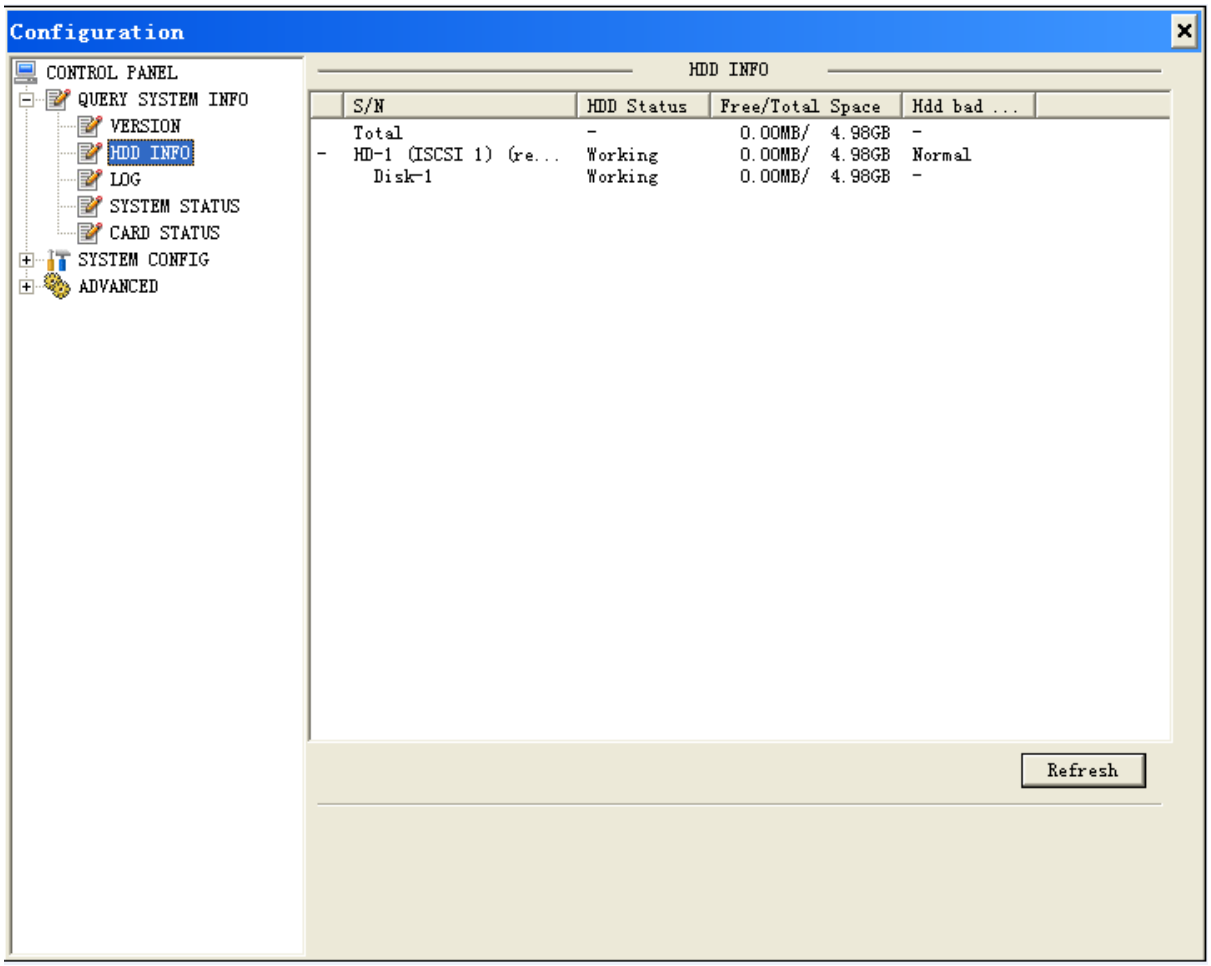


Figure 4- 20

4.5.1.3 **Log**

Here you can view system log.

System logs are classified into: system operation, config, data management, alarm event, record, user, and deleted log. You can select classification to search by directly clicking on search button. The system will display logs in list format. You may click backup button to record log on PC. If you click delete button, the system will clear all log files.

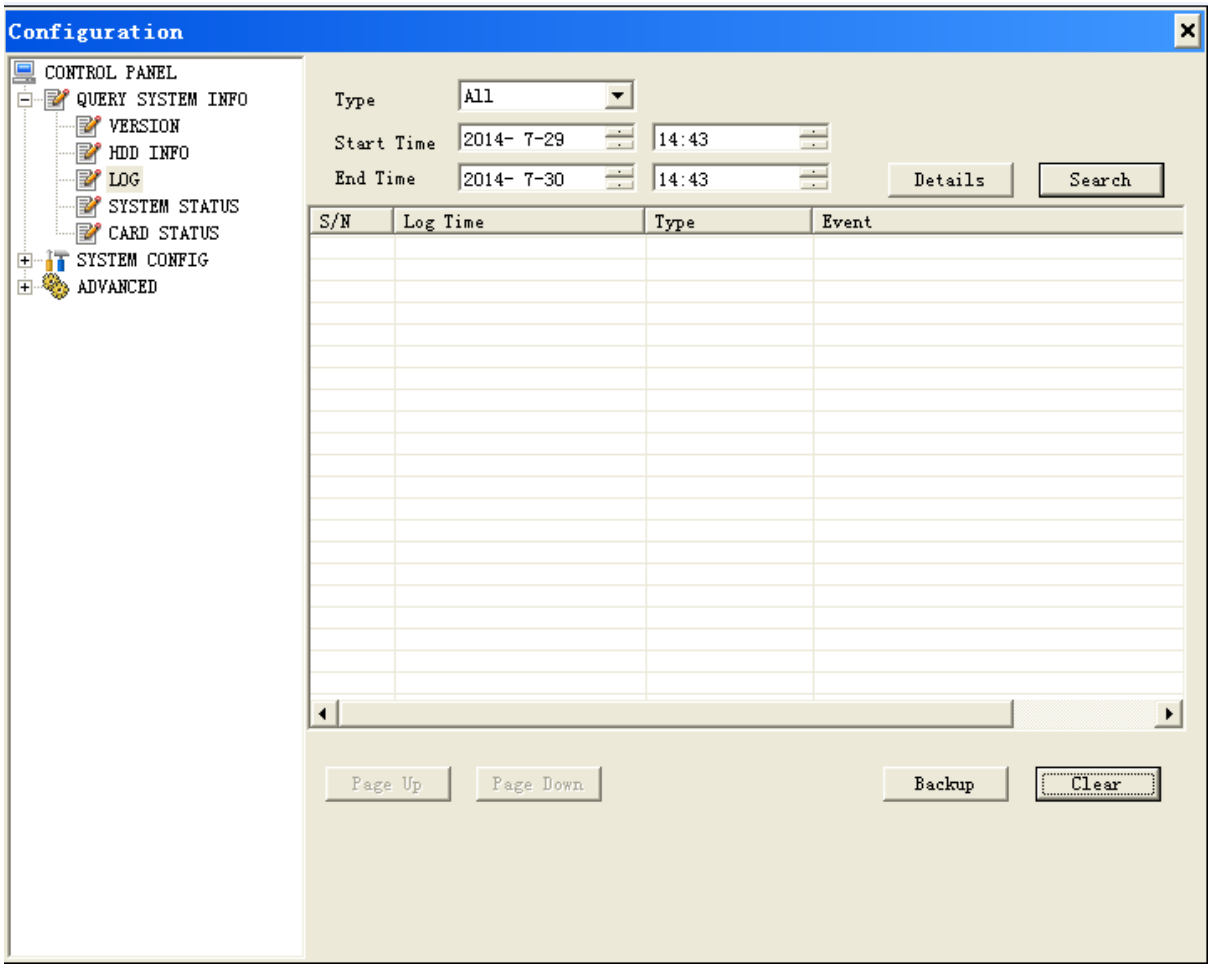


Figure 4- 21

4.5.1.4 System Status

Here you can view status of system CPU, memory, network, fan and power.

4.5.1.5 Sub Card Status

View sub card slot, type, temperature status and status.

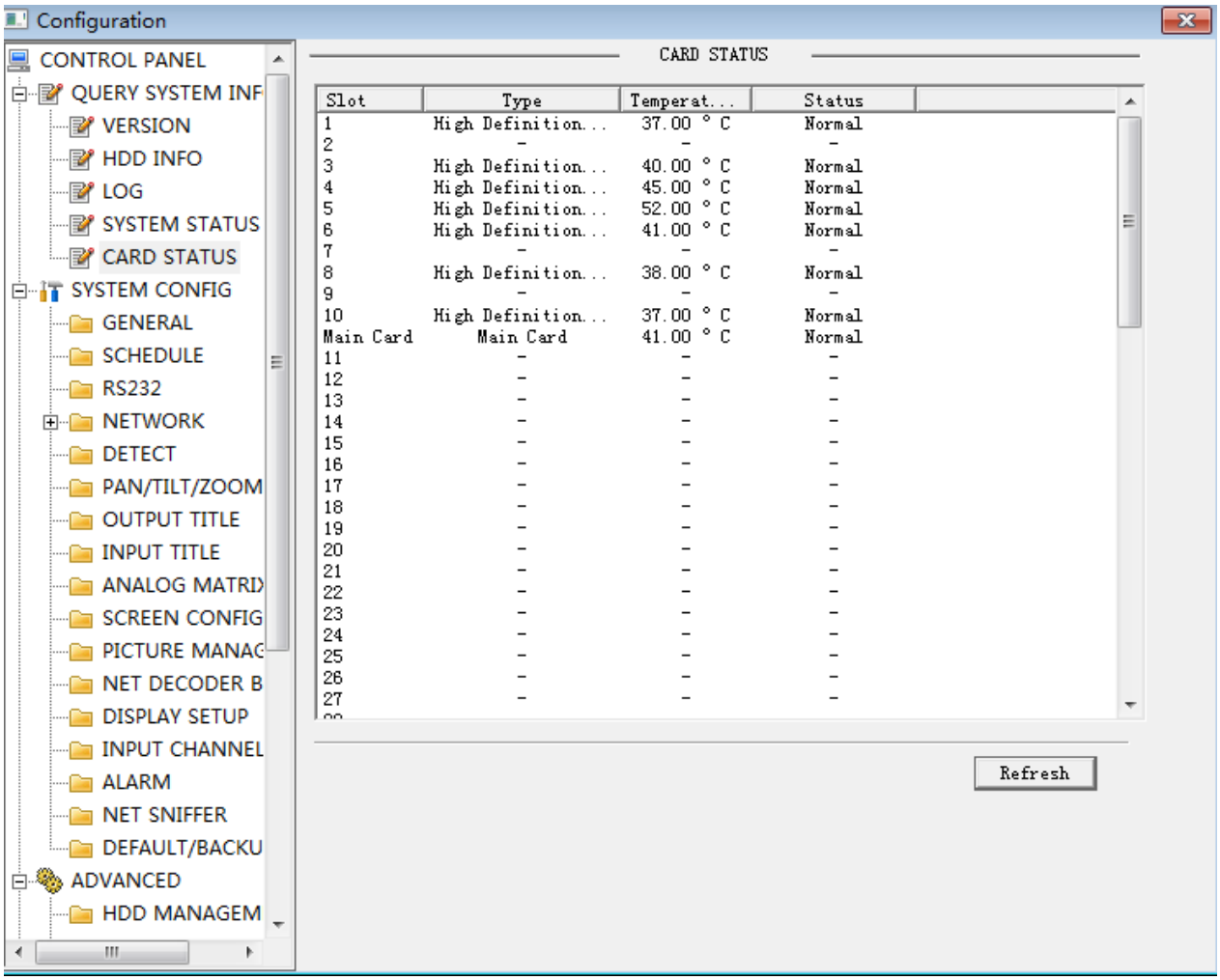


Figure 4- 22

4.5.2 System Config

4.5.2.1 General

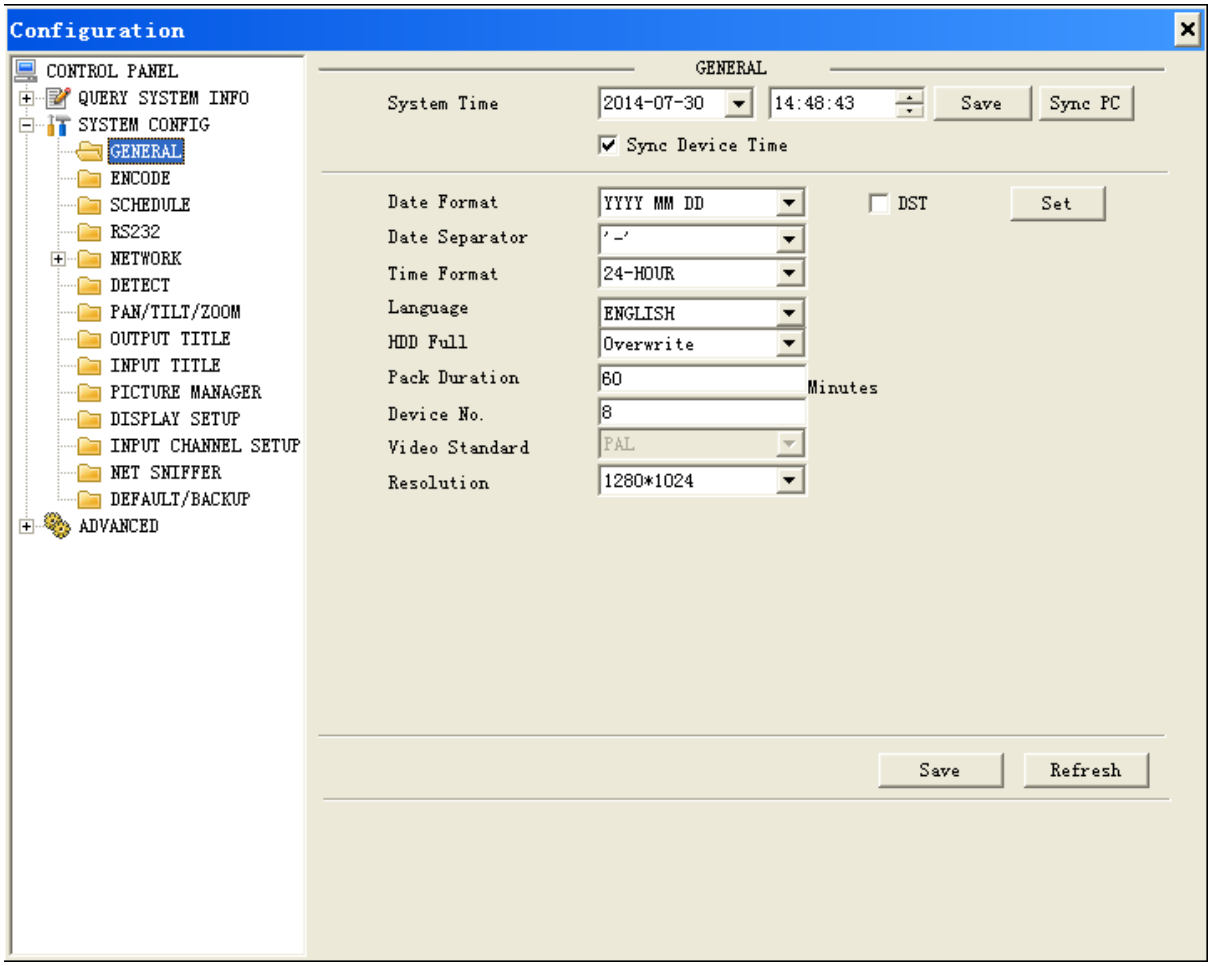


Figure 4- 23

Please see Figure 4- 23.

- System Time: Here is for you to modify system time. Please click Save button after your completed modification.
- Date Format: Y-M-D, M-D-Y or D-M-Y.
- Date Separator: ., - or /.
- Time Format: 12-hour or 24-hour standard.
- Language: Select language.
- HDD Full: There are two options: stop recording or overwrite the previous files when HDD is full. When current working HDD is overwriting or it is full now, system stops record.
  If current working HDD is full now, system goes to overwrite the previous file.
- Pack Duration: Here you can select file size. The value ranges from 1 to 120.Default setting is 60 minutes.
- Device No.: Set device no.
- Video Standard: There are two options: PAL/NTSC which will accord current video standard of the system. Please note, for the Web user, this information is for reference only. You cannot modify.
- Resolution: You can modify local output resolution to 1280*1024 or 1920*1080.
- DST: Check the box in front of DST to enable. You may set the start and end time of DST by week or date.

4.5.2.2 **Encode**

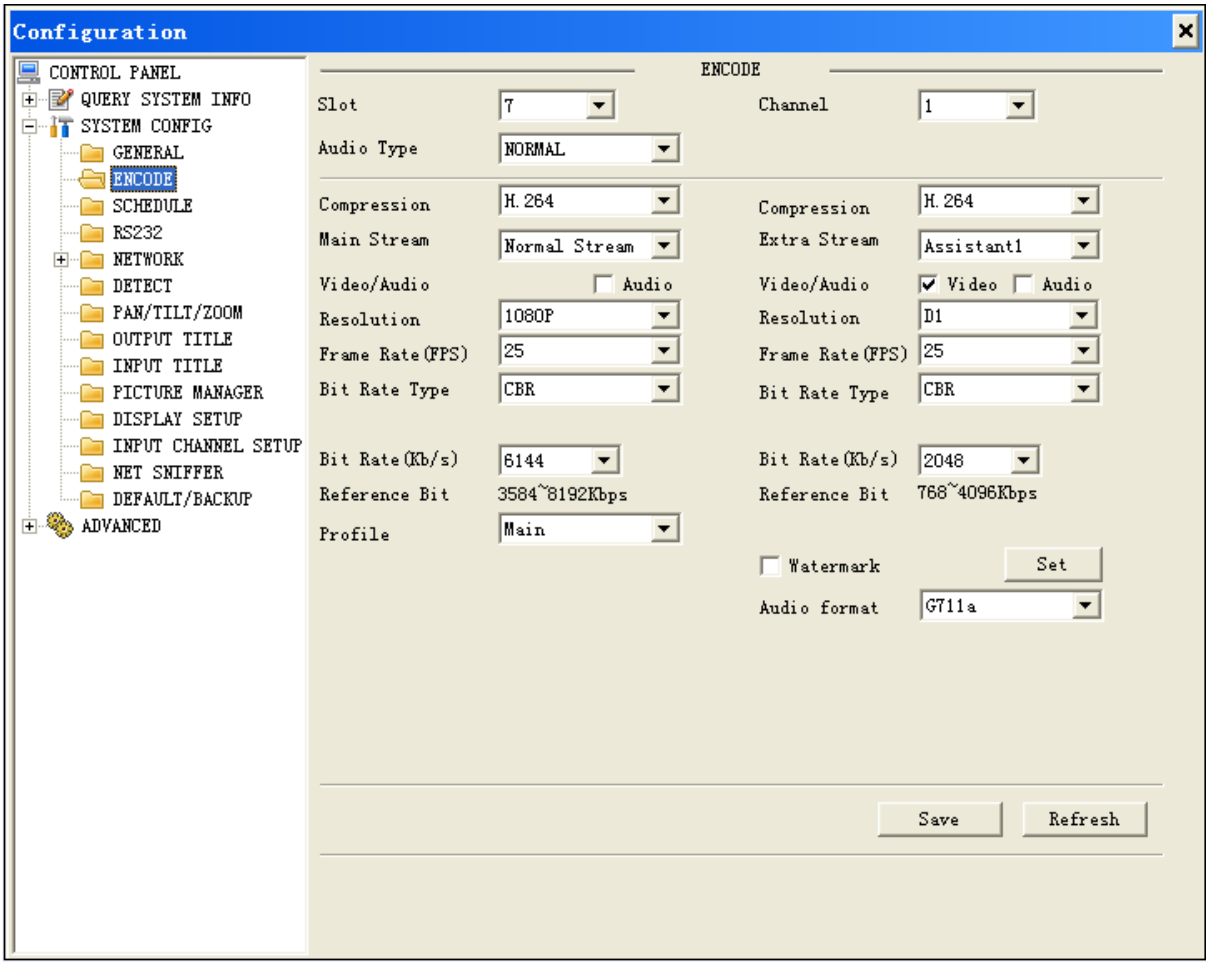


Figure 4- 24

Please see Figure 4- 24.

- Slot: Here is for you to select corresponding slot.
- Channel: Here is for you to select a monitor channel.
- Signal type: Select signal type of current slot.
- Compression: It supports H.264.
- Main stream: normal stream or dynamic stream.
- Extra stream: only assistant.
- Audio/Video: For the main stream, recorded file contains both video and audio by default. You need to check the box here to enable audio function. For extra stream, you need to check the box to select the video first and then select the audio if necessary.
- Resolution: SD compression board's main stream supports D1/HD1/BCIF/CIF/QCIF; HD compression board supports 1080P/720P/D1/HD1/BCIF/CIF/QCI.
- Frame rate: PAL：1～25f/s；NTSC：1～30f/s.
- Bit rate type: There are two options: VBR and CBR. Please note, you can set video quality in VBR mode only. The system support level 1~6 bit, the higher the number, the clear the image will be.
- Bit Rate:
  ■

- Main stream: set bit rate to change quality of image. The higher the value, the better the quality will be. Please refer to recommend bit rate for the detailed information.
- Sub stream: under CBR, this bit rate is the upper limit of stream. When it is in dynamic video, if the system has to lower bit rate and quality in order to guarantee fluency, then bit rate shall not exceed this value in this case. Under VBR, this value is useless.

- Profile: Main and Baseline.

Figure 4- 25

- Watermark: Here you can insert watermark into display.
- Audio format: The system supports three formats: G711a, PCM, G711μ .

4.5.2.3 Schedule

Here you can select local or remote channels to record video for different periods and dates. Users may set multiple periods. Please see Figure 4- 26.

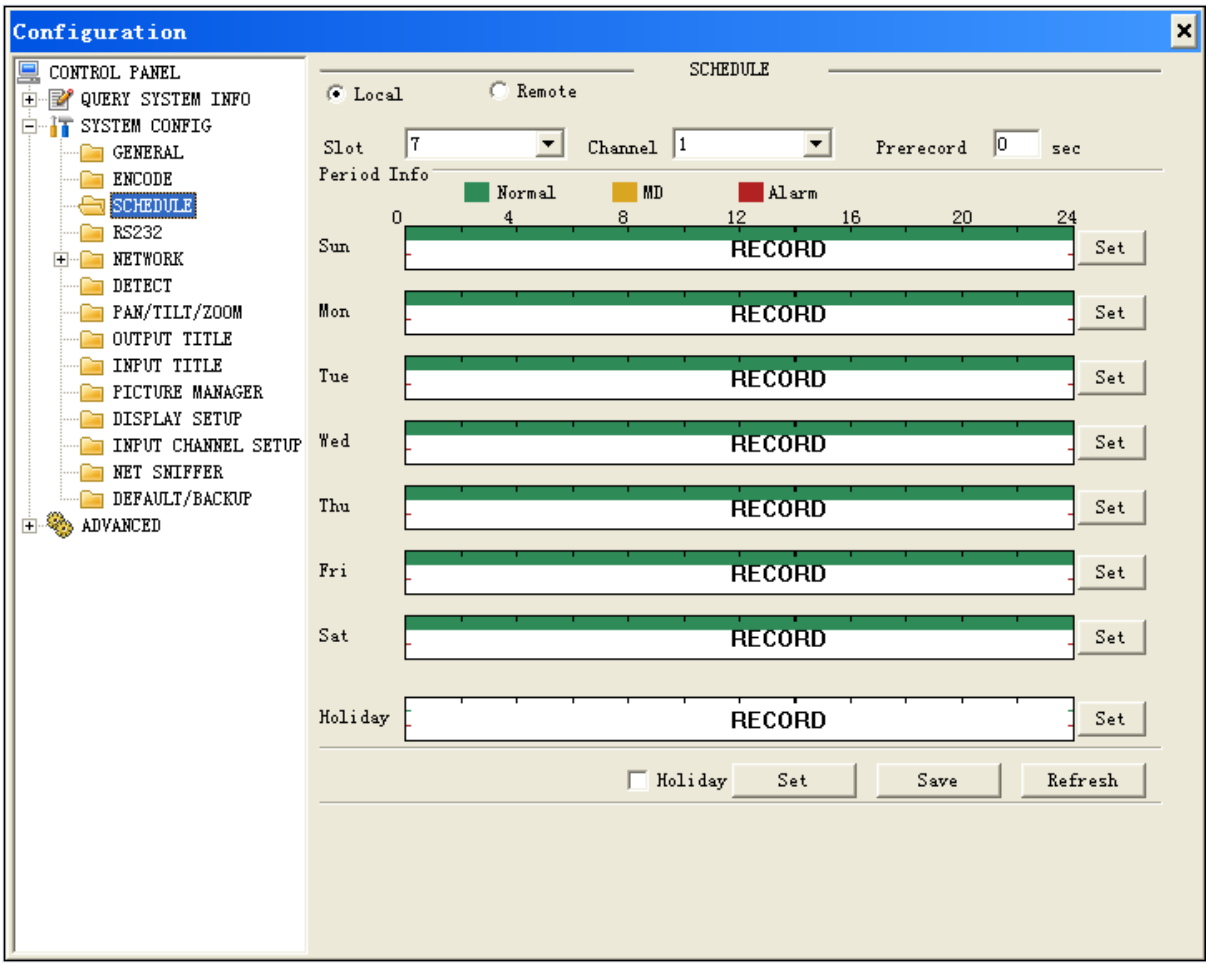


Figure 4- 26

Steps:

1. Click set button in interface as in Figure 4- 26, and a new interface will appear as in Figure 4-27.
2. Set record period, and select designated day of week. (If you do not select, the setting is effective for the day only.)
3. After you finish settings, click OK to save. You will return to the above interface, and click OK to save.

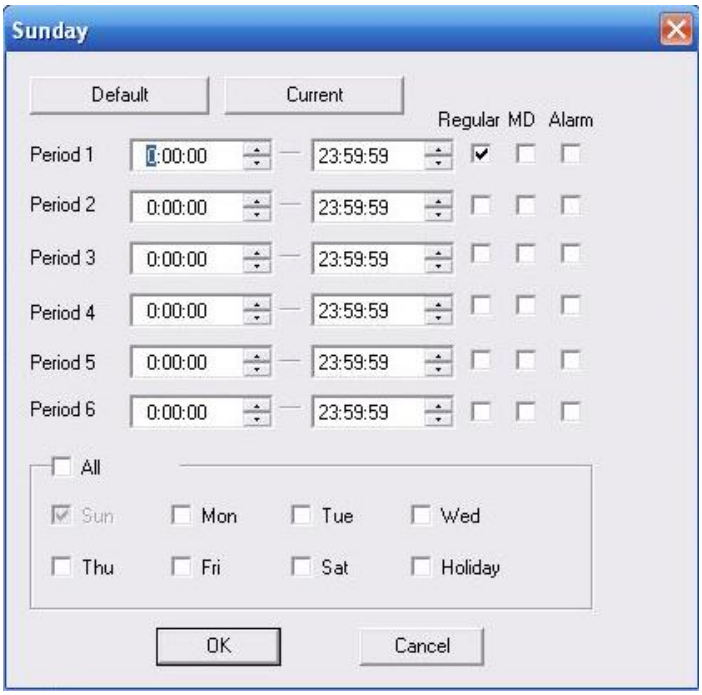


Figure 4- 27

4.5.2.4 **RS232**

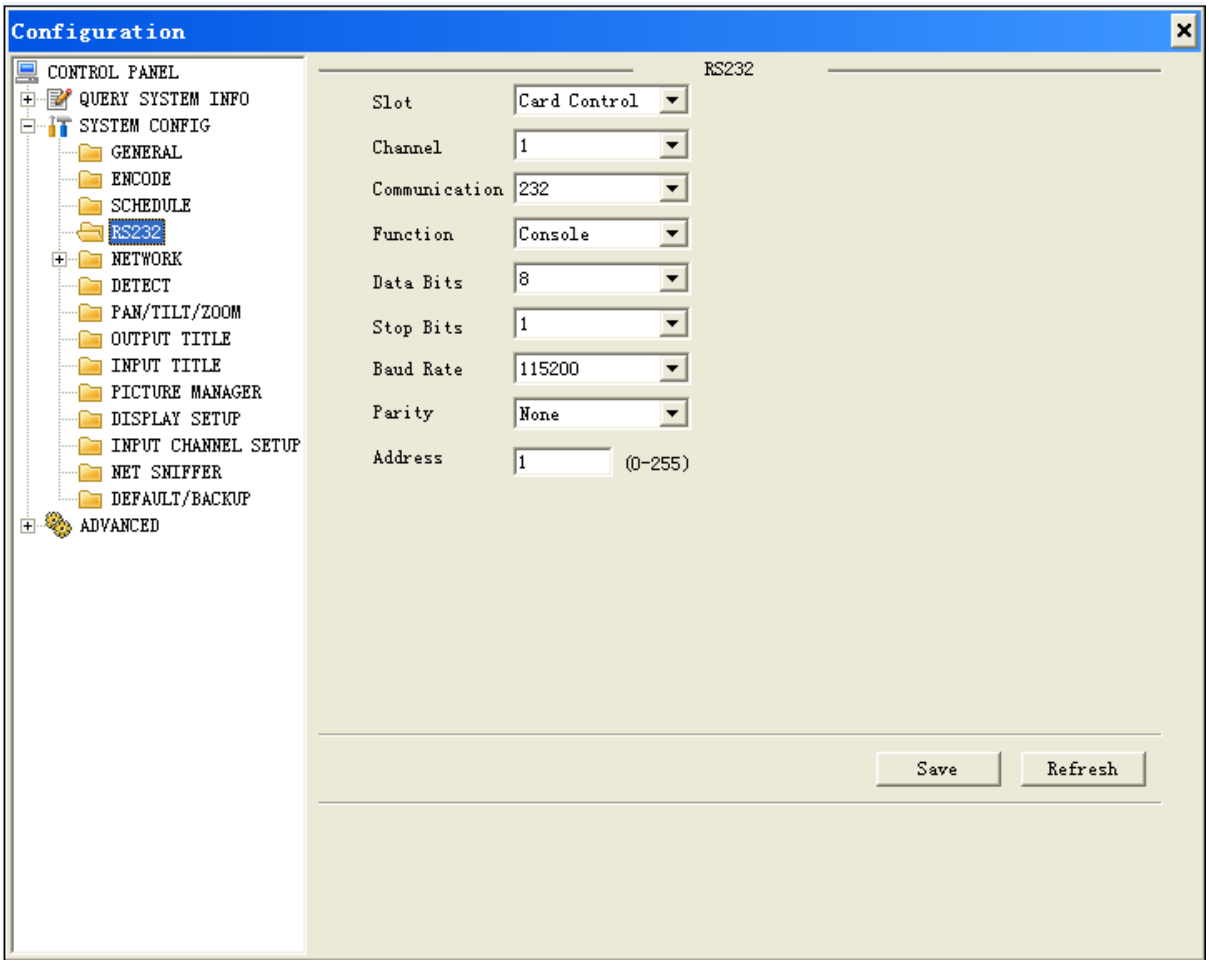


Figure 4- 28

Please see Figure 4-37.

- Slot: Select slot to configure RS232.
- Channel: Select channel to configure RS232.
- Communication: Serial type as RS232, RS422 and RS485. RS422 and RS485 are for alarm card only.
- Function:Select corresponding COM protocol.
- Data bit: You can select 5 to 8.
- Baud rate: Select corresponding baud rate.
- Parity: There are four parities.

System default COM is console; baud rate is 115200; data bit is 8; stop bit is; and parity is none.

- Address: Set address.

4.5.2.5 **Network**

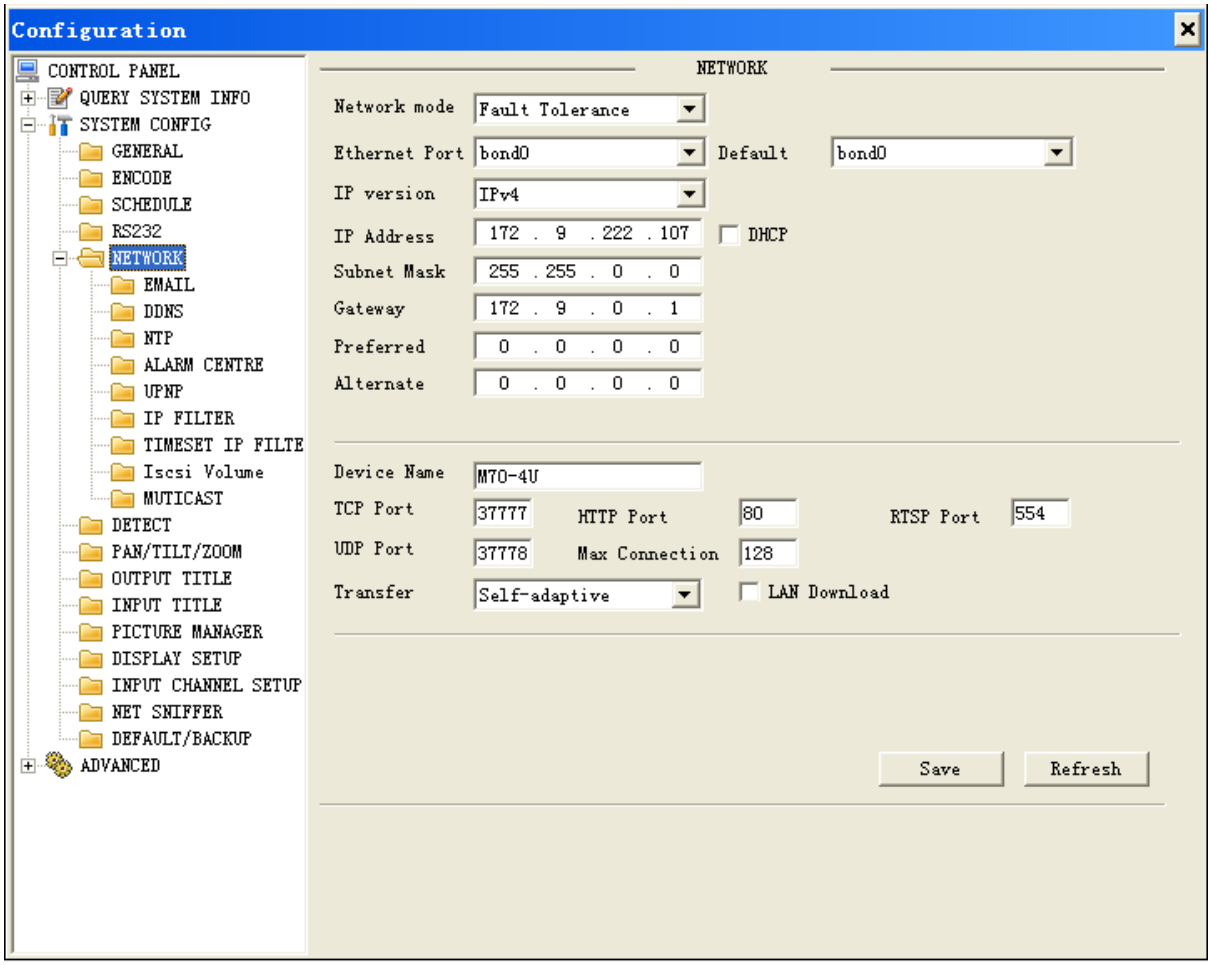


Figure 4- 29

Please see Figure 4- 29.

- Network mode: There are three modes of multiple, fault-tolerant and load balancing.
- Aggregation: Under net bridge mode only.
- Net Bridge: Under net bridge mode only.
- Bridge cycle set: Under net bridge mode only.
- Ethernet: Network card 1~2 available.
- Default network card: Network card 1~2 available.
- Aggregation strategy: Under link aggregation under.
- IP Version: IPv4 and IPv6.
- IP address: Input corresponding IP address, and then set its subnet mask and gateway.
- DHCP: It is to auto search IP. When enable DHCP function, you cannot modify IP/Subnet mask /Gateway. These values are from DHCP function. If you have not enabled DHCP function, IP/Subnet mask/Gateway display as zero. You need to disable DHCP function to view current IP information. Besides, when PPPoE is operating, you cannot modify IP/Subnet mask /Gateway.
- Device name: You can customize device name.
- Preferred: DNS server IP address.
- Alternate: DNS server IP address and DNS server alternate IP address.
- TCP port: Default value is 37777. You can change if necessary.
- HTTP port: Default value is 80.

- PRSP port: Default value is 554.
- UDP port: Default value is 37778.
- Max connection: system support maximal 128 users. 0 means there is no connection limit.
- Transfer QOS: You can prefer fluency, image quality or self-adaptive. Based on your selection, the stream will be automatically adjusted with QOS box checked.
- LAN download: High speed downloading 1.5 to 2 times faster than normal speed downloading with sufficient bandwidth.

4.5.2.6 **Email**

Here you can set SMTP server IP address, port, username, password and email address of sender and set interval between each outgoing email. You can input email title in CH/EN and Arabic numerals up to 32 digits. The email function allows up to 3 receiver addresses and SSL secured email boxes. Please see Figure 4- 30.

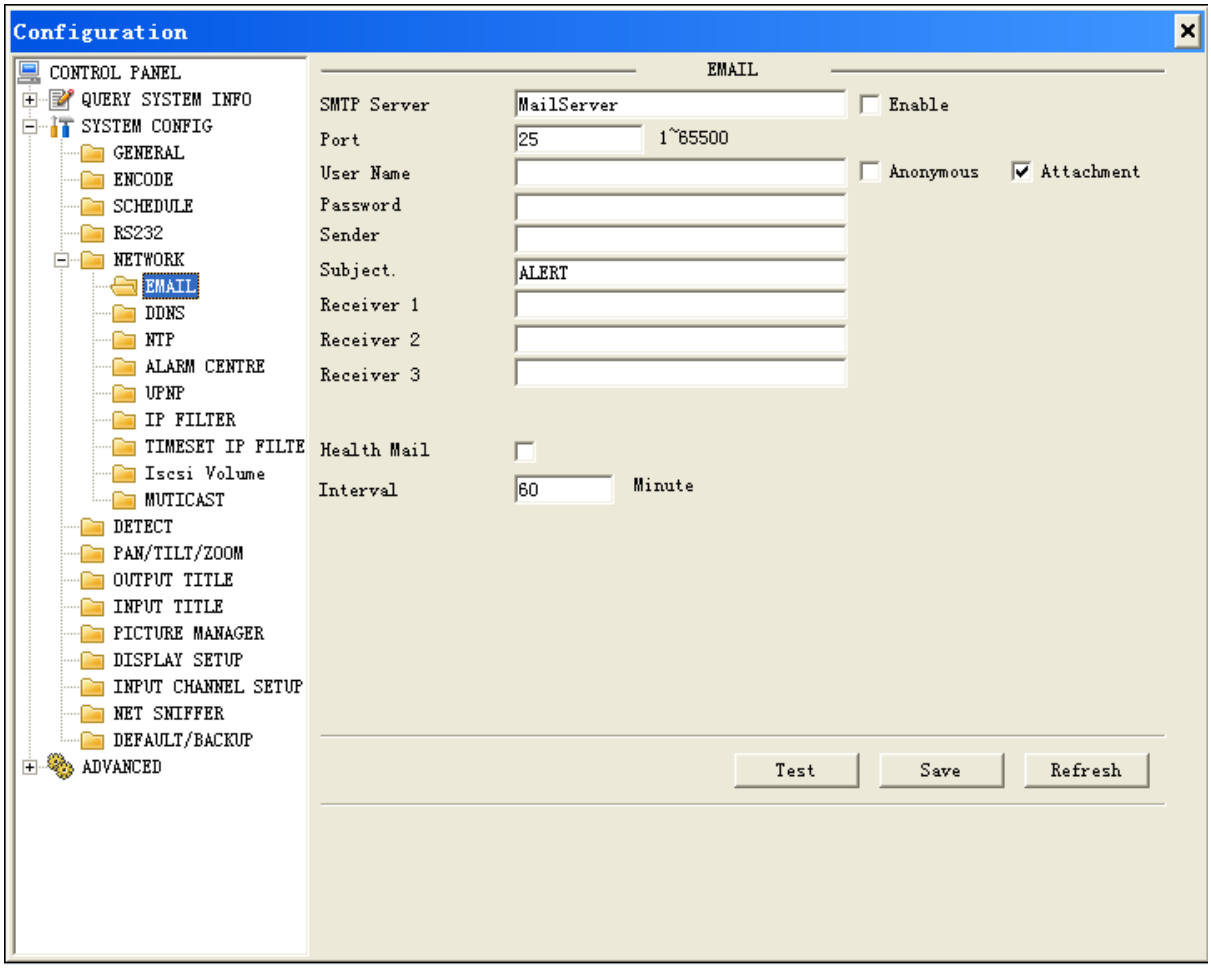


Figure 4- 30

4.5.2.7 **DDNS**

Please enable current function and then you need to select type of DDNS and set the following interface (Figure 4- 31) based on your DDNS type. Same with local config.

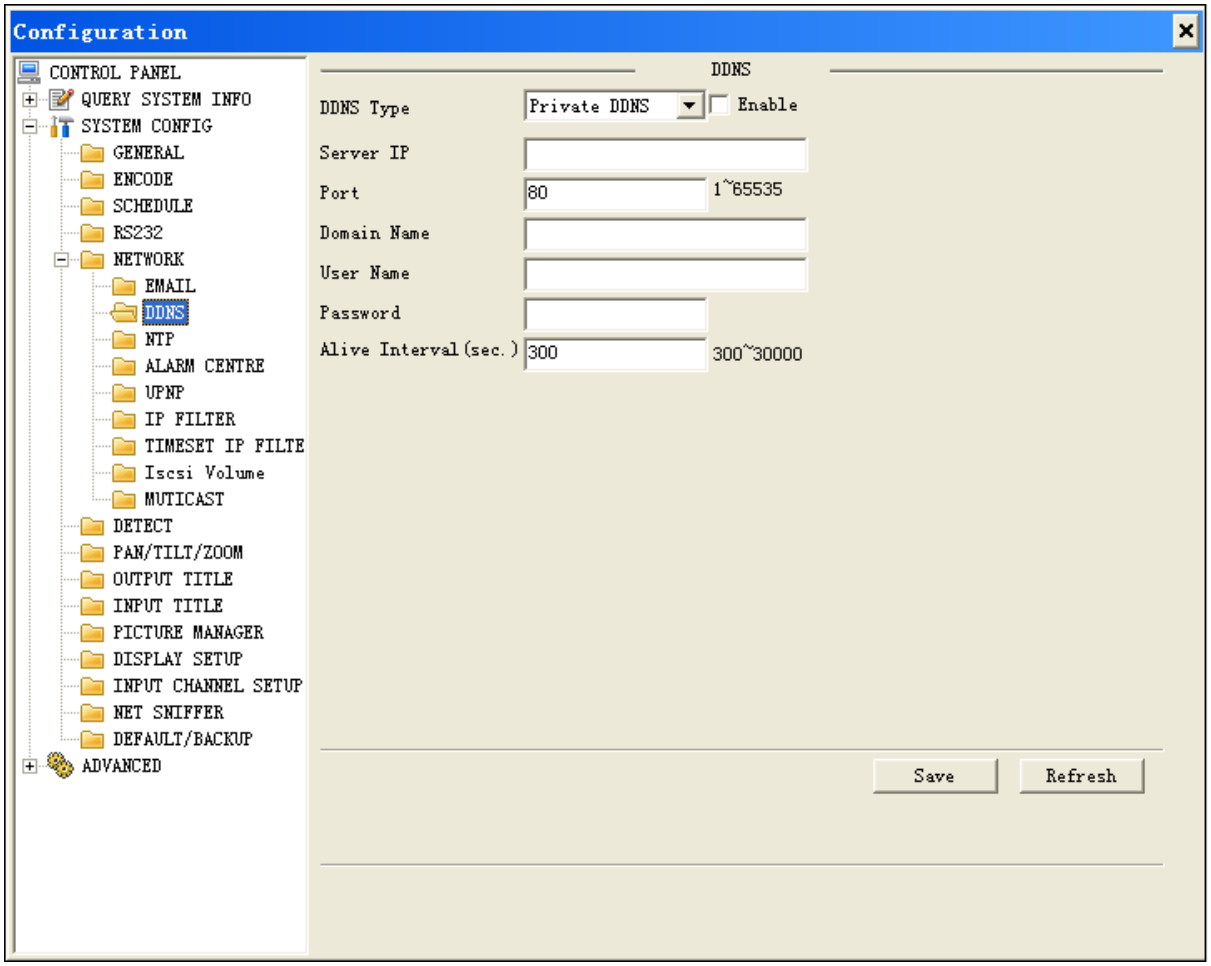


Figure 4- 31

4.5.2.8 **NTP**

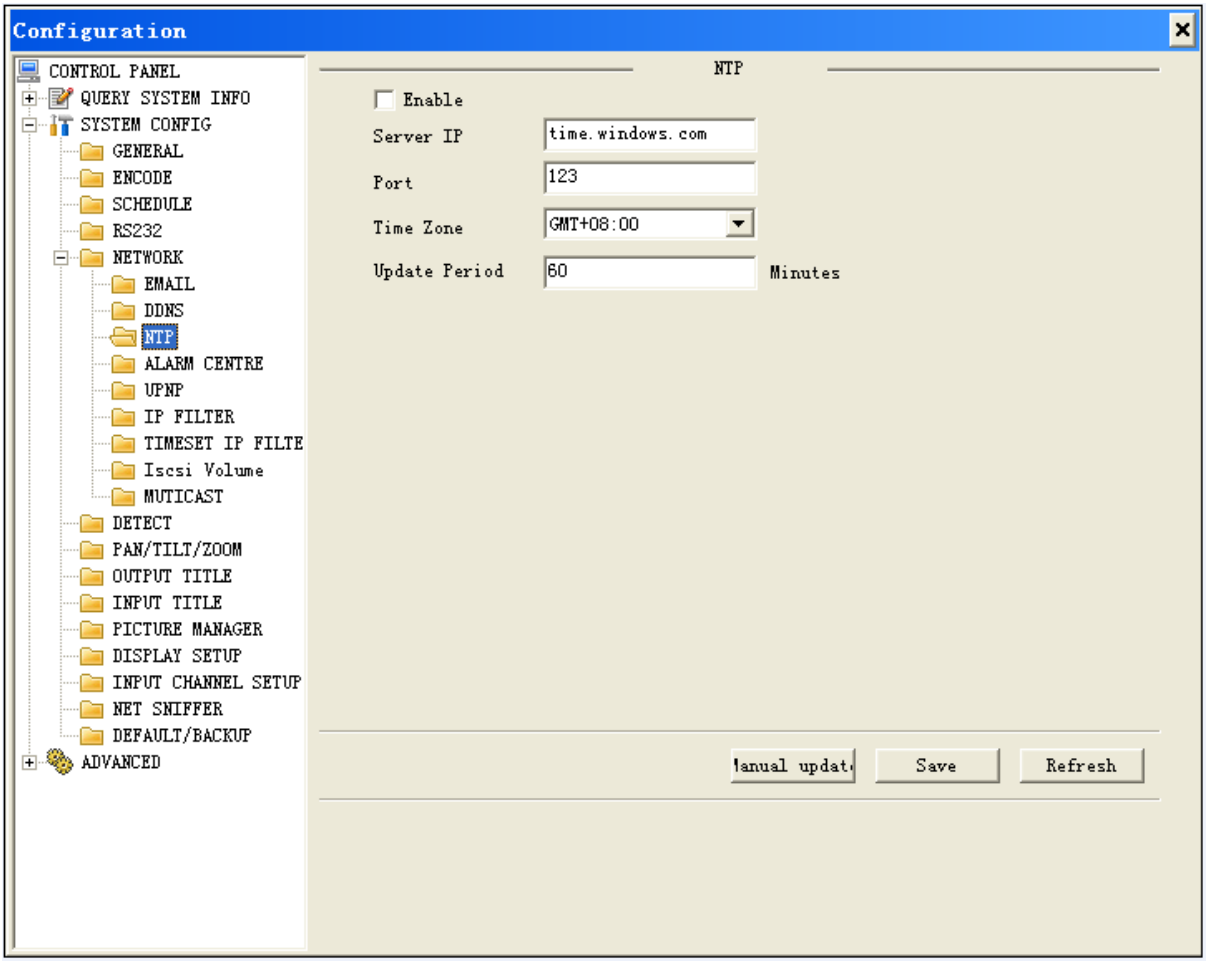


Figure 4- 32

Please see Figure 4- 32.

Here you can realize network time synchronization. Please enable current function and then input IP of the PC of SNTP server, port number, time zone and update interval. Please note the SNTP supports TCP transmission only and its port shall be 123.The update interval ranges from 0 to 65535. Default value is 10 minutes.

When you complete the above settings, click save button. If you have manually updated the time setting for twice and saved the changes, SNTP server will immediately sync system time.

You can refer to the following sheet for time zone information.

City /Region Name	Time Zone
London	GMT+0
Berlin	GMT+1
Cairo	GMT+2
Moscow	GMT+3
New Deli	GMT+5
Bangkok	GMT+7
Beijing (Hong Kong)	GMT+8
Tokyo	GMT+9
Sydney	GMT+10
Hawaii	GMT-10
Alaska	GMT-9
Pacific Time(P.T)	GMT-8
American Mountain Time(M.T)	GMT-7
American Central Time(C.T)	GMT-6
American Eastern Time(E.T)	GMT-5

Atlantic Time	GMT-4
Brazil	GMT-3
Middle Atlantic Time	GMT-2

Update period can be set to 0 to 65535 min. Default is 10 min. Click save when you are done. When first two update get successfully, SNTP server will sync system time immediately.

Note:

Check to enable item after setup.

4.5.2.9 **Alarm Center**

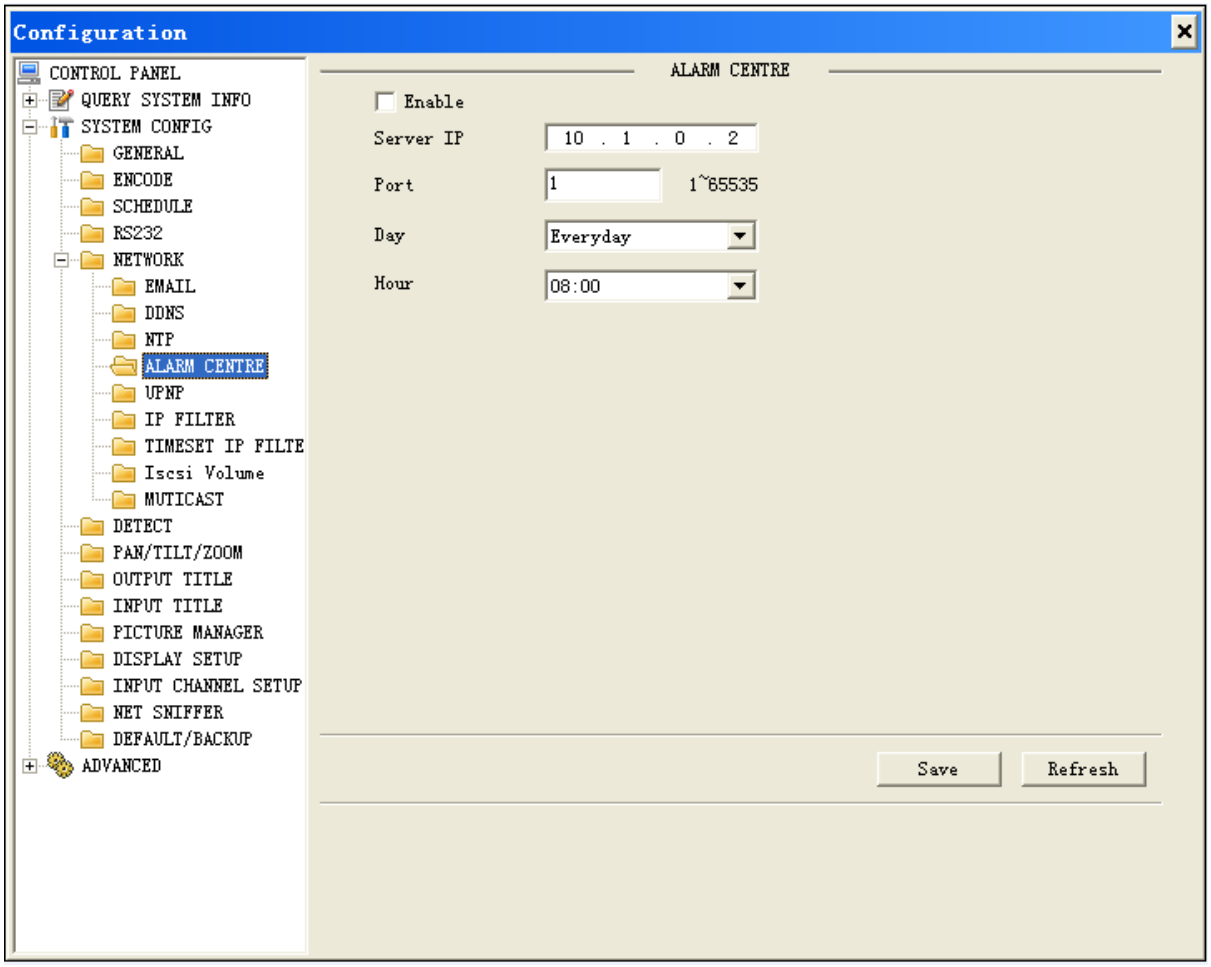


Figure 4- 33

Please see Figure 4- 33.

Please set the corresponding parameters:

Server IP: Input address of alarm receiver server.

Port: set range 1~65535.

Date: Never, everyday, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday.

Time: range 0~23.

Please make sure you have enabled this function and saved the settings. When external alarm is triggered, the system will automatically submit alarm information.

4.5.2.10 **UPNP**

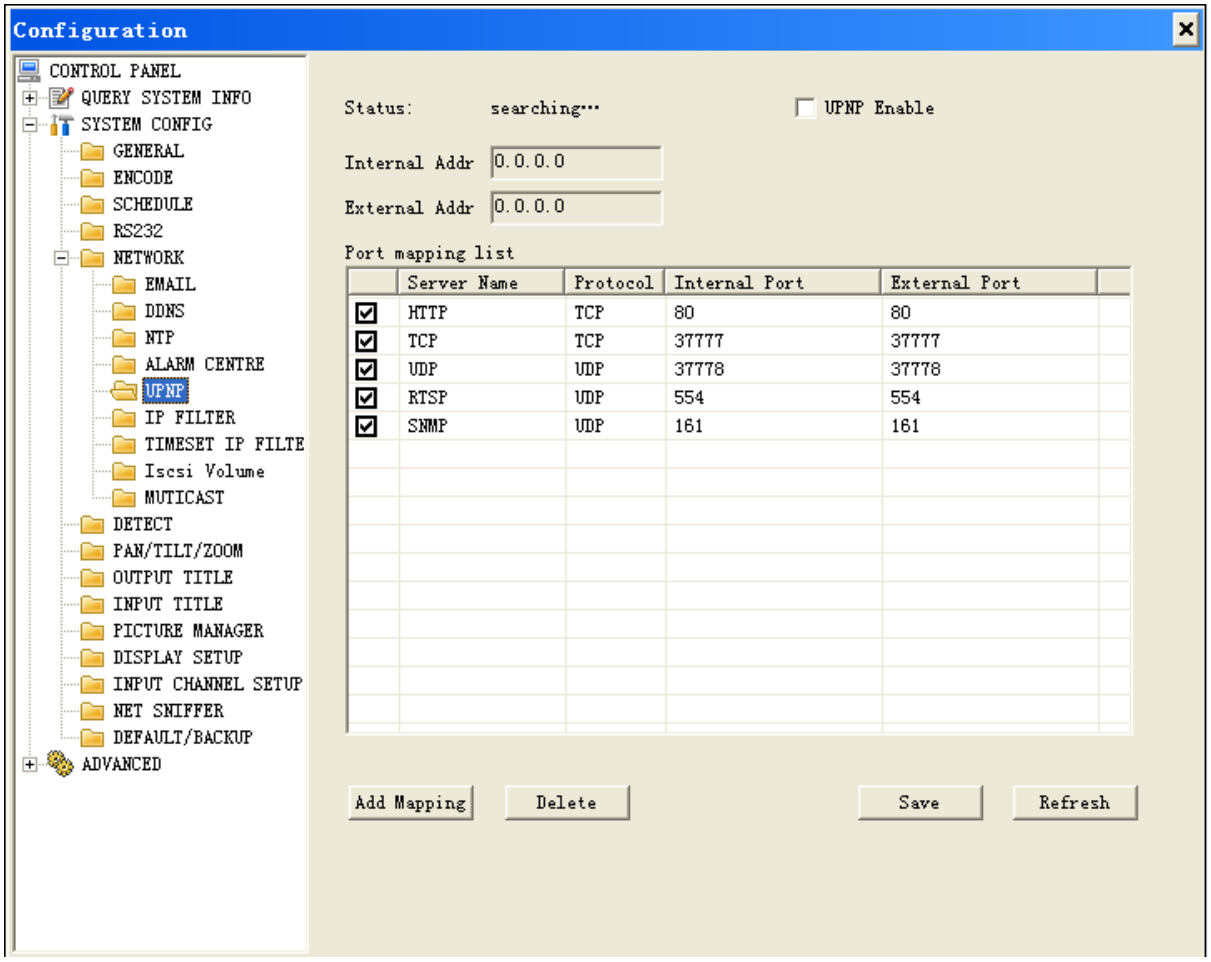


Figure 4- 34

Please see Figure 4- 34.
It allows you to establish the mapping relationship between the LAN and the public network. Same with local config.
Here you can also add, modify or remove UPNP item.

Port mapping: Enable UPNP function.
Status: Display UPNP function status: successful, failed and searching.
LAN IP: Set LAN IP address.
WLAN IP: Set WLAN IP address which is provided by telecommunication service provider.
Port Mapping List: Display info of added ports.

Note: Double click port to change its config.

4.5.2.11 **IP Filter**

You may classify valid log in IP and invalid log in IP by enabling white/black list. This is an IP filter function which can be activated by checking the enable box. Please see Figure 4- 35.

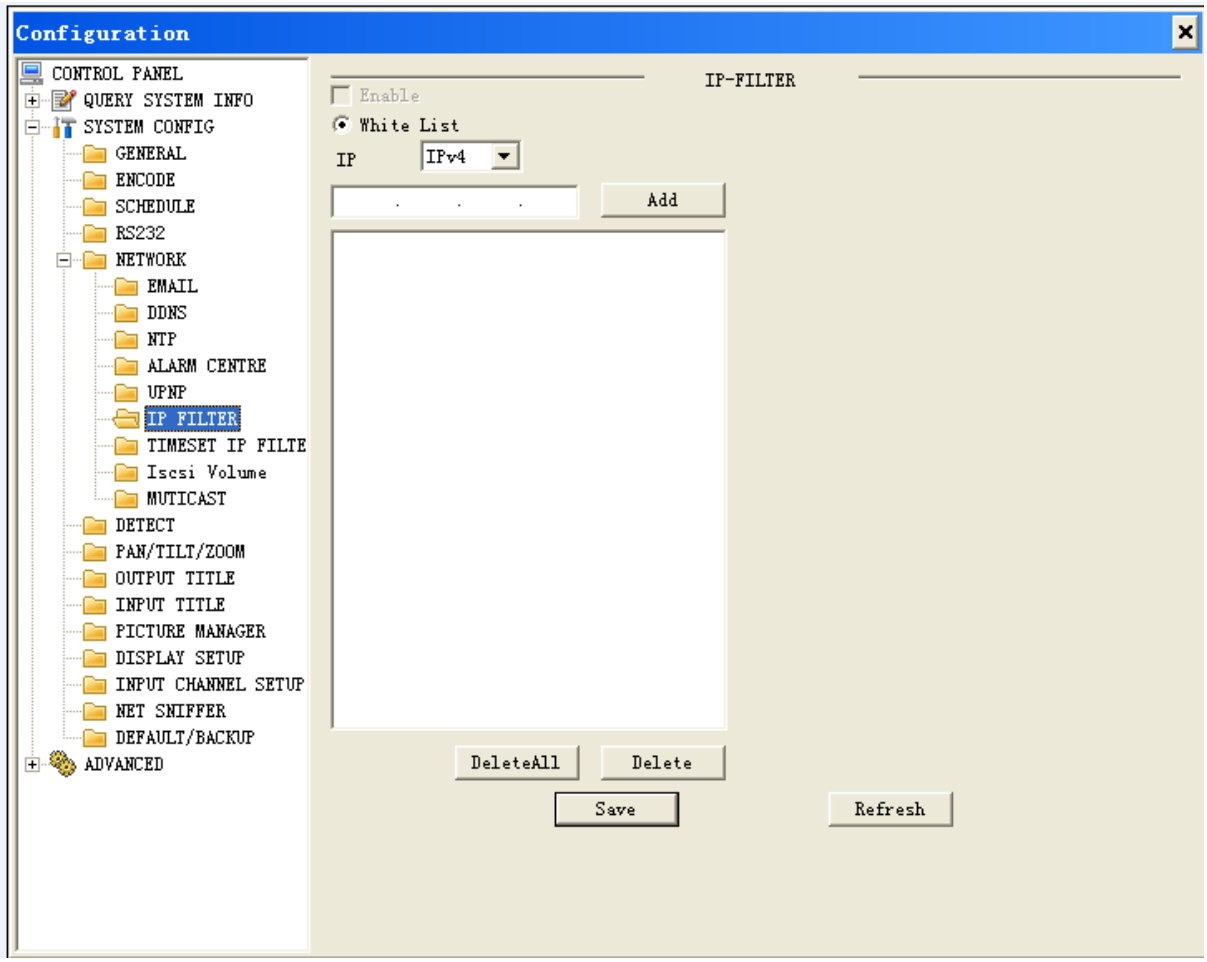


Figure 4- 35

4.5.2.12 **Timeset IP Filter**

After you enable Timeset IP filter, only when it filters devices on white list, it can modify time on the platform. See Figure 4- 36.

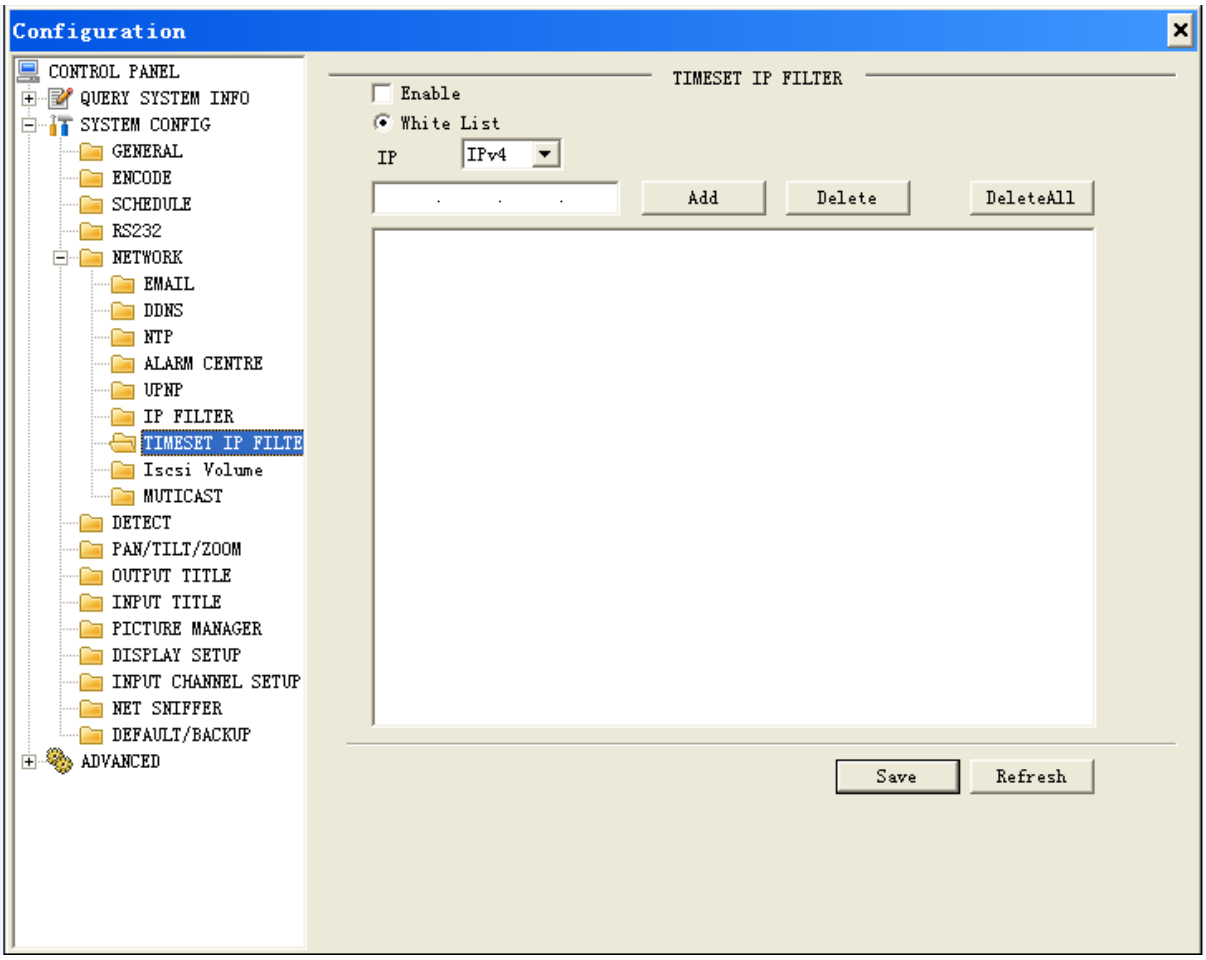


Figure 4- 36

4.5.2.13 **ISCSI**

Via ISCSI network storage protocol, you may save local and remote video record inputted on device to remote storage server. You may also add multiple SVRs which allows you to save image or video from different channels to different servers. Please see Figure 4- 37.

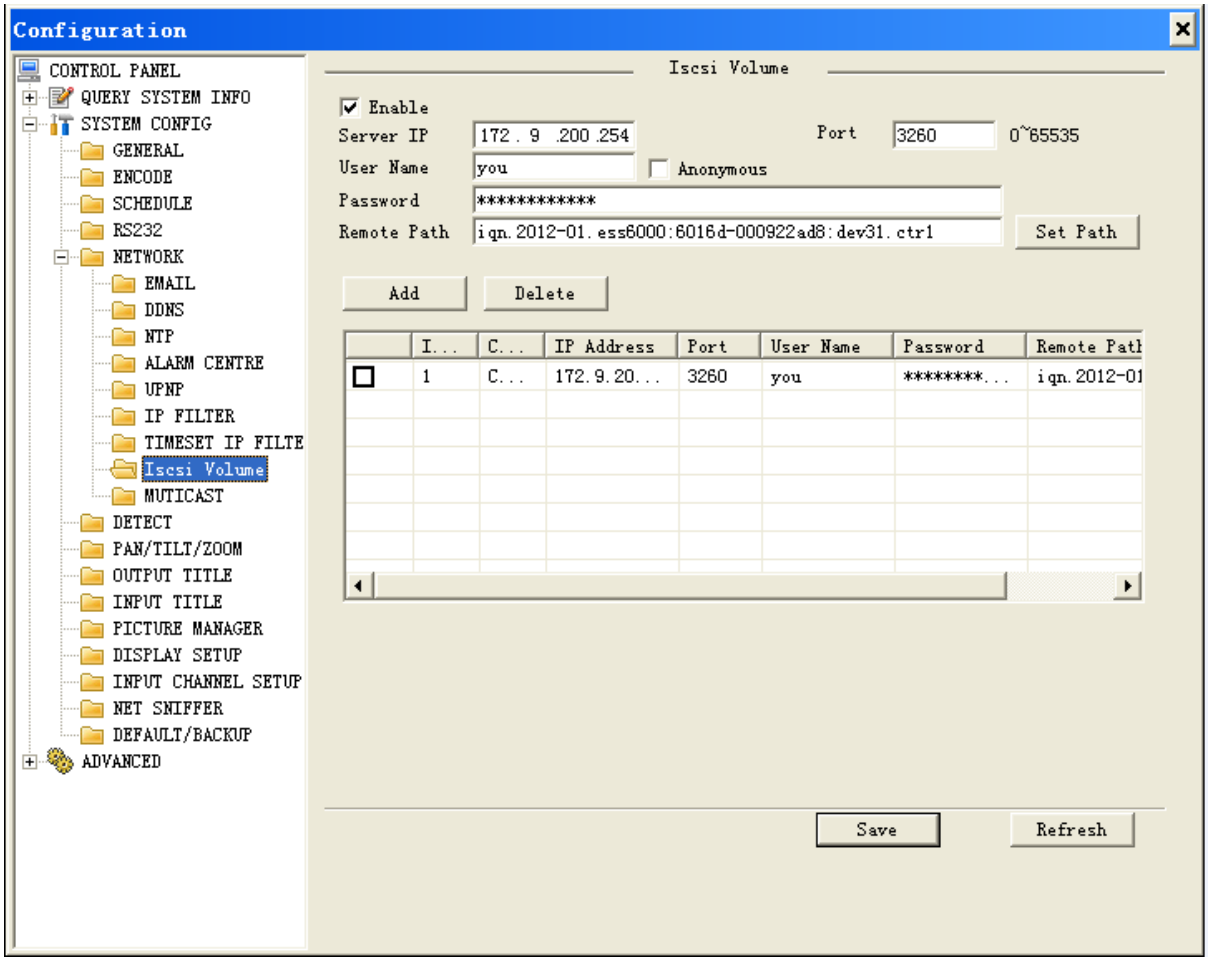


Figure 4- 37

4.5.2.14 **Multicast**

After multicast is enabled, login WEB, select multicast method. WEB will automatically get multicast address and add the group. Then you can monitor video via multicast. See Figure 4- 38.

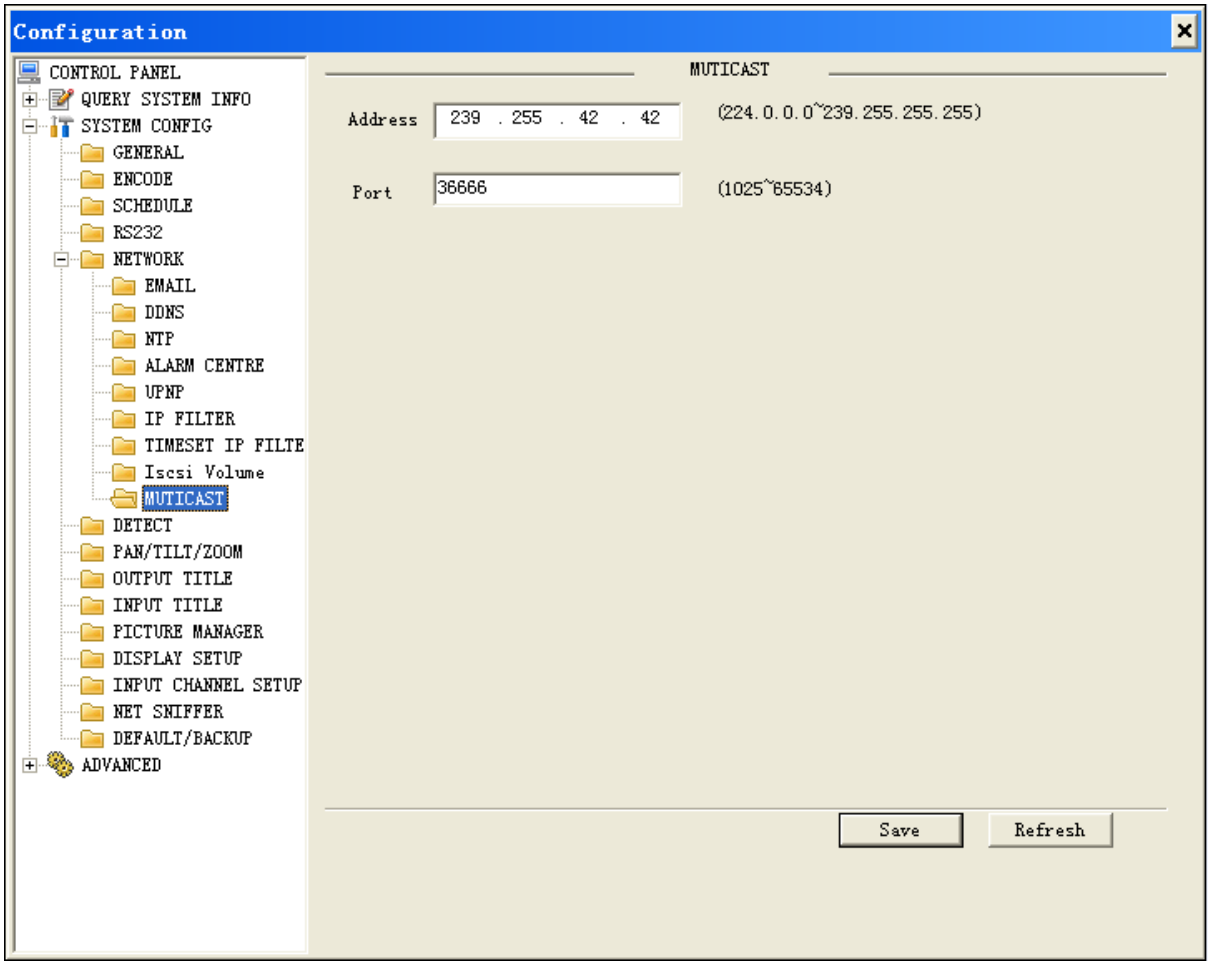


Figure 4- 38

4.5.2.15 **Detect**

By analyzing the video, system enable motion detection alarm when it detects the motion signal reached the specified sensitivity.

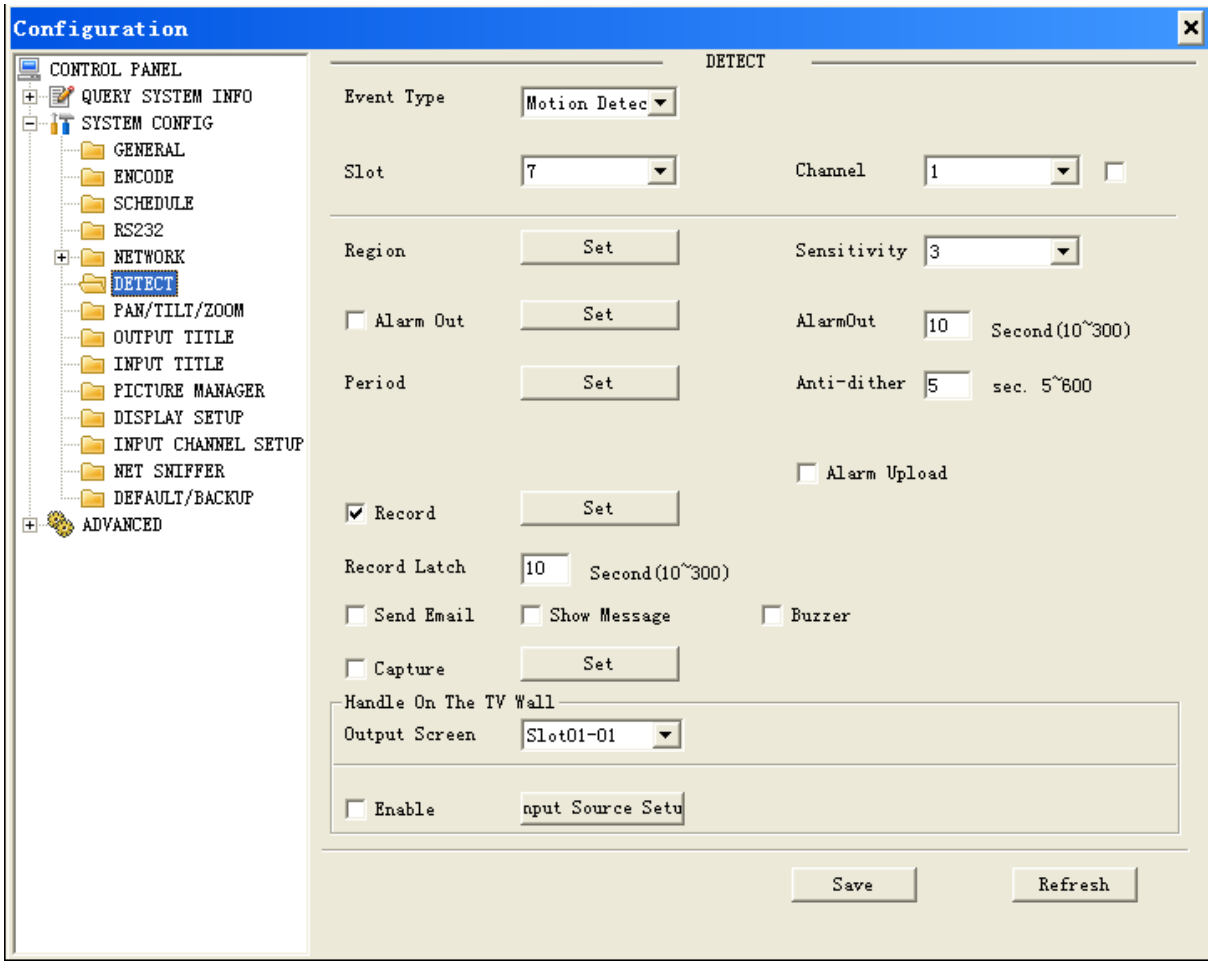


Figure 4- 39

Please see Figure 4- 39.

Event type: There are three types: Motion detection/video loss/Camera Masking.

Slot and Channel: Select channel name from the dropdown list.

Enable: You need to check box to enable motion detection function.

Region: You can set detect region. Video loss and video mask do not have this function.

Sensitivity: There are 1-6 levels as 6 is highest sensitivity.

Alarm out: You may set alarm output channel of motion detection signal.

Alarm out delay: After alarm event ends, alarm delays for this period within 10 to 300s.

Period: Here you can set alarm period while motion detection function becomes activated in the specified periods. There are six periods in one day. Please check box to enable corresponding period. Please click save button to exit. Please see Figure 4- 40.

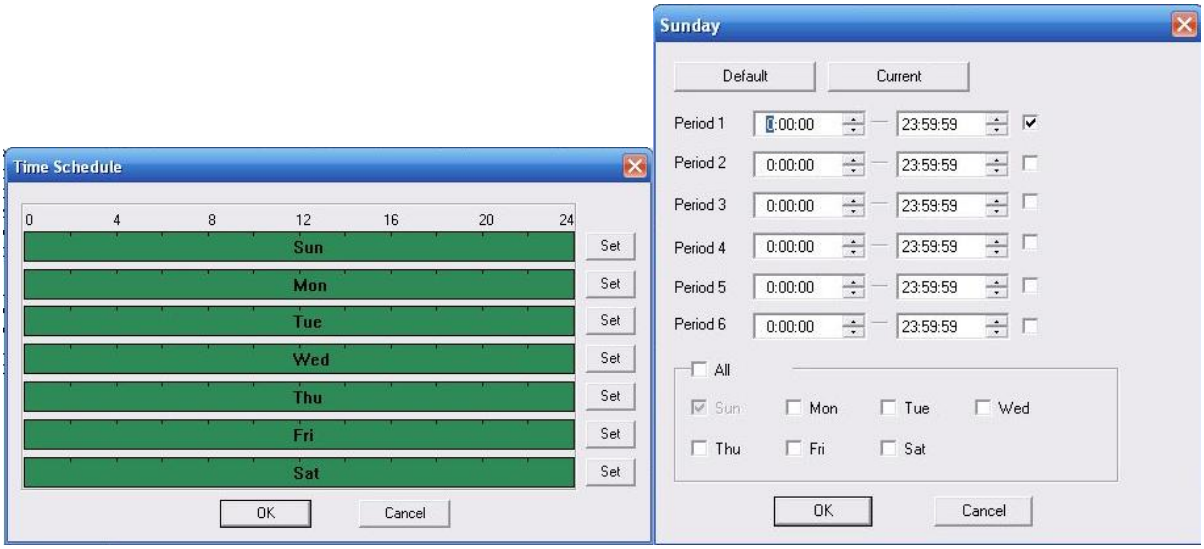


Figure 4- 40

Anti-dither: Anti-dither is duration of motion detect Its range is 5 to 600s. .
Record channel: Select channel (multiple choices) and system automatically activates motion detection function to record once alarm occurs (working with motion detection function). You need to set period of motion detection in schedule setting and select auto in local record control.
Record latch: System can delay the record for specified time after alarm ended. The value ranges from 10s to 300s.
Alarm upload: System can upload the alarm signal to the centre (Including alarm centre).
Email: If you enabled this function, system can send out email to alert you when alarm occurs
Shoe message: Show message on screen.
Buzzer: Check to enable buzzer, do device will buzzer when it alarms.
Snapshot: You can set to snapshot.

4.5.2.16 **PTZ**

Here you can set PTZ channel, protocol, address, baud rate and etc.
Please note, before operation please make sure you have set speed dome address. Make sure speed dome connection is OK. Please see Figure 4- 41.

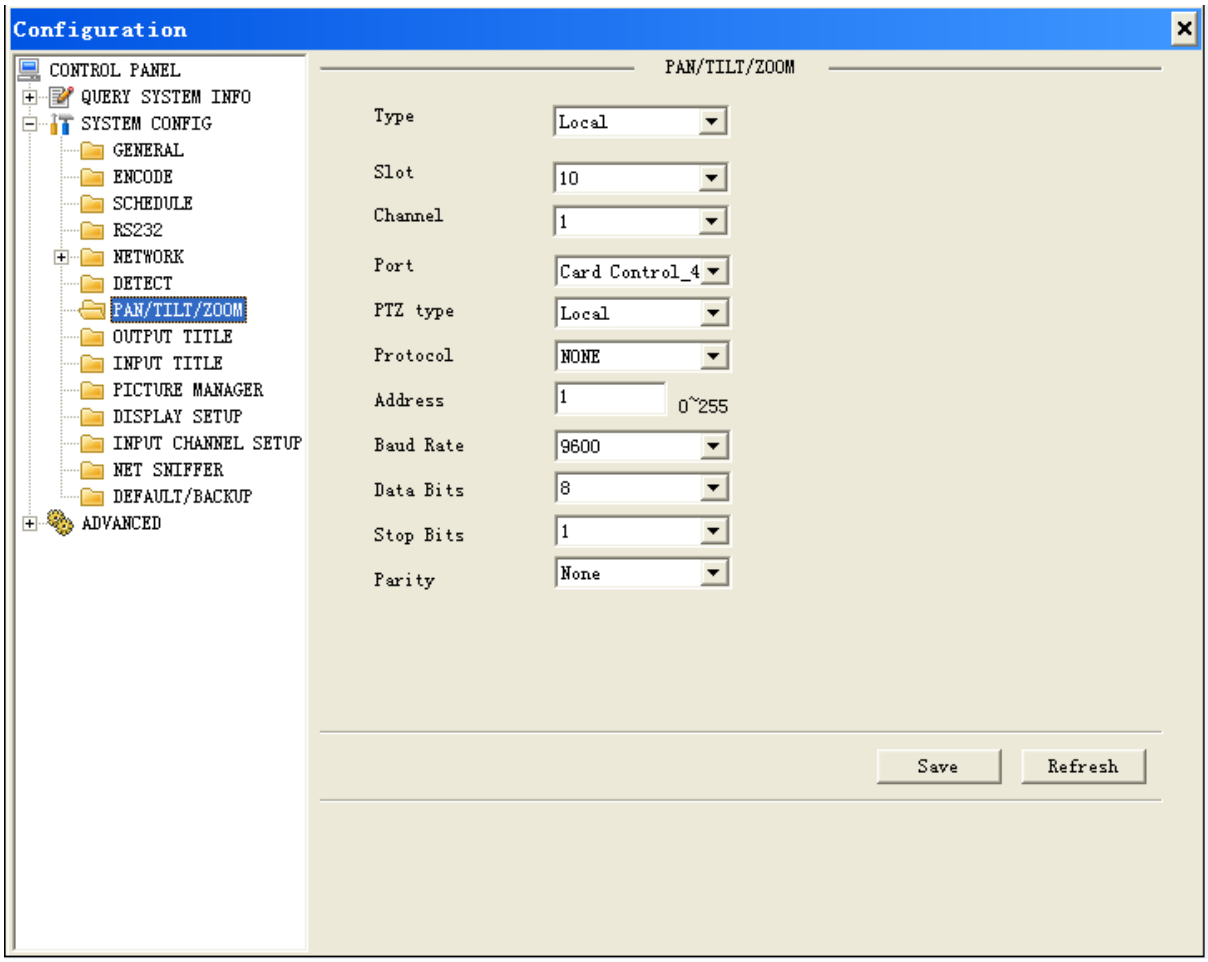


Figure 4- 41

Slot and channel: Select channel for speed dome input.
Port: Select port to control signal output.
PTZ type: Select either local or other PTZ.
Protocol: Select the corresponding dome protocol.(such as PELCOD)
Address: Set corresponding dome address. Default value is 1. Please note your setting here shall comply with your dome address; otherwise you cannot control the speed dome.
Baud Rate: Select corresponding dome baud rate for your speed dome. Default setting is 9600.
Data Bit: Default value is 8. Please set according to the speed dome dial switch setting.
Stop bit: Default value is 1. Please set according to the speed dome dial switch setting.
Parity: Default setting is none. Please set according to the speed dome dial switch setting.
When you completes all above settings, click save to return to monitoring interface.
When board card at corresponding slot is fiber encoding card, HDCVI encoding card, you may set countercharge front-end function. After above settings are finished, you can countercharge front-end via video line, like RS485 control.

4.5.2.17 **Video Output Title**

The interface can modify output channel name, control ID is no. of output channel. See Figure 4-42.

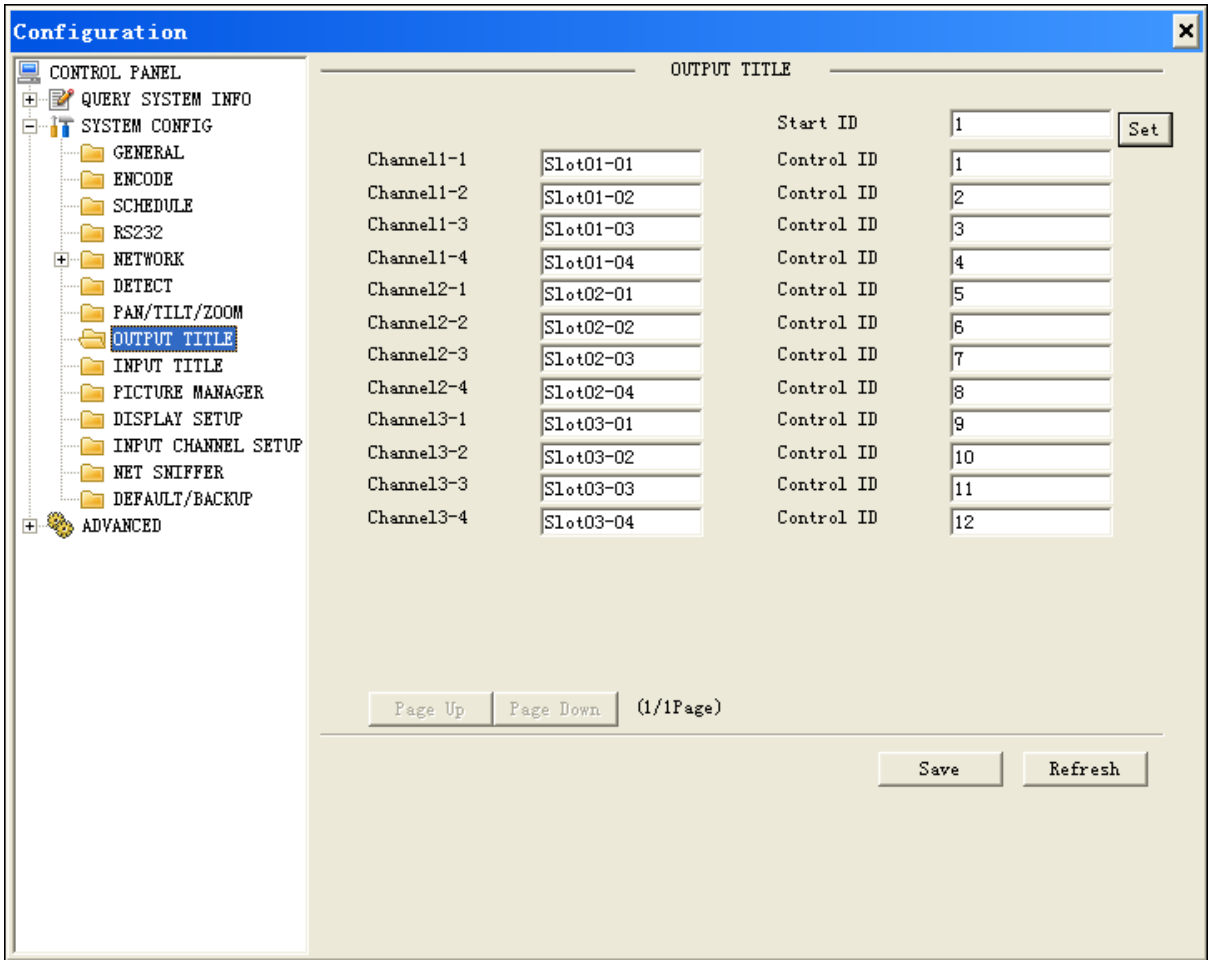


Figure 4- 42

4.5.2.18 **Input Title**

The interface may modify input channel name, name of remote device cannot be modifies by default. Control ID is no. of input channel. See Figure 4- 43.

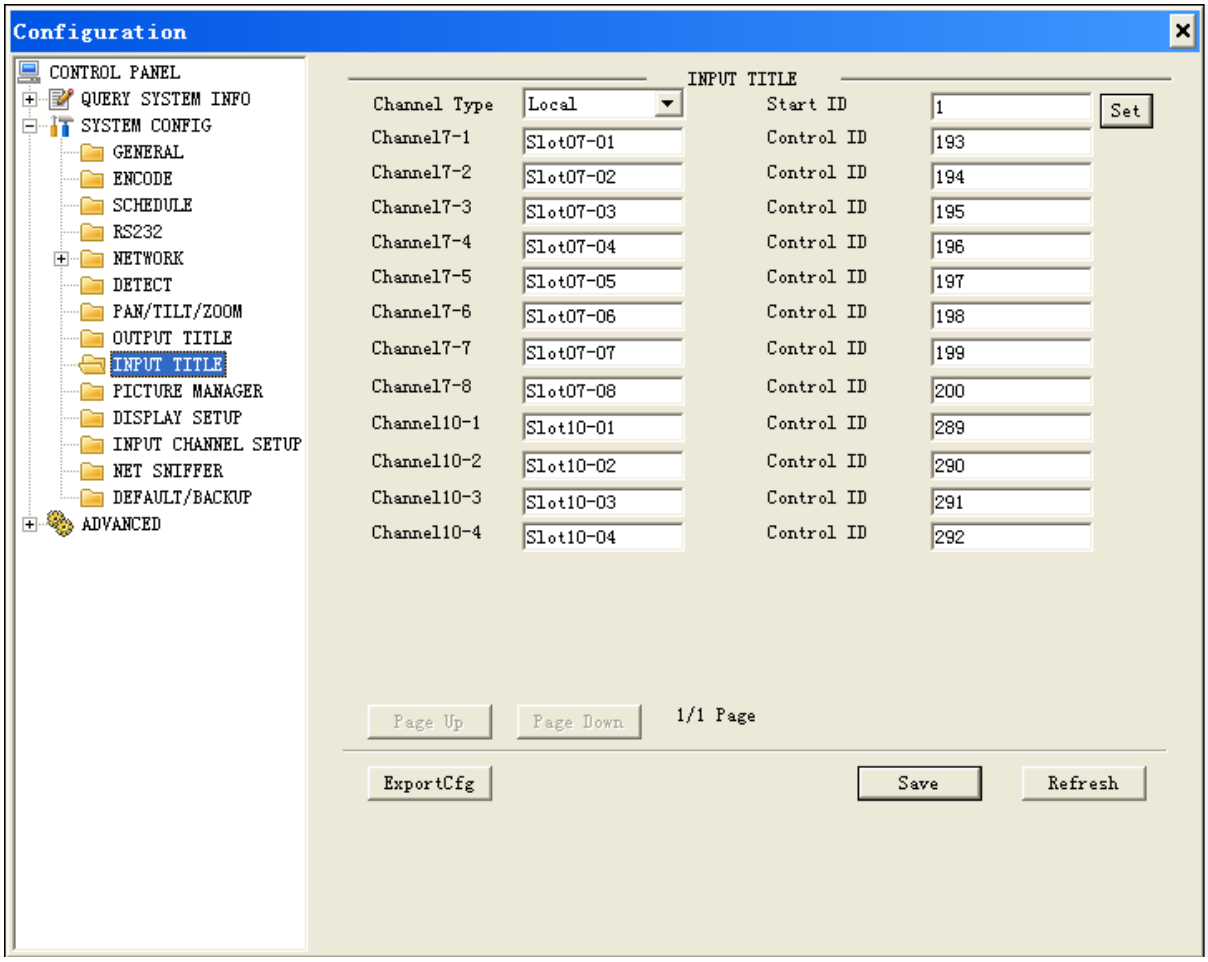

Configuration
CONTROL PANEL
QUERY SYSTEM INFO
SYSTEM CONFIG
GENERAL
ENCODE
SCHEDULE
RS232
NETWORK
DETECT
PAN/TILT/ZOOM
OUTPUT TITLE
INPUT TITLE
PICTURE MANAGER
DISPLAY SETUP
INPUT CHANNEL SETUP
NET SNIFFER
DEFAULT/BACKUP
ADVANCED
INPUT TITLE
Channel Type
Local
Start ID
1
Set
Channel7-1
Slot07-01
Control ID
193
Channel7-2
Slot07-02
Control ID
194
Channel7-3
Slot07-03
Control ID
195
Channel7-4
Slot07-04
Control ID
196
Channel7-5
Slot07-05
Control ID
197
Channel7-6
Slot07-06
Control ID
198
Channel7-7
Slot07-07
Control ID
199
Channel7-8
Slot07-08
Control ID
200
Channel10-1
Slot10-01
Control ID
289
Channel10-2
Slot10-02
Control ID
290
Channel10-3
Slot10-03
Control ID
291
Channel10-4
Slot10-04
Control ID
292
Page Up
Page Down
1/1 Page
ExportCfg
Save
Refresh

Figure 4- 43

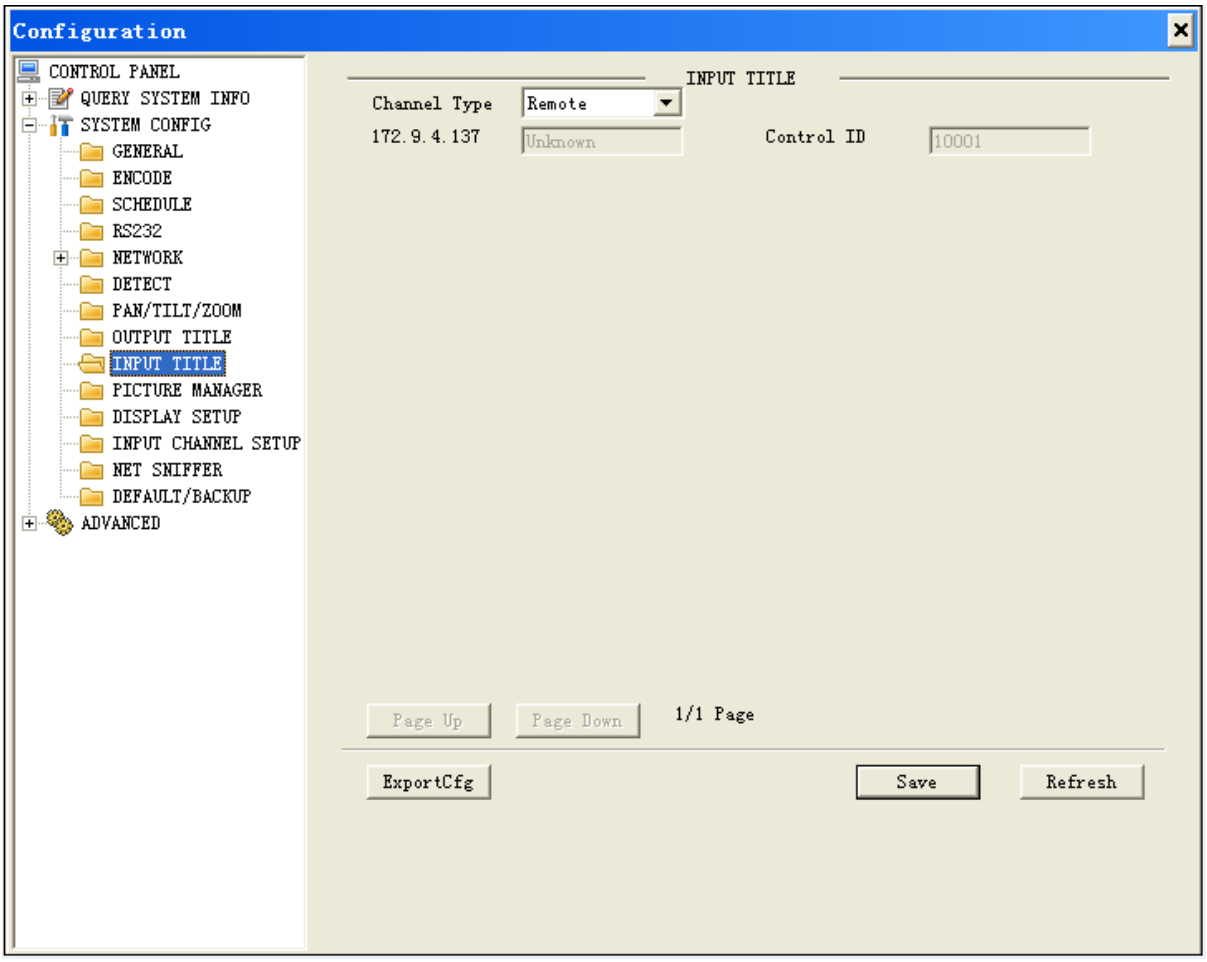


Figure 4- 44

4.5.2.19 **Picture Manager**

User can upload picture to the platform. Uploaded picture can be set as background of the platform. Picture size cannot exceed 8M with resolution of 4096*4096 and lower in JPG format. See Figure 4- 45.

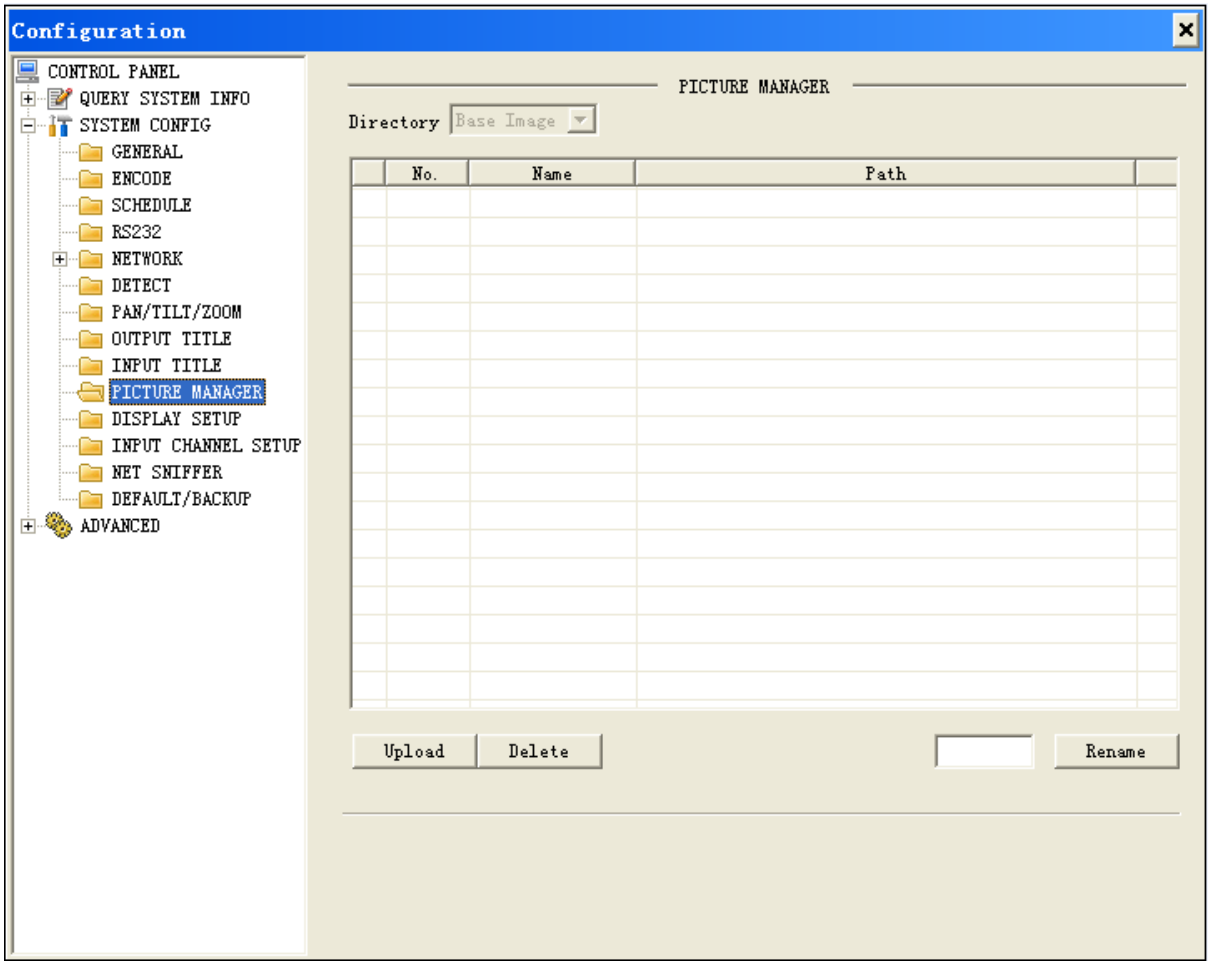


Figure 4- 45

4.5.2.20 **Display Setup**

You can set corresponding slot-channel output, including resolution, display, HUE, brightness, contrast, left/right/top/bottom margin adjustment. Display includes hot swap and force. In global config, enable Keep last frame to show the last frame when there is no stream. If you do not enable this function, the screen will be dark, and show prompt as “video requesting…”. Use RTSP to connect platform, use pull mode of this protocol. If you enable RTSP, then it will uses RTSP protocol to exchange. Net TV push stream is push mode, it is disabled by default. Push mode: At device-end, each TV open one port, and Client connects to this port, send data over. Push stream is simpler compare to others.

See Figure 4- 46.

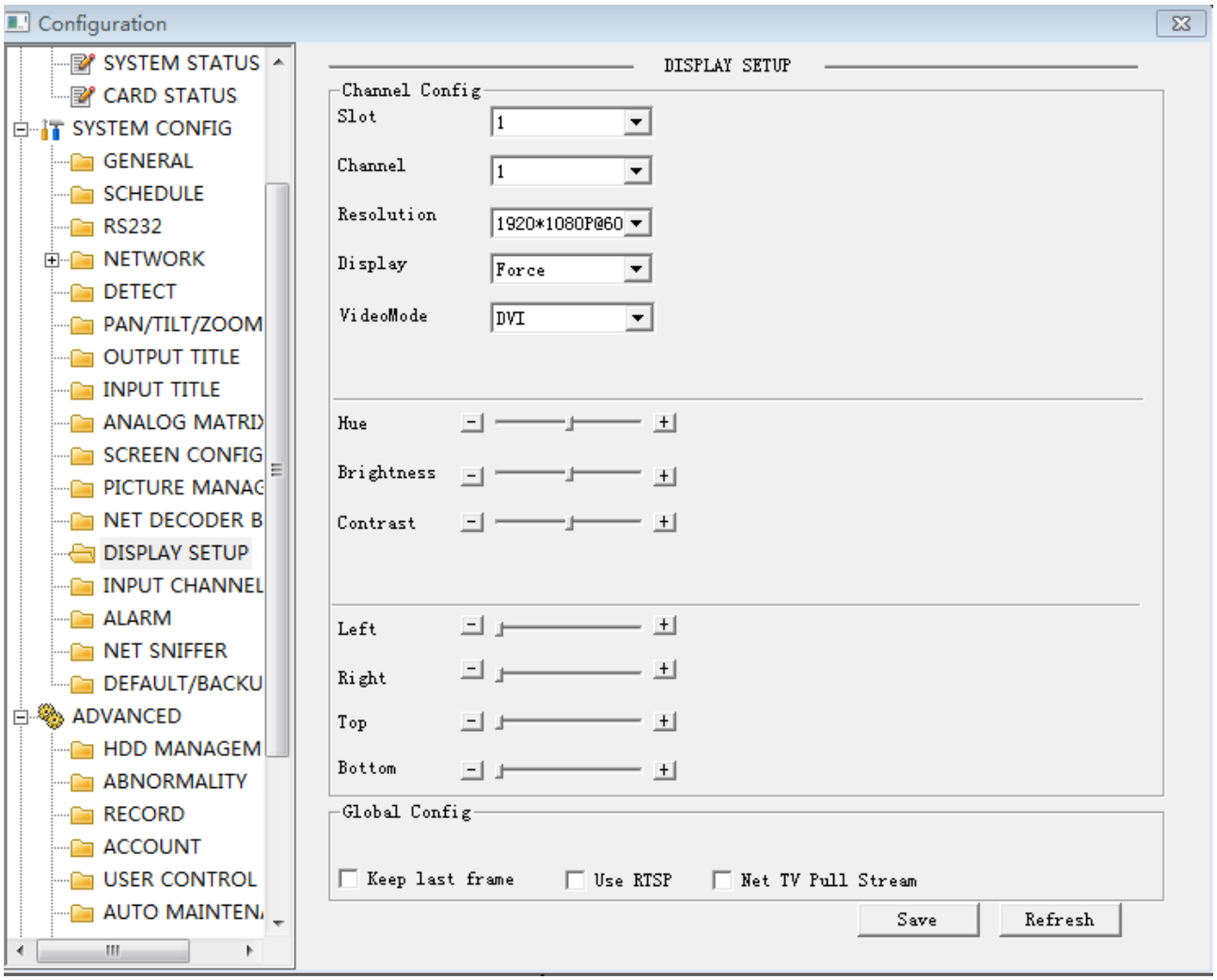


Figure 4- 46

4.5.2.21 **Input Channel Setup**

It adjusts DVI, VGA signal inputs. When input signal resolution is special resolution which causes input signal to be incomplete, you can adjust to make input signal complete. See Figure 4- 47.

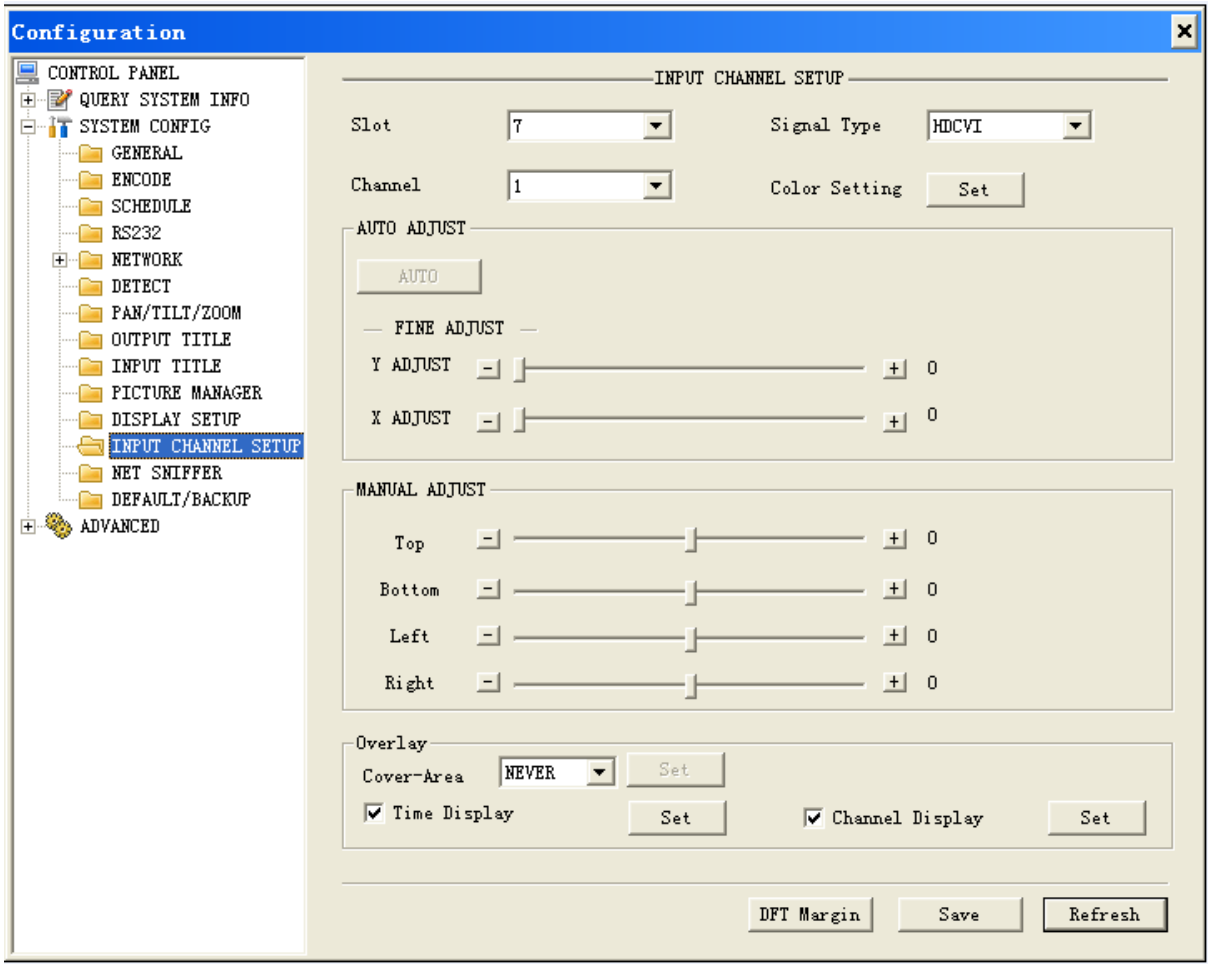


Figure 4- 47

Color Setting: It adjusts brightness, contrast, saturation, HUE, gain and phase of output image. See Figure 4- 48.

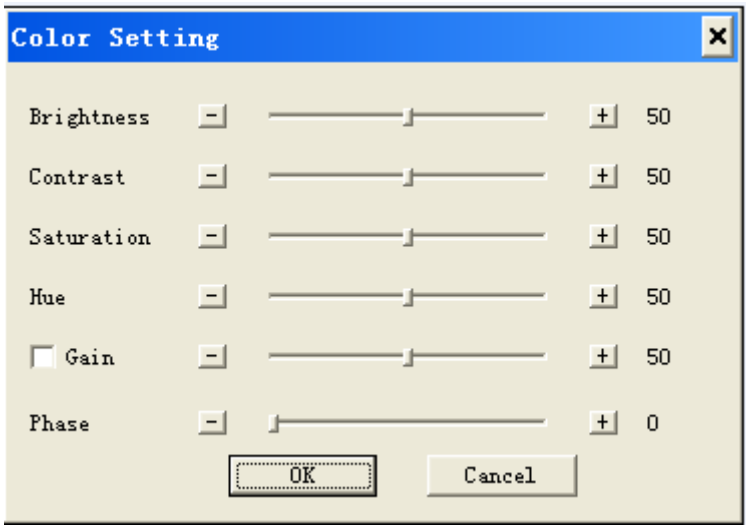


Figure 4- 48

Cover-Area: Select monitor option, and click the setup button to enter corresponding channel image. User can select area to be covered via mouse. One channel supports a max of 4 covered blocks. Select one covered block, click delete or right click to delete it. Single click to delete all covered blocks. When you finish setup, click Save.
There are four types of covers:
Never: Never cover block.
Preview: Set preview mode, no one can preview covered area.
Monitor: Set monitor mode, no one can monitor covered area.
All:" Set preview and monitor modes, no one can preview or monitor covered area. See Figure 4-49.

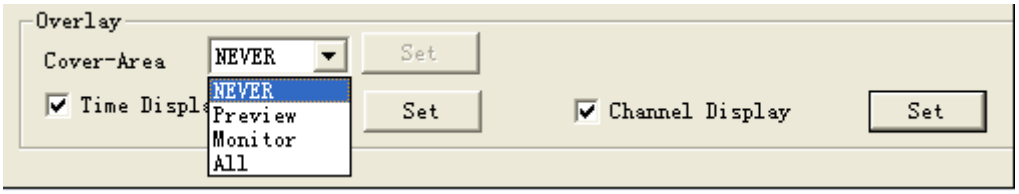


Figure 4- 49

Time title and channel title: Click setup button. Drag time title or channel title to designated position and save it. Title and channel info are shown in WEB live preview interface, local preview and record file playback interface. See Figure 4- 50 and Figure 4- 51.

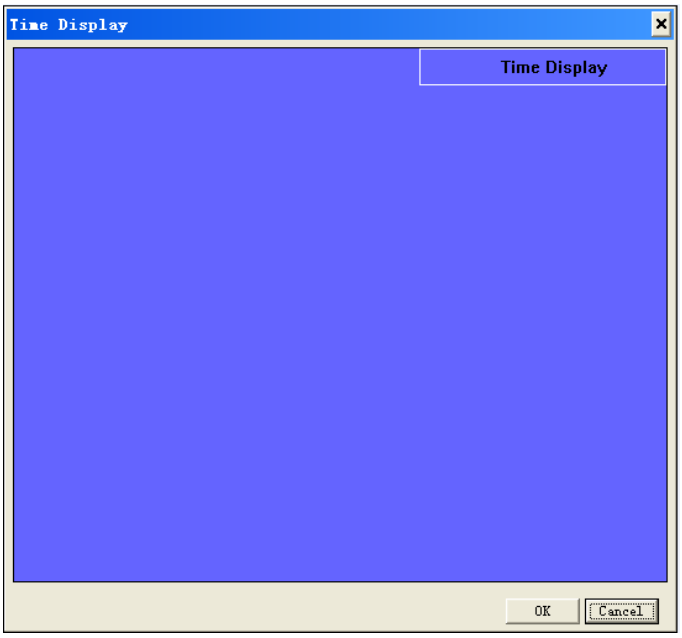


Figure 4- 50

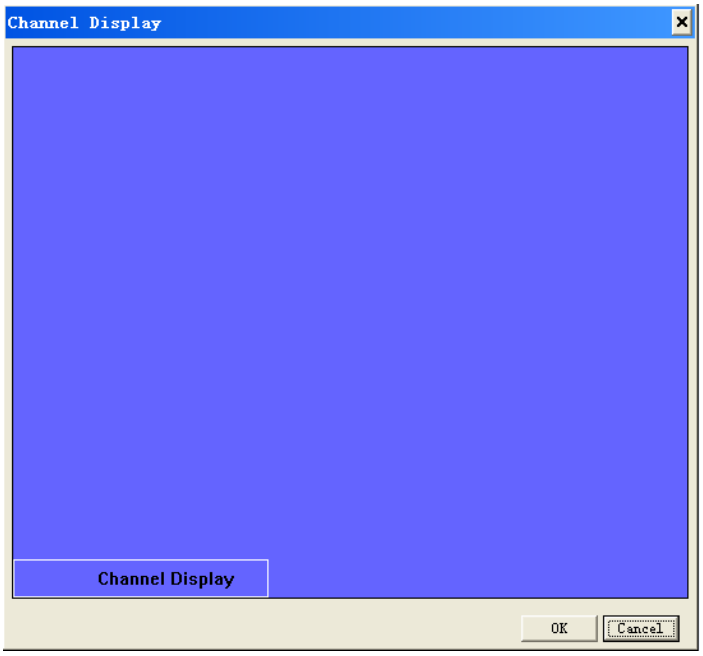


Figure 4- 51

4.5.2.22 **NET Sniffer**

When network error occurs, such as disconnection, video frame is not fluent and etc., you can sniff network data on device. It sniff via IP, port and protocol type. Sniffer data can be saved to video matrix platform locally or USB. You can find problem with the sniffer data. See Figure 4- 52.

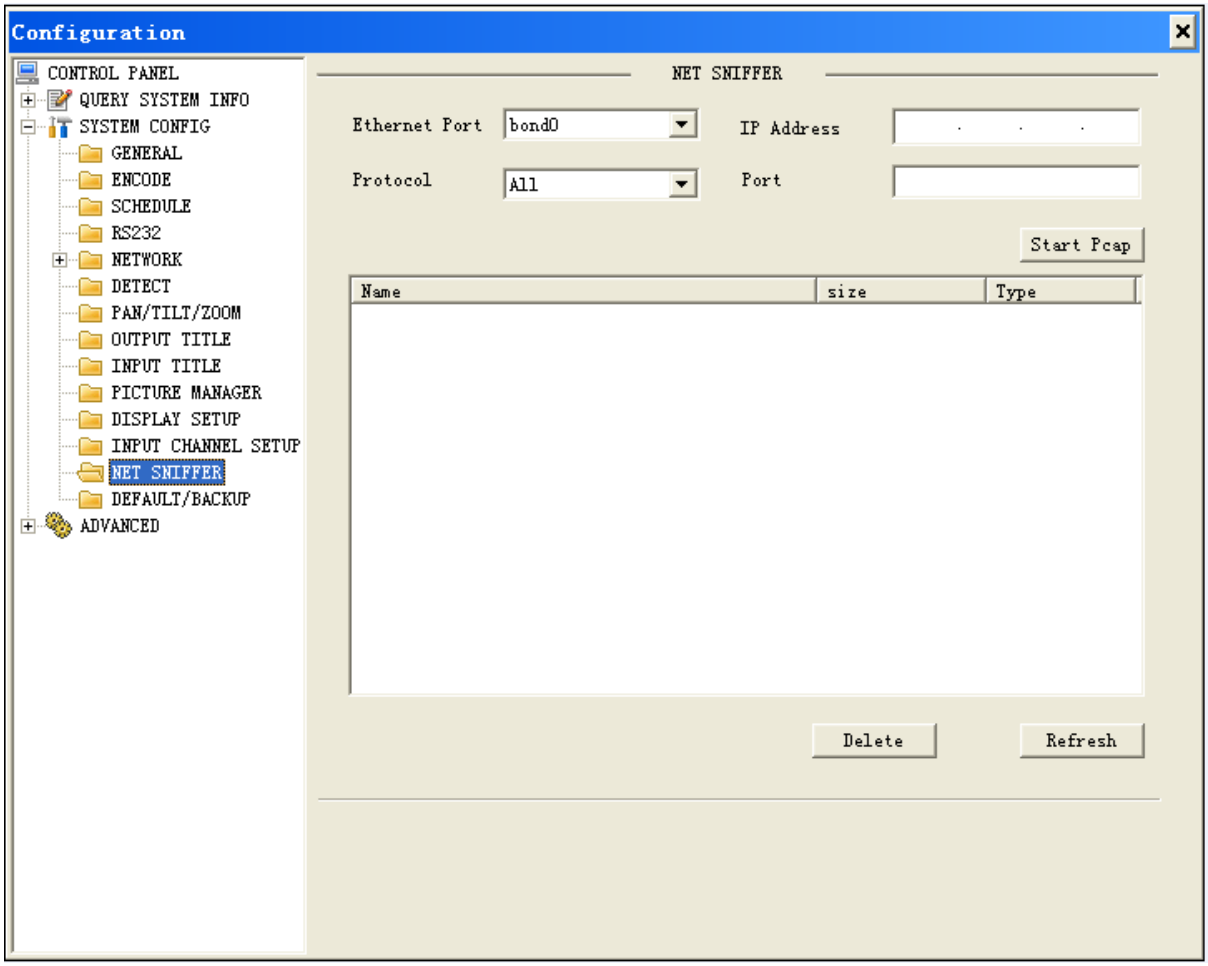


Figure 4- 52

4.5.2.23 **Default/Backup**

There are general, schedule, network, detect, display, encode, RS232, alarm, PTZ, and channel name as setup and output. You can select them separately or all. (You cannot select alarm.) See Figure 4-49.

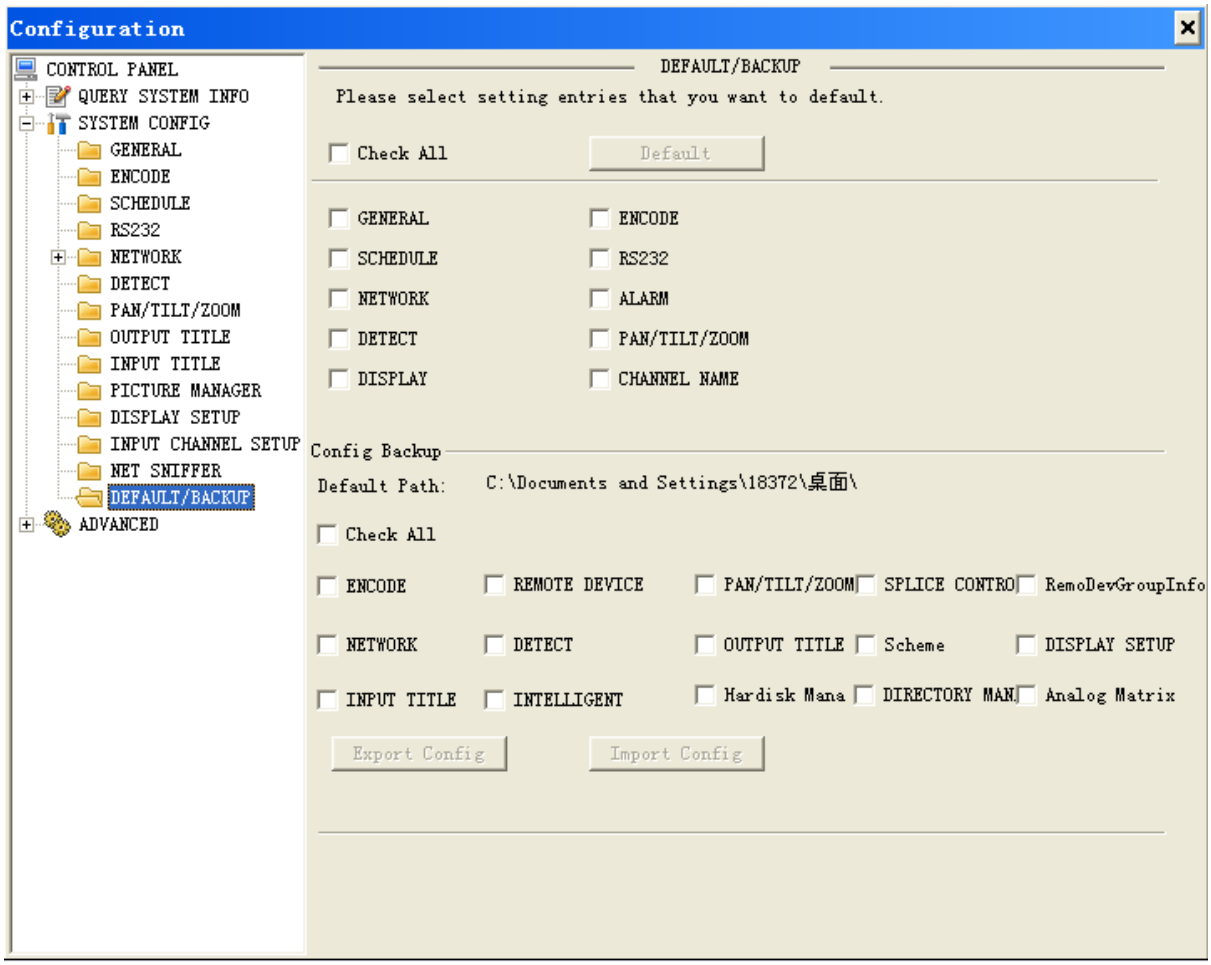


Figure 4- 53

There are encode, remote device, PTZ, matrix control, group info, network, detect, output title, scheme, display setup, input title and intelligent. You can select multiple items.

- Export config: Click export config and select backup path to export all config on web.
- Import config: Click import config and select backup path to import backed up configuration.

4.5.3 Advanced

4.5.3.1 HDD Management

Please select the storage device first and then you can see the items on your right become valid. Select one processing mode: format, read/write, or read only. And click control storage device. Please see Figure 4- 54.

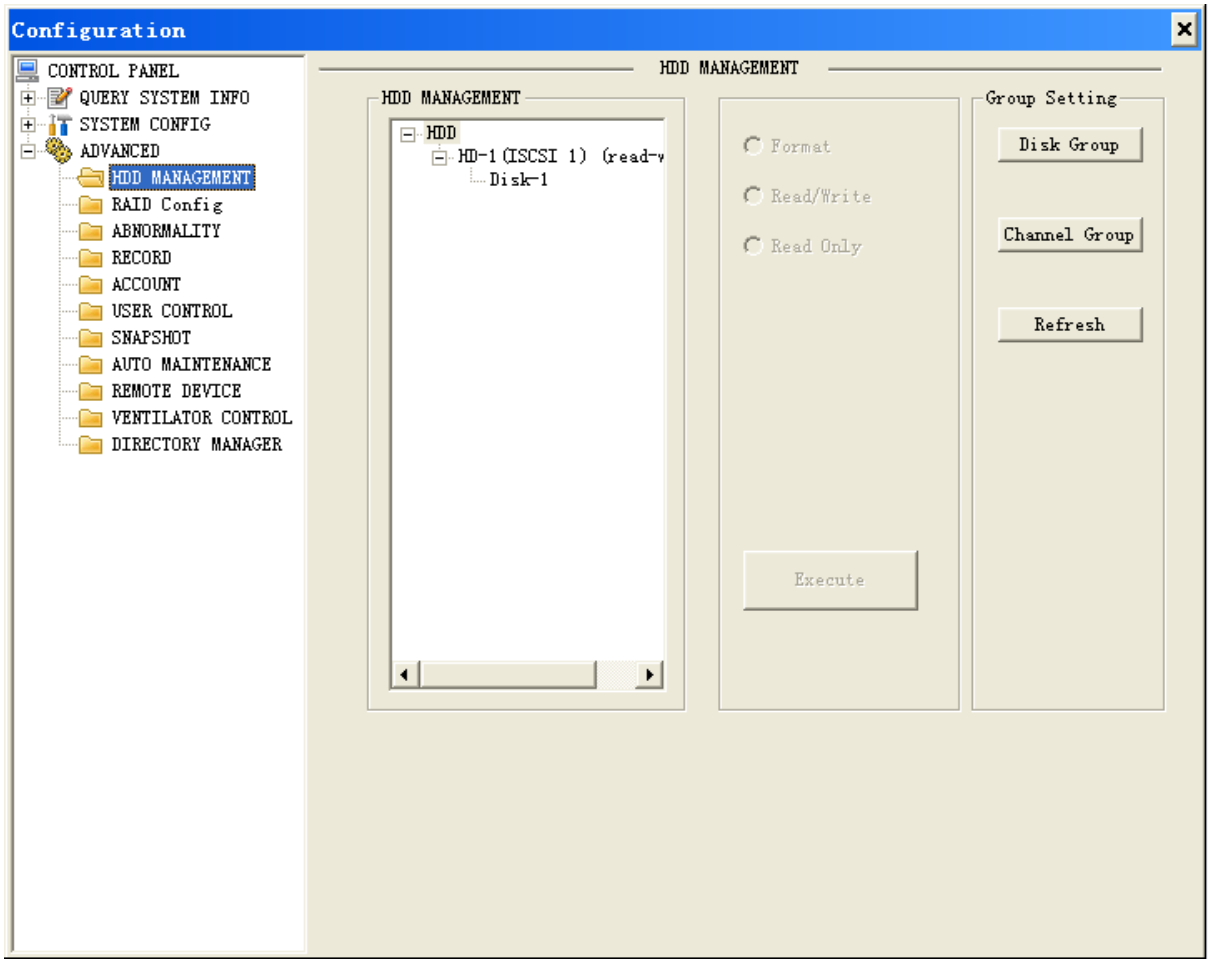


Figure 4- 54

Group setting is as follows; please see Figure 4- 55 and Figure 4- 56.

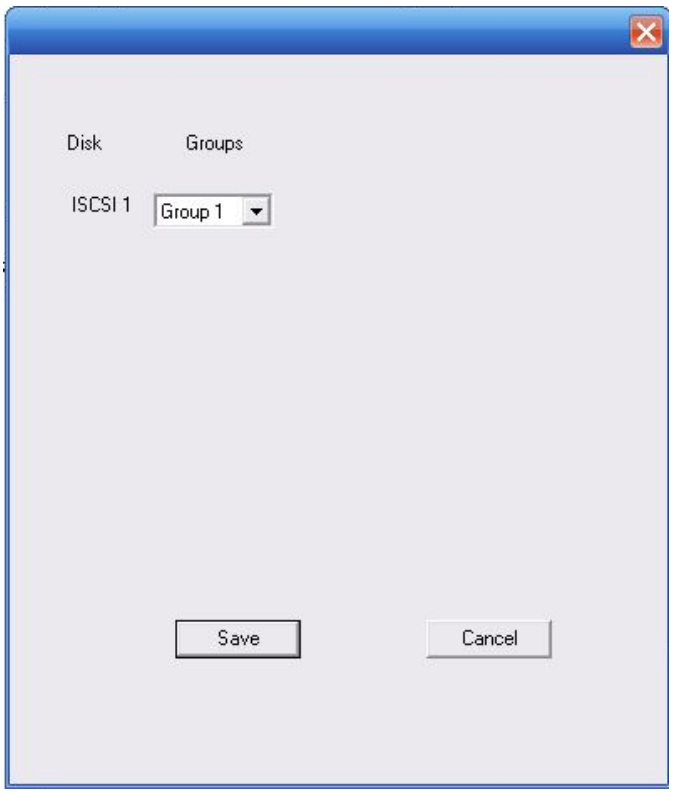


Figure 4- 55

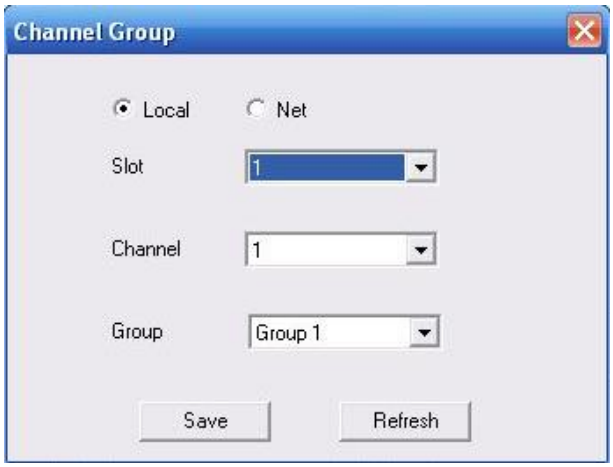


Figure 4- 56

4.5.3.2 **Raid Config**

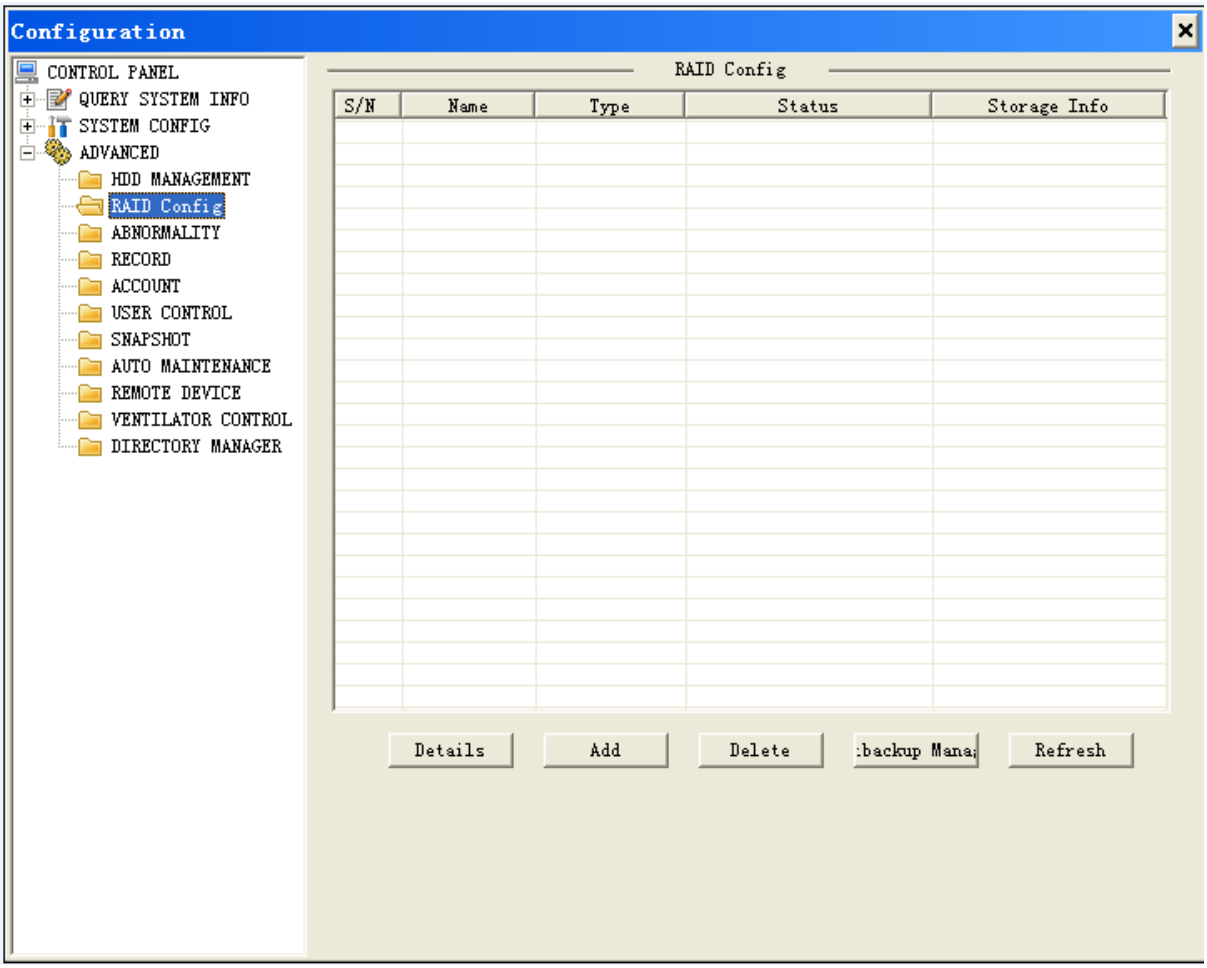


Figure 4- 57

Click Add to add Raid, and select corresponding level.

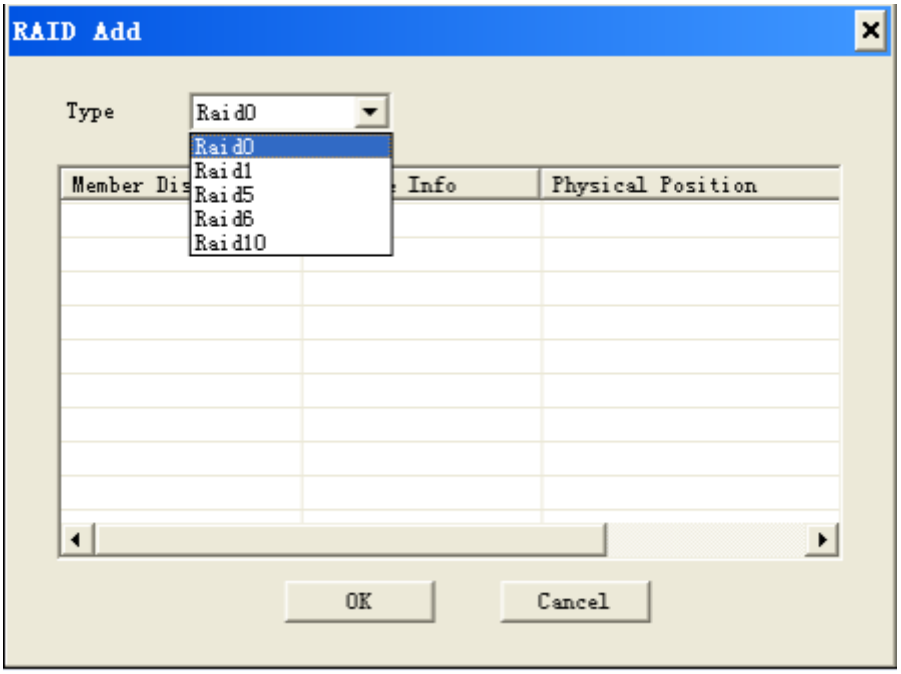


Figure 4- 58

Click hot spare management to set Raid hot spare disk which improves security.

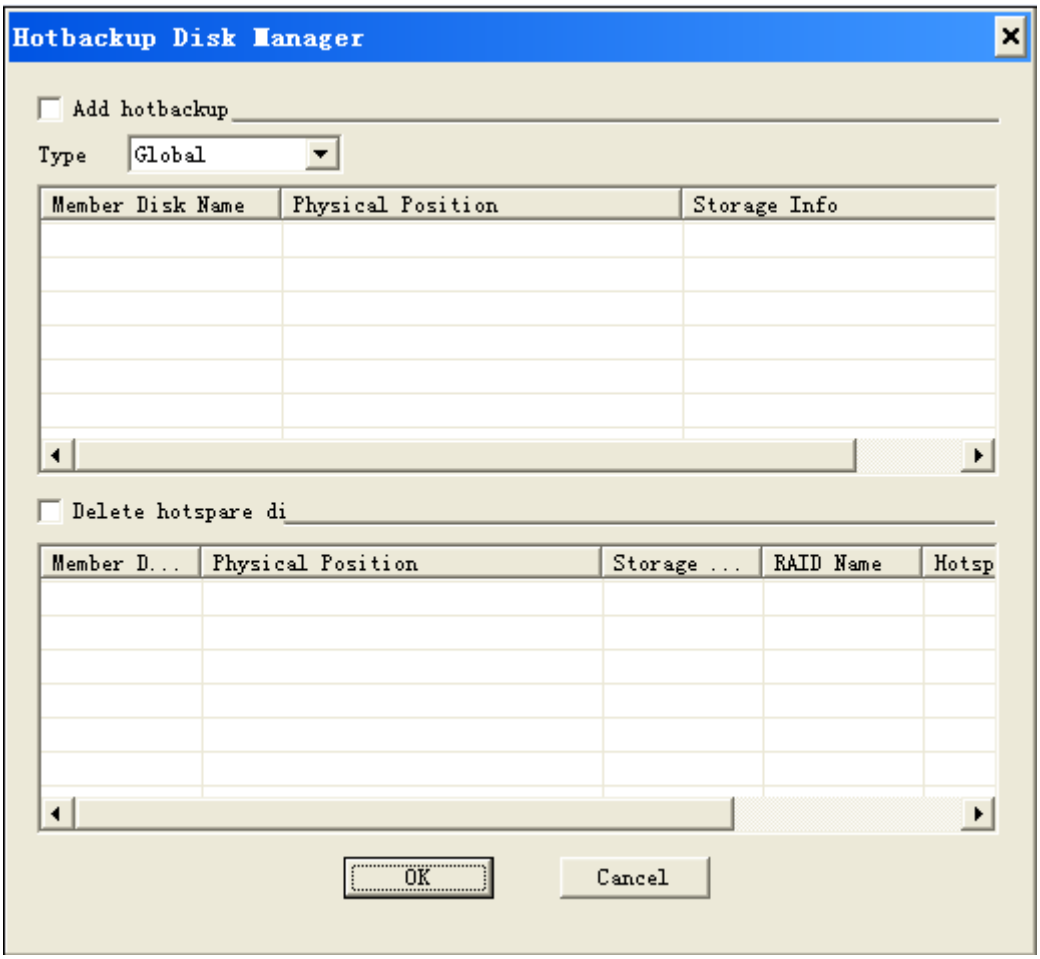


Figure 4- 59

4.5.3.3 **Abnormality**

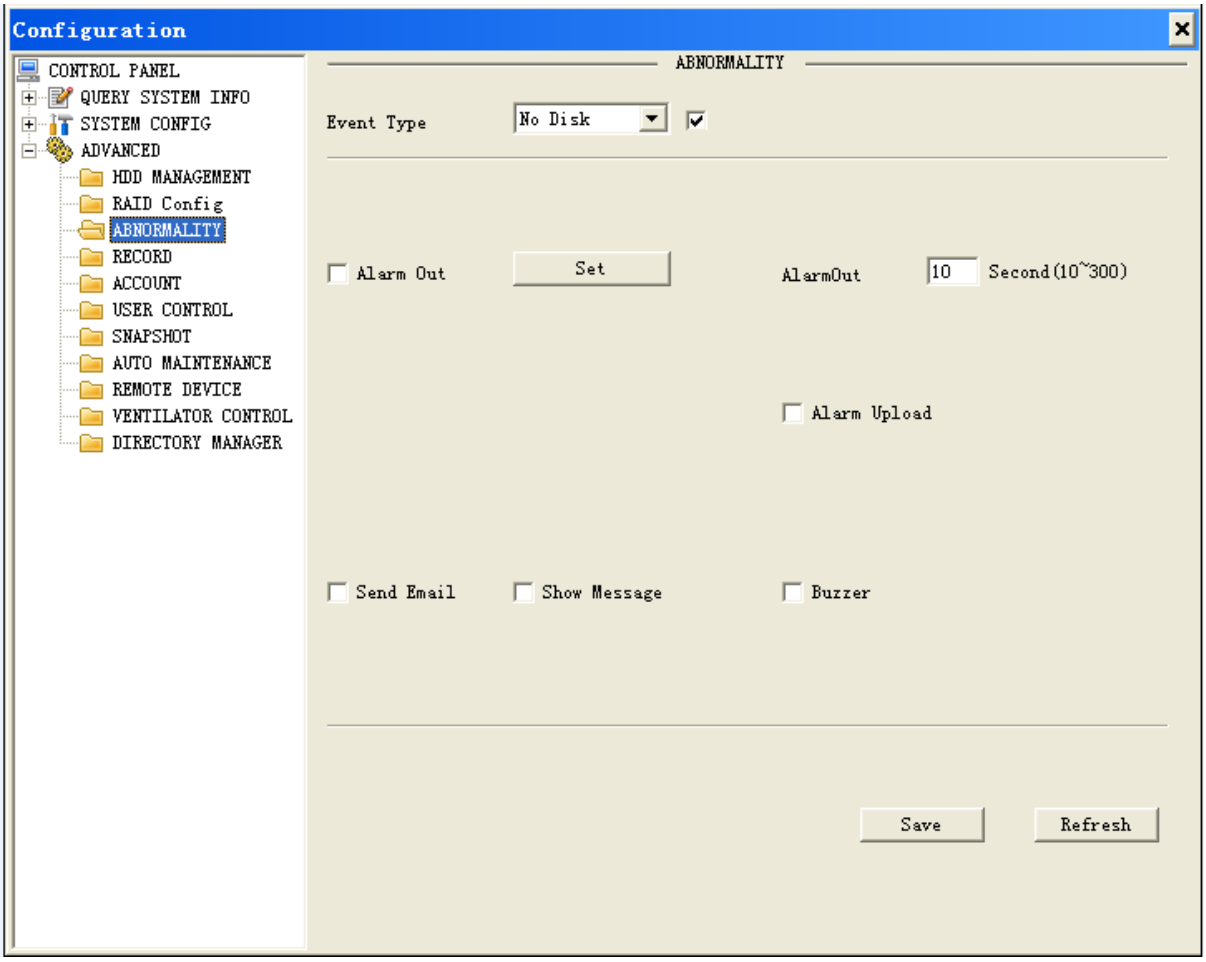


Figure 4- 60

Please see Figure 4- 60.

Event type: The abnormal events includes: no disk, disk error, capacity warning, net error, IP conflict and MAC conflict. You can set linkage among these events.

Enable: Check enable box.

Alarm out: You can set event alarm out channel to alarm.

Alarm out delay: After alarm out event ends, alarm delays within 10 to 300s.

Alarm upload: System can upload the alarm signal to the network (includes the alarm centre.)

Email: If you enable this function, system can send out email to alarm the specified user.

Show message: Show alarm message on local screen.

Buzzer: Check it to enable, device will buzzer when alarm occurs.

4.5.3.4 **Record**

Record has main stream and sub stream available to select. Here you can set mode in auto, manual and stop for each channel. Please see Figure 4- 61.

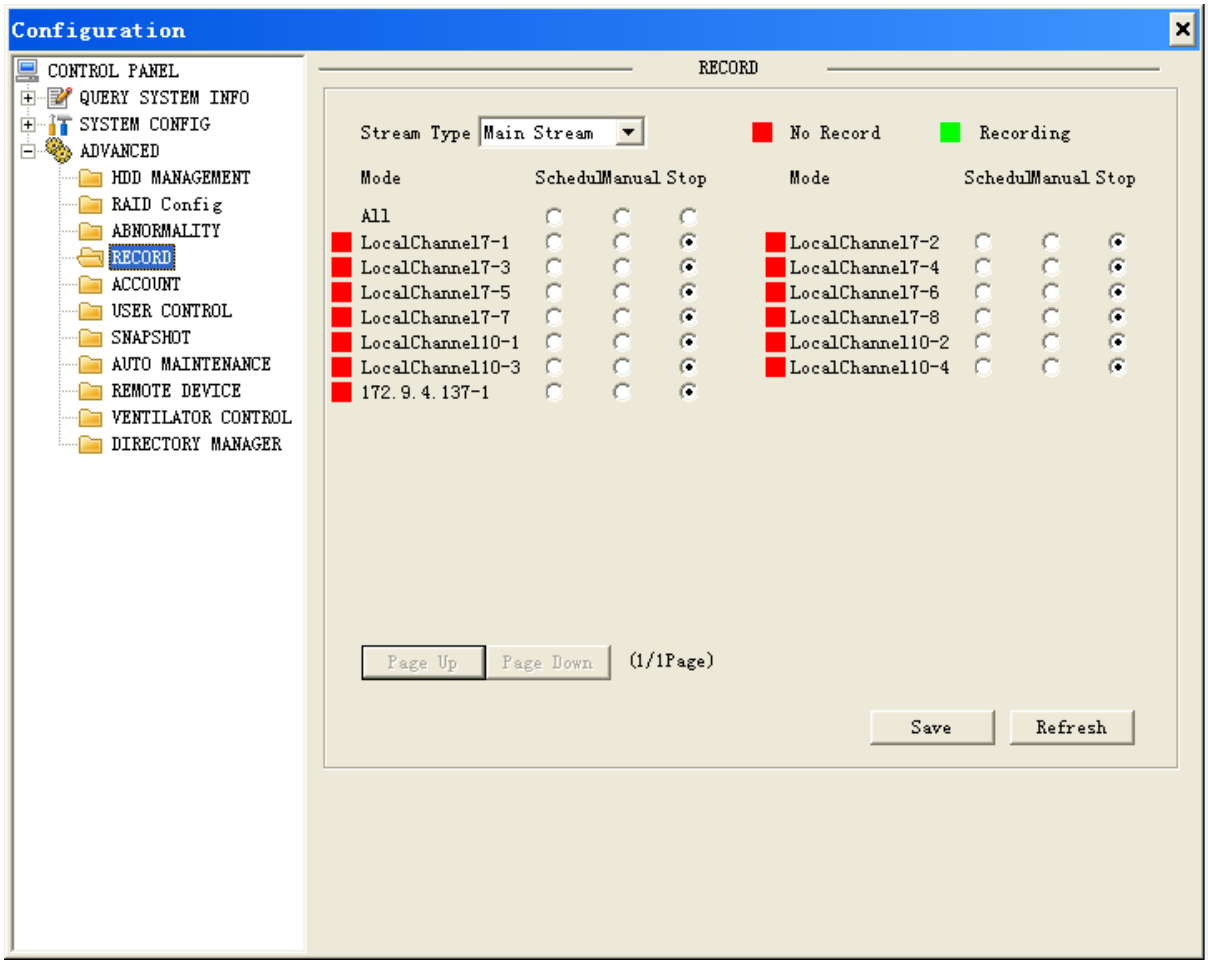


Figure 4- 61

Auto: System enables auto record function as you set in record schedule setting.
Manual: Enable corresponding channel to record no matter what period applied in the record setting.
Stop: Stop current channel record no matter what period applied in the record setting.

4.5.3.5 **Account**

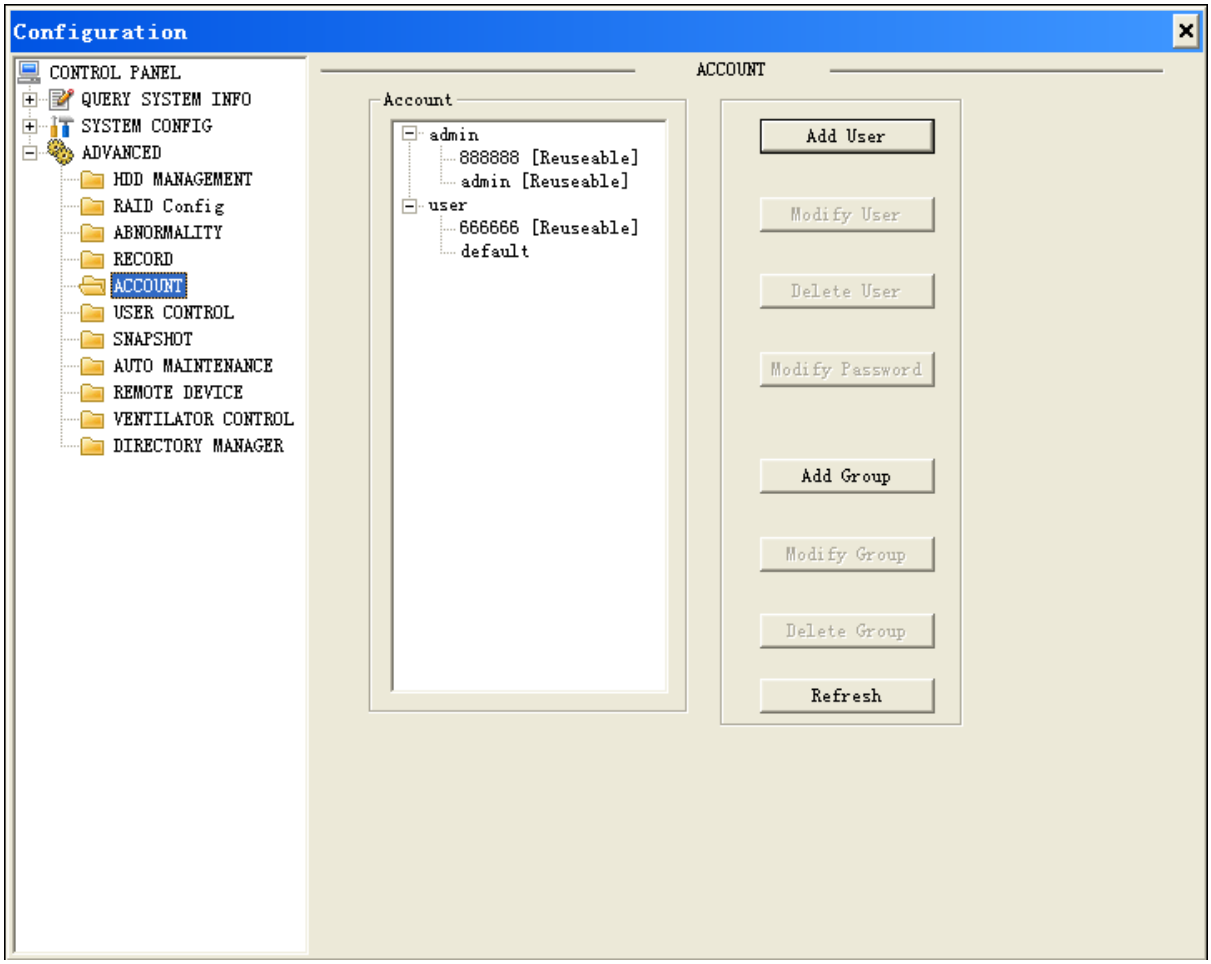


Figure 4- 62

Please see Figure 4-59.

1) Group

Add group

1. The initial interface is as in Figure 4- 62. Upper level is group which can be extended into user list by clicking on +.

2. Click add group button as in Figure 4- 63. Input group name and select authority group from list. Click save button if you want to save setting, otherwise click cancel.

Delete group

Click delete group button, and the confirmation box will appear.

Modify group

Click modify group button. and it displays corresponding information in modification box.

⚠ **Note: You cannot delete group which contains users.**

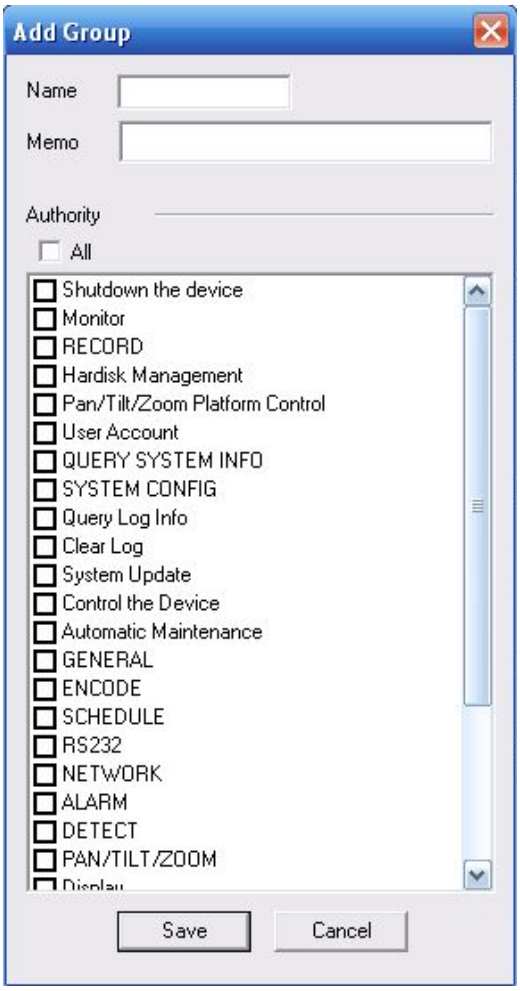

Add Group
Name
Memo
Authority
All
Shutdown the device
Monitor
RECORD
Hardisk Management
Pan/Tilt/Zoom Platform Control
User Account
QUERY SYSTEM INFO
SYSTEM CONFIG
Query Log Info
Clear Log
System Update
Control the Device
Automatic Maintenance
GENERAL
ENCODE
SCHEDULE
RS232
NETWORK
ALARM
DETECT
PAN/TILT/ZOOM
Save
Cancel

Figure 4- 63

Figure 4- 64

2) User Operation

Add user

1. Click add user button, and you will see interface as in Figure 4- 64. Input new username, password and its confirmation in the window, and then select authority for this user.
2. In authority list, set authority and group for this user.

Modify user

You can modify user here which is similar to add user except information of the user will be inputted automatically.

Delete user

Click delete user button, you will see a window as in Figure 4- 65. Click OK to delete user.

Figure 4- 65

3) Modify password

Select one user, and click modify password button, then you will see the following interface as in Figure 4- 66. Input current password, new password and its confirmation. Click save when you are done.

Figure 4- 66

4.5.3.6 User Control

User control allows user to disconnect current online user or shield some user within a certain period of time. Click Refresh to see the most current user online status.

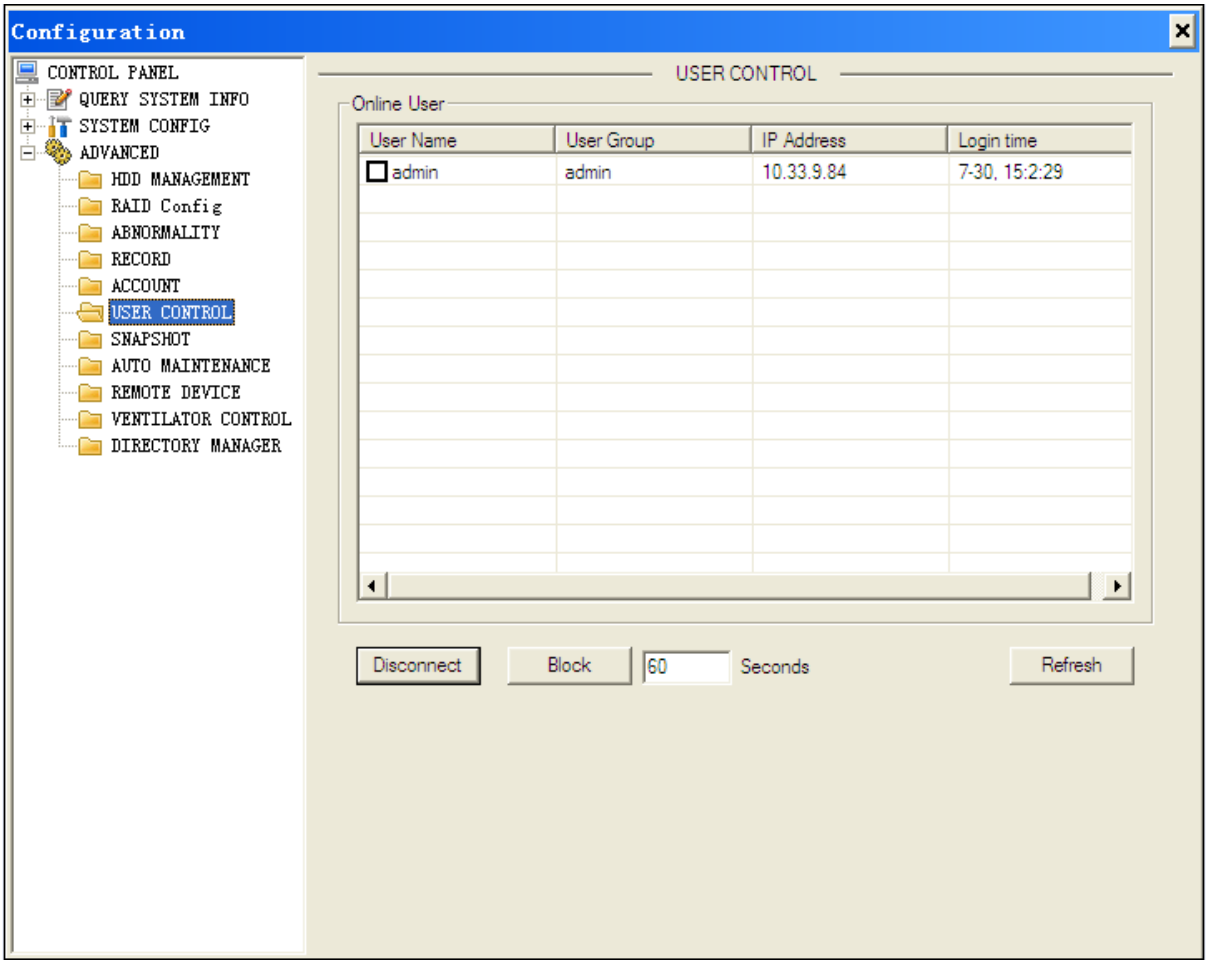


Figure 4- 67

4.5.3.7 **Snapshot**

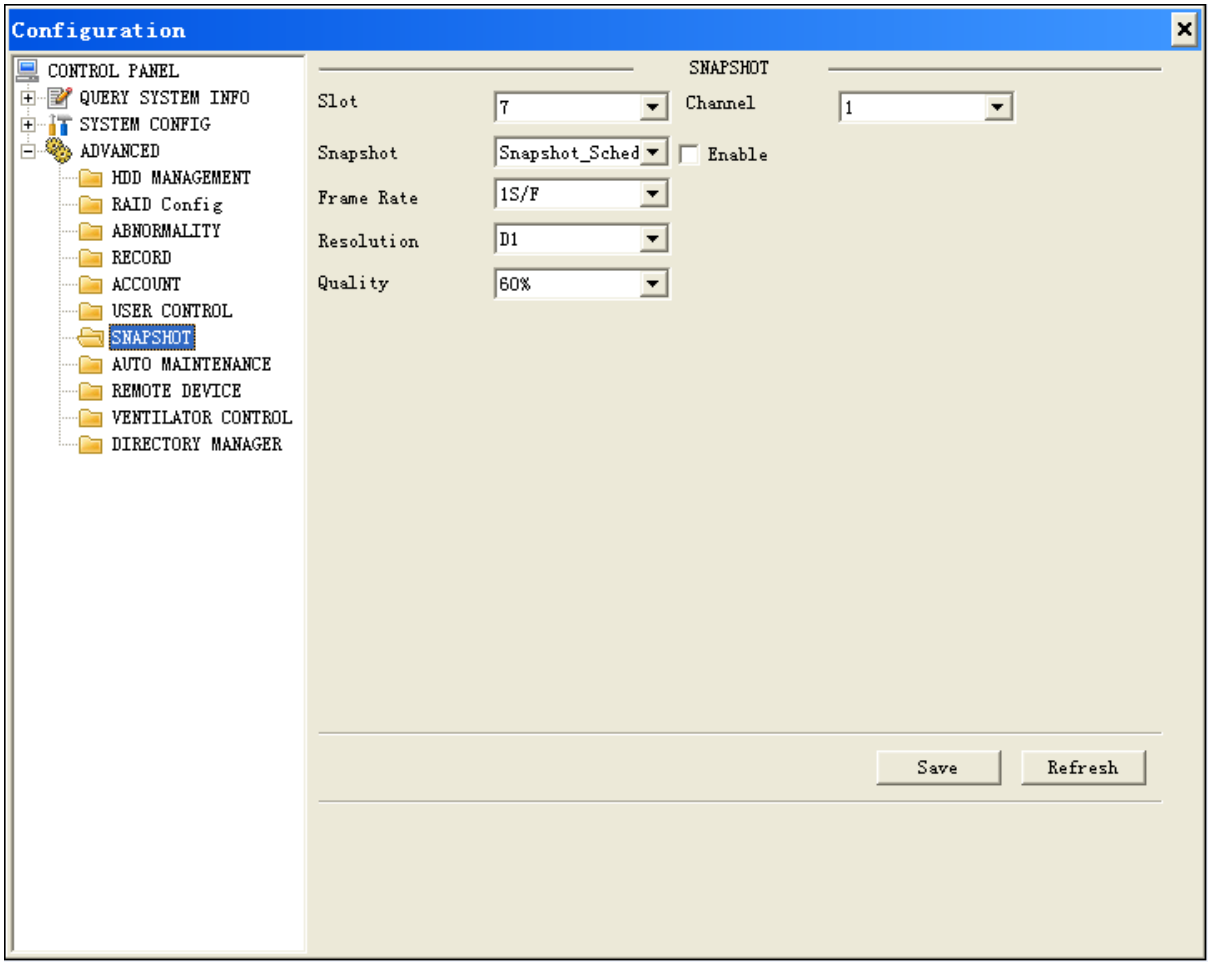


Figure 4- 68

Please see Figure 4-64.

Slot: Select slot to snapshot.

Snapshot mode: Select scheduled snapshot or trigger snapshot. You must check the box behind to enable scheduled snapshot.

Frame rate: Set snapshot frame rate, support 1~7s/pic.

Resolution: Channel support 1080P/720P/D1/HD1/BCIF/CIF/QCIF.

Quality: There are six levels of quality: 10％, 30％, 50％, 60％, 80％, 100％. 100% is the highest.

4.5.3.8 **Auto Maintenance**

Here you can select automatically reboot system and automatically delete old files while reboot system requires setting for time and interval from the dropdown list. Click save when you are done.

Please see Figure 4- 69.

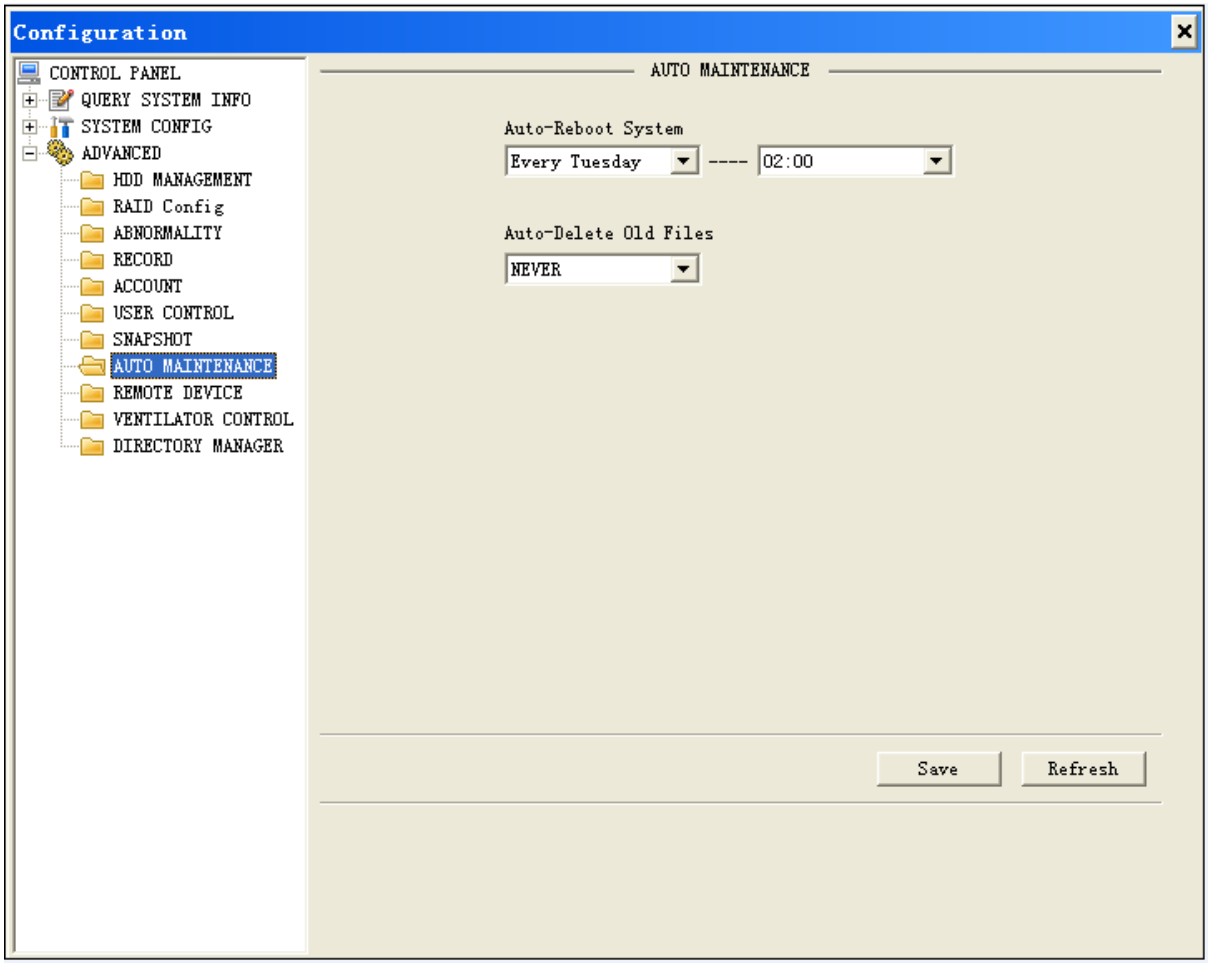


Figure 4- 69

4.5.3.9 **Remote Device**

Here you can add remote device via automatic search or manually adding. Please see Figure 4-70 and Figure 4- 71.

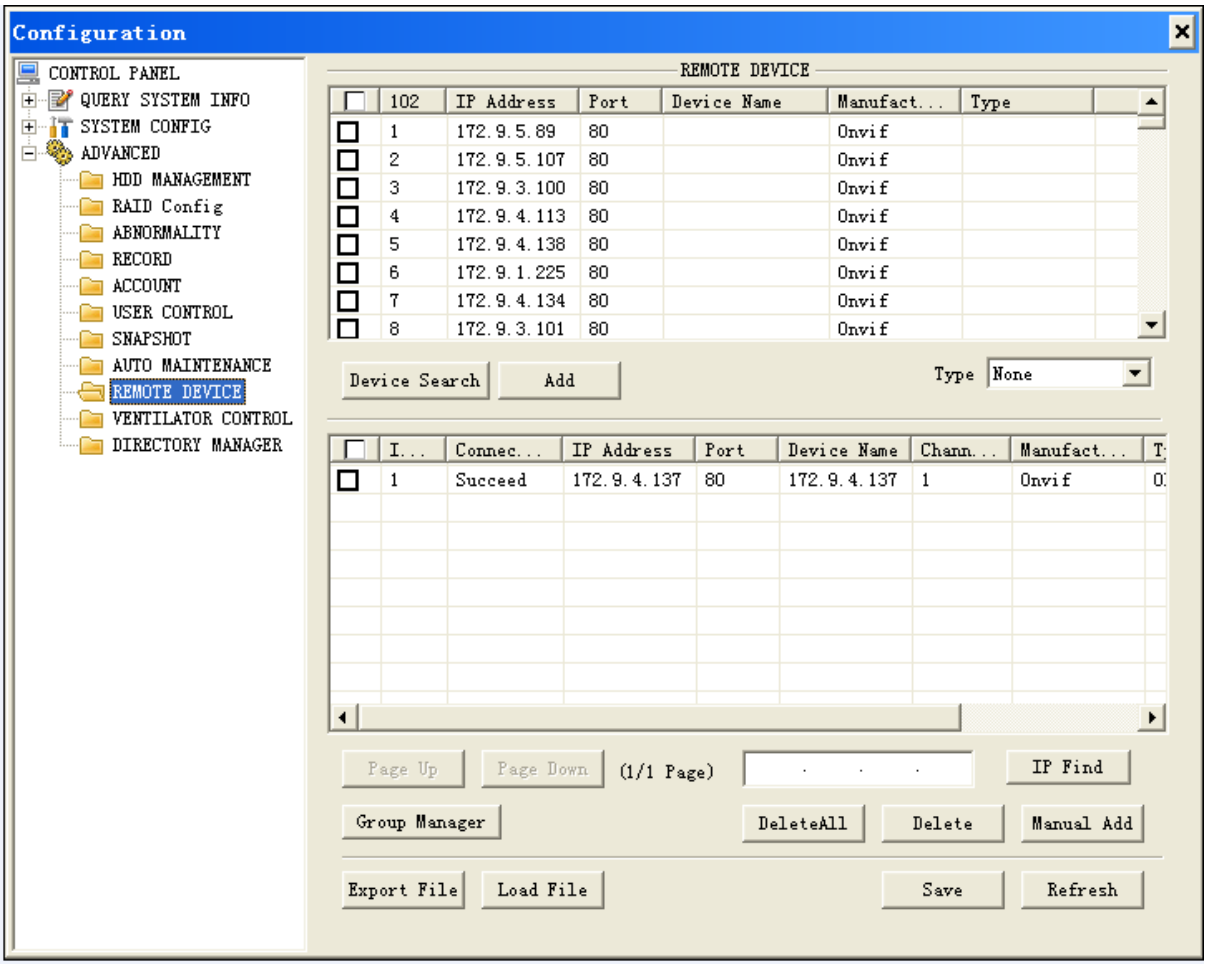


Figure 4- 70

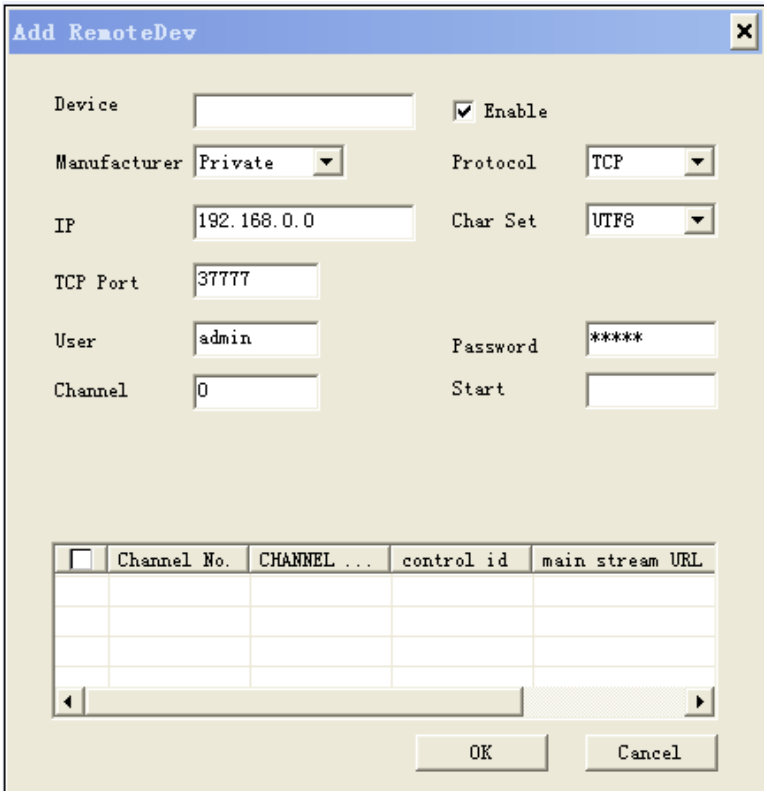


Figure 4- 71

By Group:

Step 1. Click Group Manager to see Figure 4- 72.

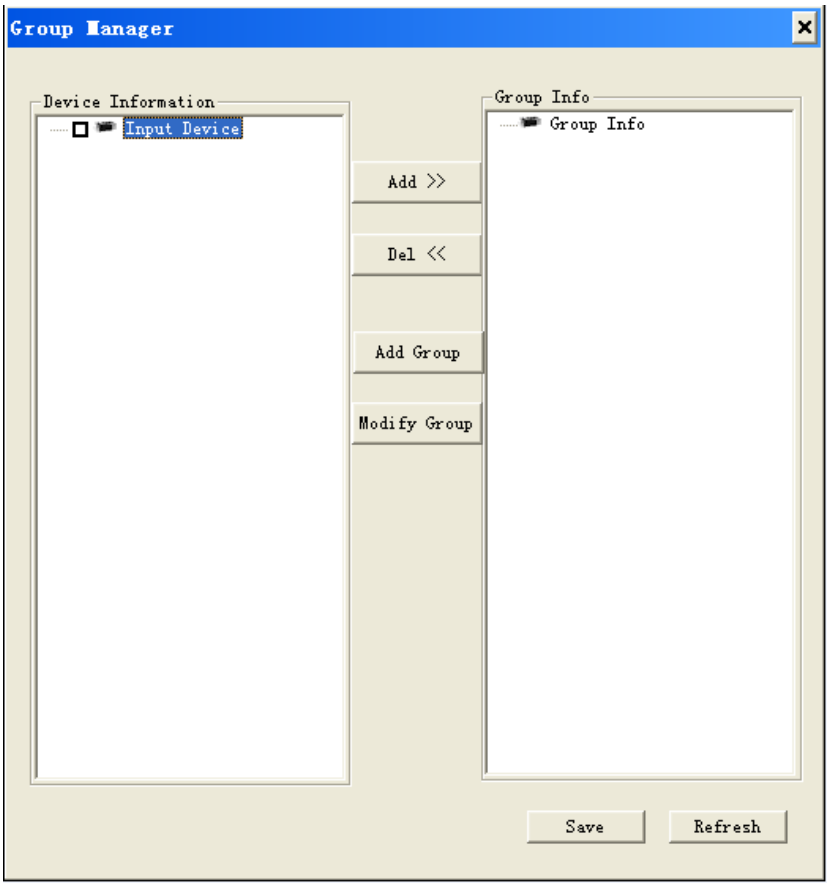


Figure 4- 72

Step 2. Select group, and click Add. See Figure 4- 73.

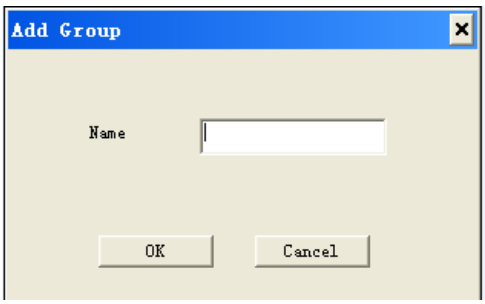


Figure 4- 73

Step 3. Enter name, click OK. See Figure 4- 74.

Figure 4- 74

Step 4. Check input device on the left to add into group 1 and check group 1. See Figure 4- 75.

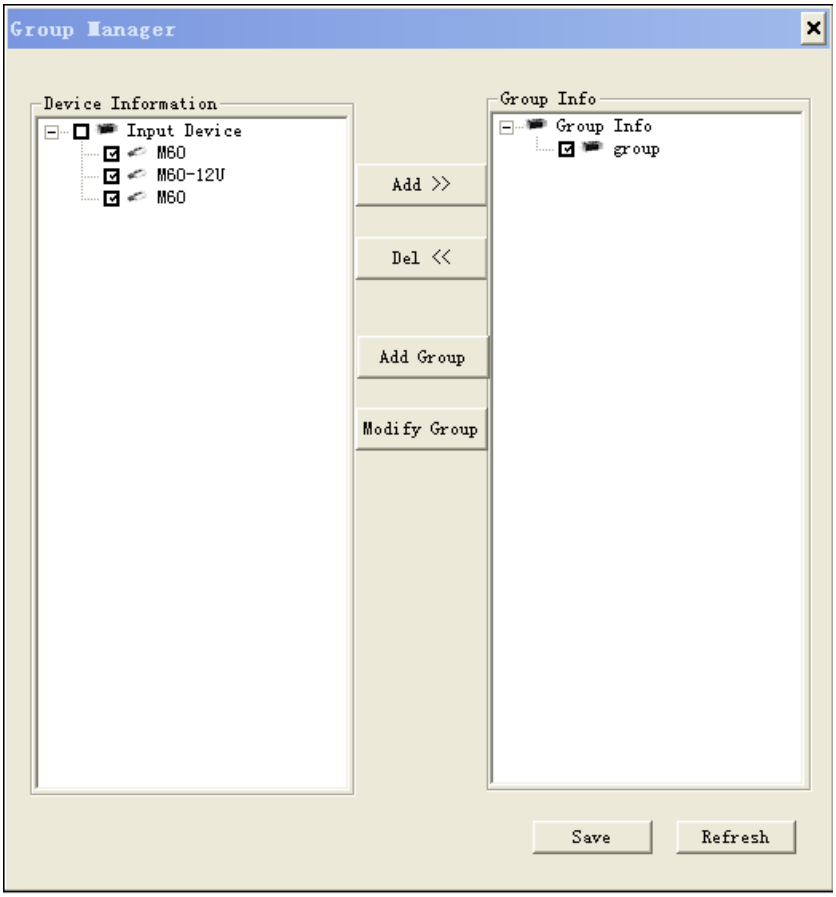


Figure 4- 75

Step 5. Click Add to add input device into group 1. See Figure 4- 76.

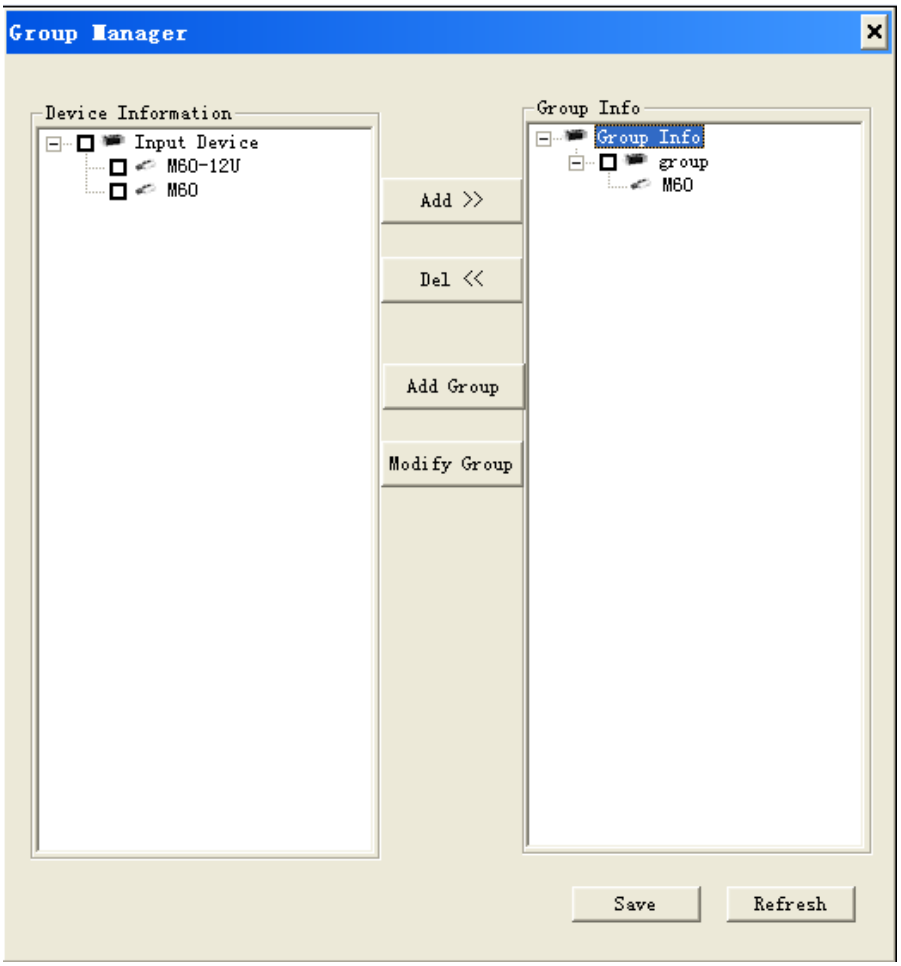


Figure 4- 76

Step 6. Click Save to input grouping of input device. You can add sub group under current group level.

4.5.3.10 **Ventilator Control**

You can set temperature to control speed of ventilator. See Figure 4-68.

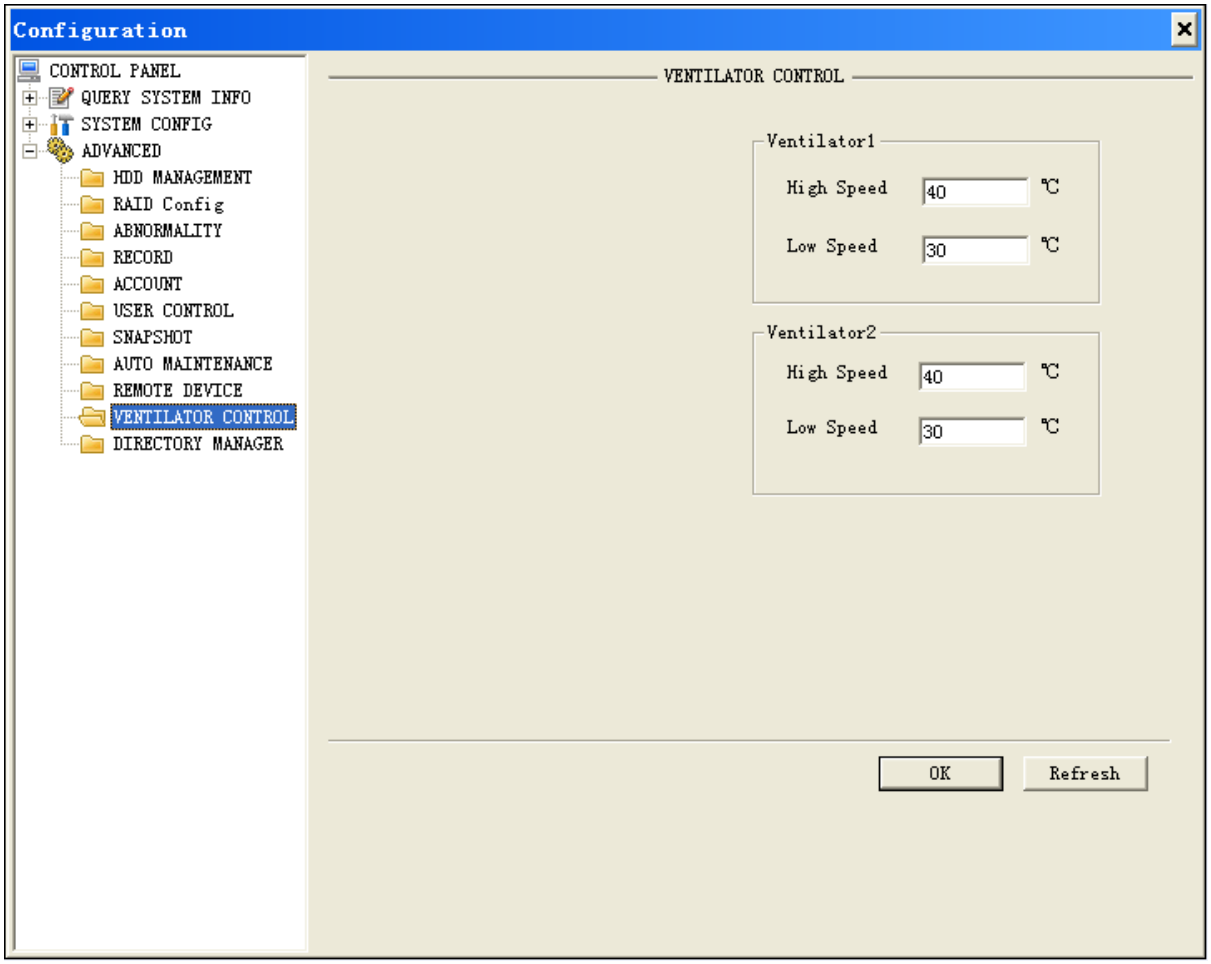


Figure 4- 77

4.5.3.11 **Directory Manager**

It is mainly for network keyboard to control matrix. See Figure 4-69.

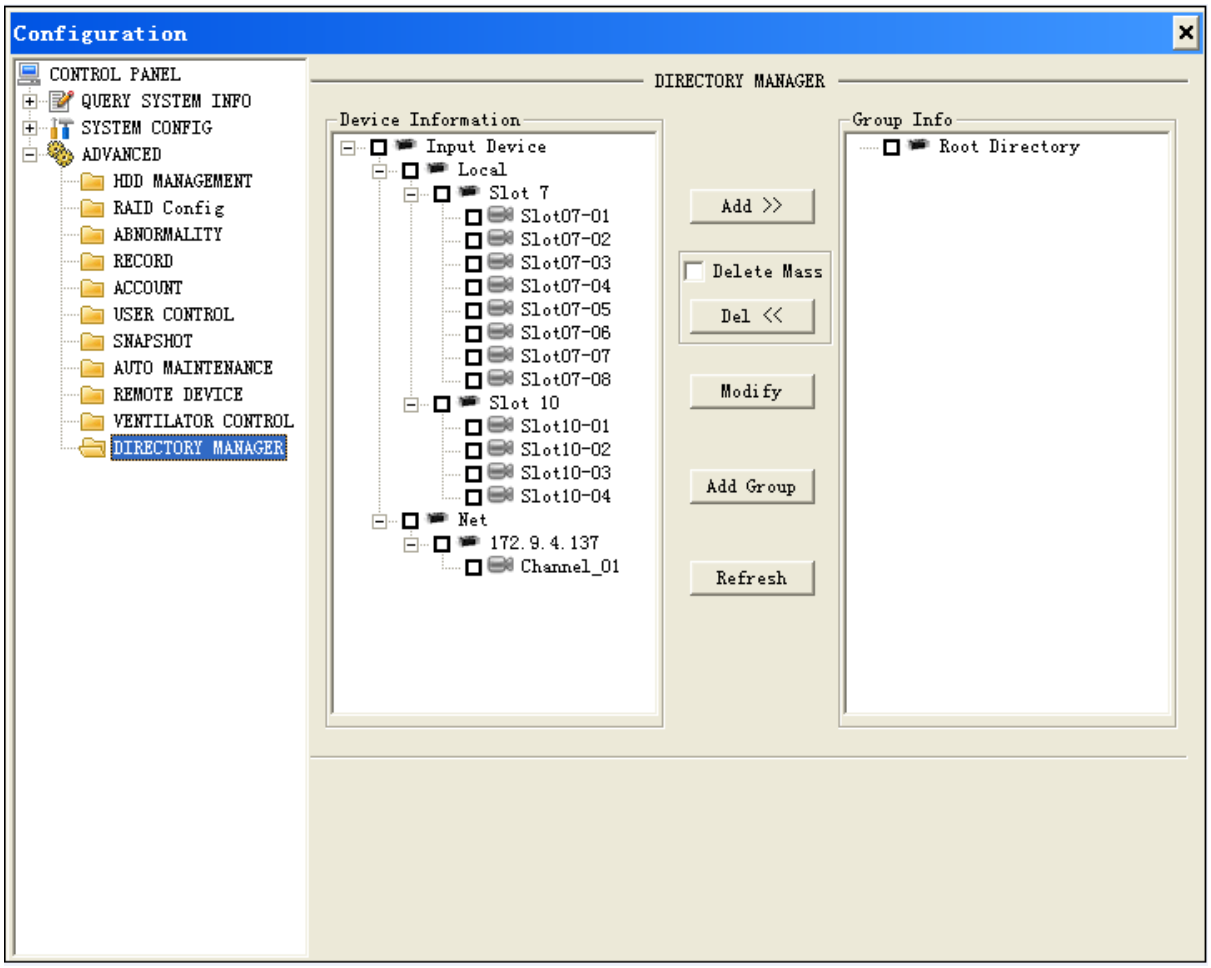


Figure 4- 78

Step 1. Select root directory, as check the box in front of root directory. Click Add. See Figure 4-79.

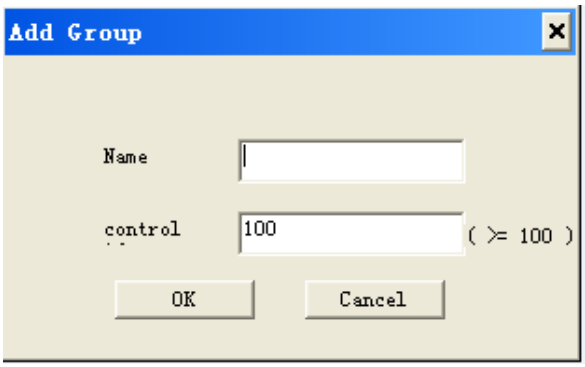


Figure 4- 79

Step 2. Input name, and fill in control no. Each group has different control no. If you enter same control no. for two groups, system will prompt.

Step 3. In device info list, select input device to add into group 1 and it may be local or network device. See Figure 4- 80.

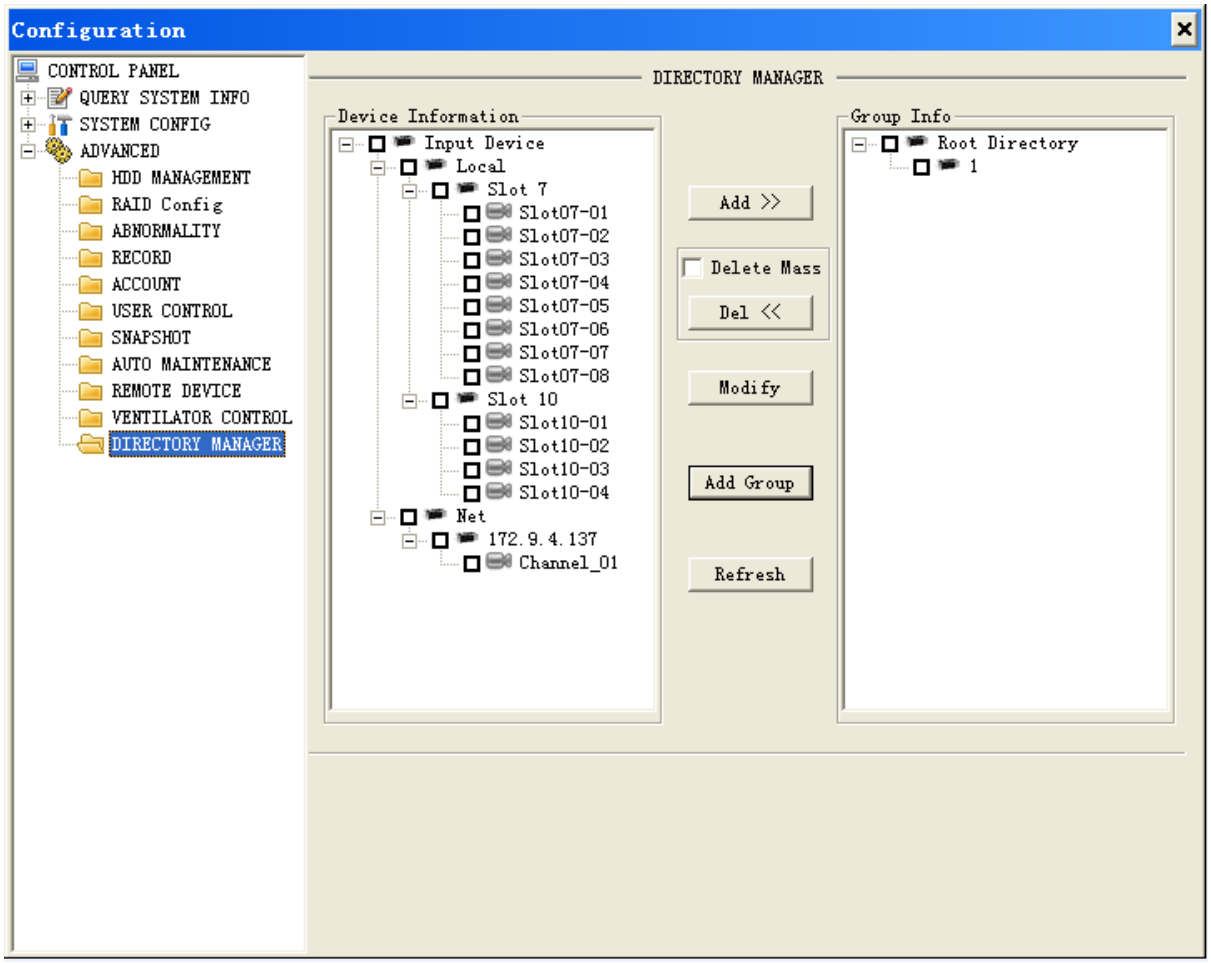


Figure 4- 80

Step 4. Click Add. See Figure 4- 81.

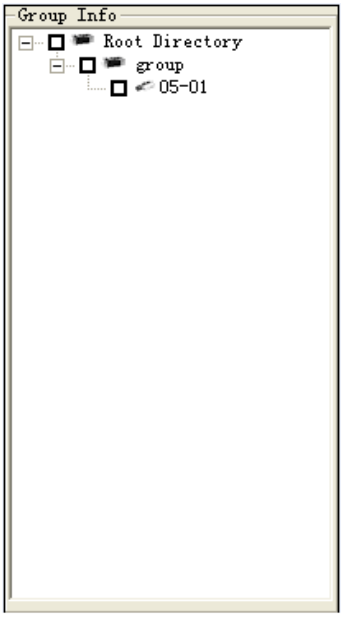


Figure 4- 81

4.6 Search

Click search button, you can see an interface is shown as in Figure 4- 82
The record type includes the record, alarm, motion, local, and picture.
Please select record playback mode, and then select start time, end time, slot and channel. Then please click search button, you can see the corresponding files in the list. Each page supports up to 100 records. You may flip pages by clicking on next page.

Select a single channel, click earliest record to search the earliest record in this channel.
Select the file(s) you want to play and then click play button or double-click the record, system will play the selected record. You may play in full screen and perform record backup at the same time. The backup record will be automatically saved to either Download file in where the system is installed or other designated locations. Please see Figure 4- 83.

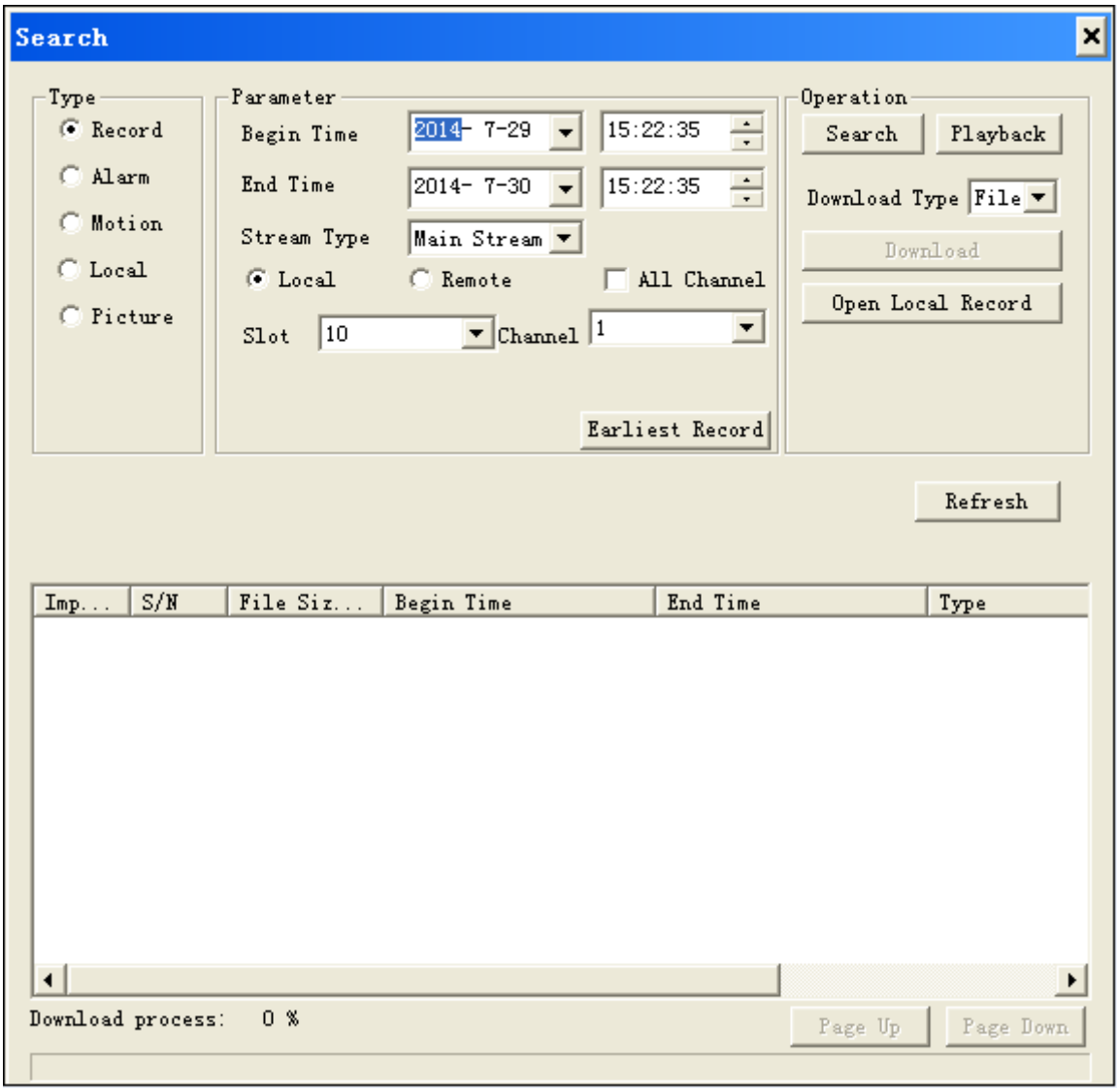


Figure 4- 82

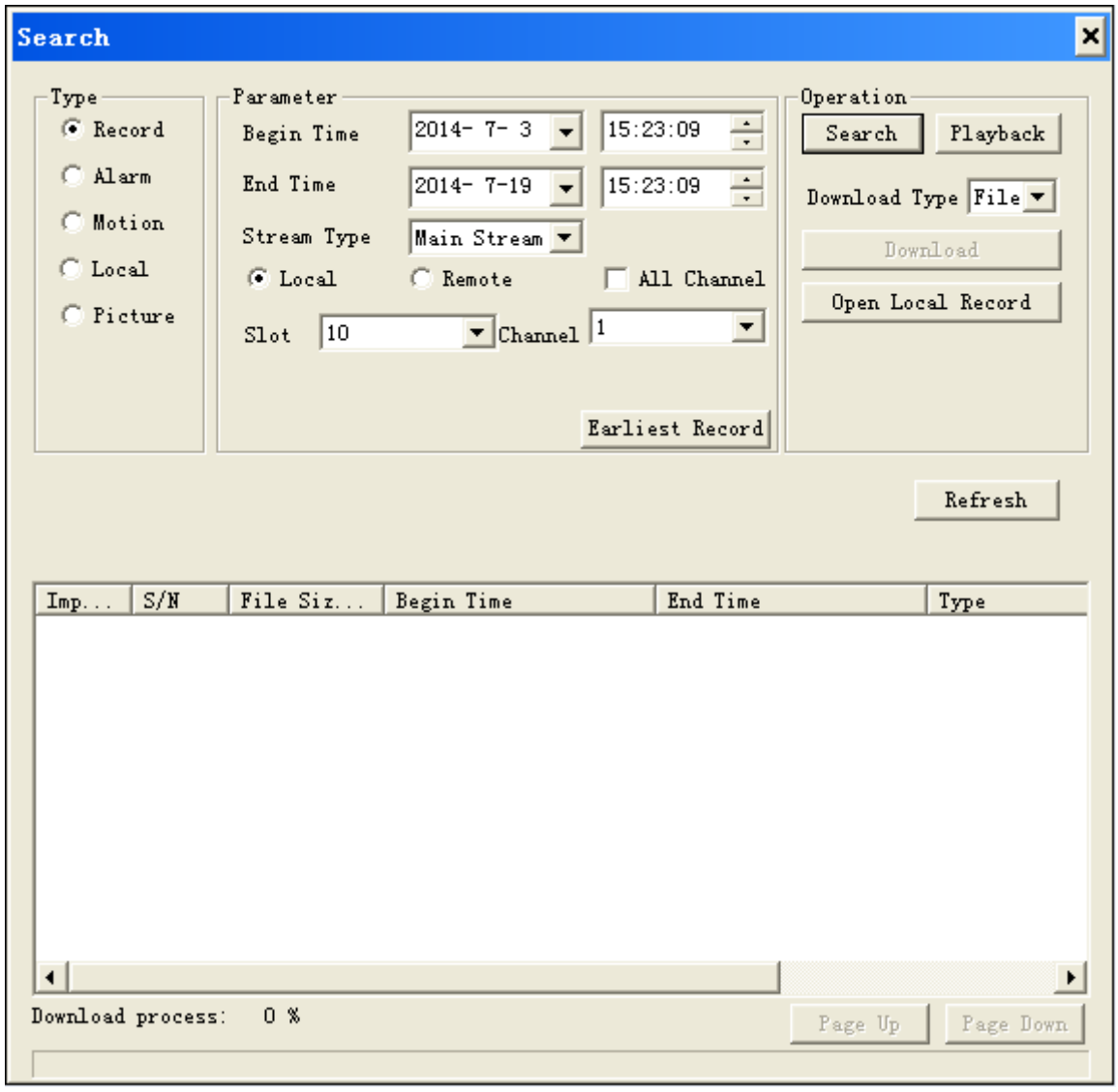


Figure 4- 83

Tip: in parameter setting, you may select date from the dropdown list and click search date. Please see Figure 4- 84. Red circle is current system date, and grey number is start time of search.

Figure 4- 84

During playback, you may play, pause, stop, slowly play and quickly play via corresponding buttons on control bar. The channel No. and device IP of this record are displayed in playback window.

Please see Figure 4- 85.

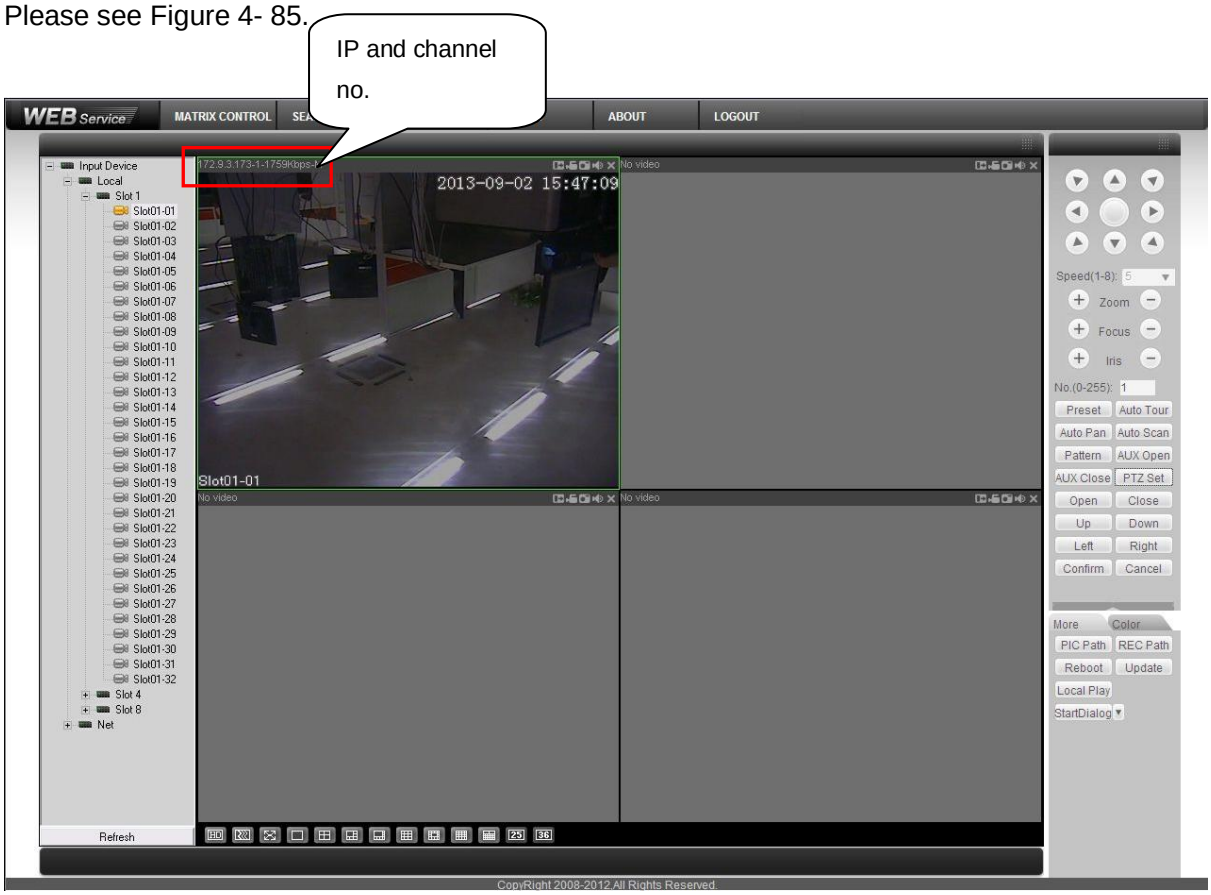


Figure 4- 85

Download: Select record, click download button, and the save dialogue pops up. Please see Figure 4- 86.

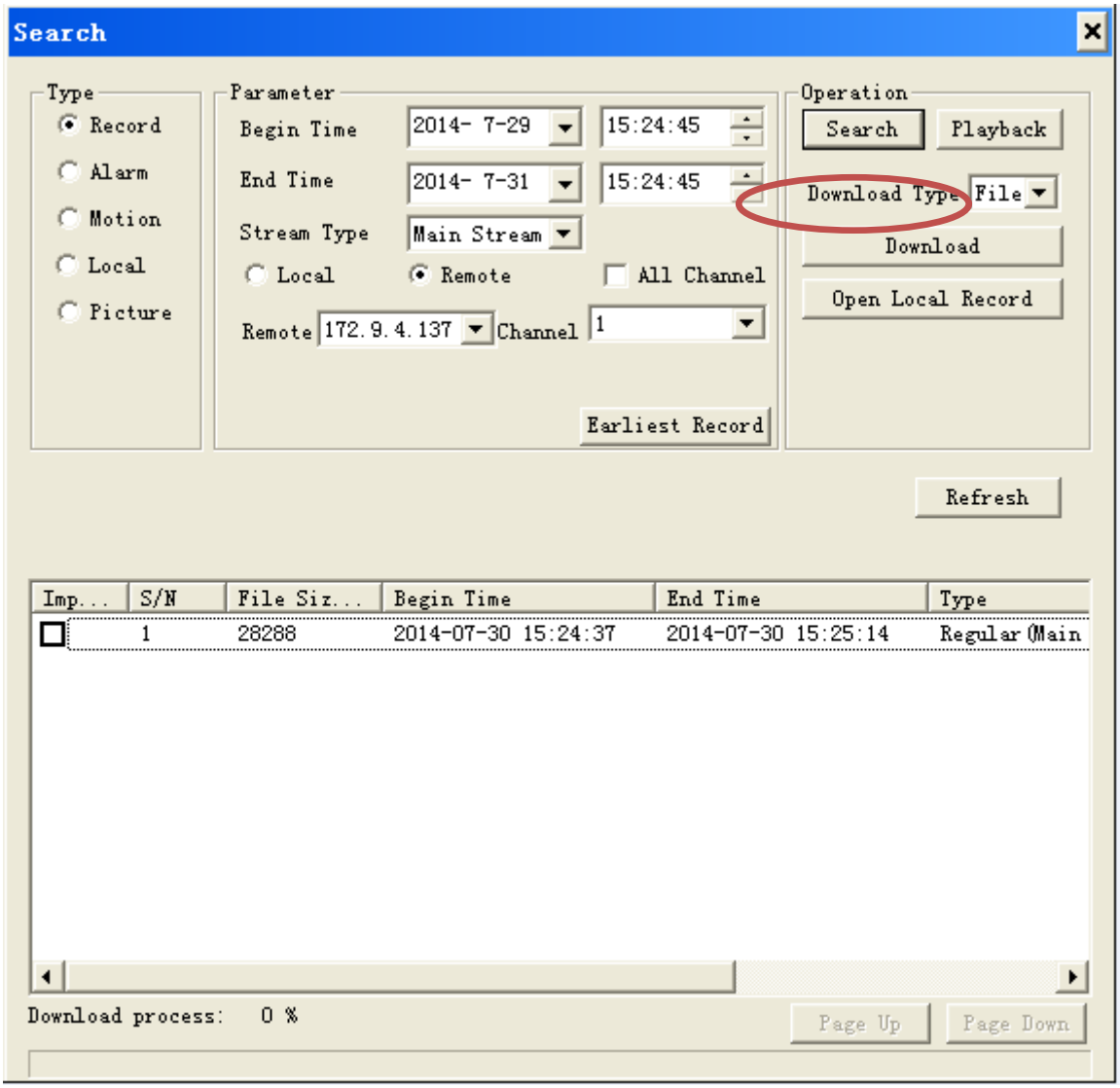


Figure 4- 86

You need to input record name, and click save button to start to download. The downloading progress bar will be displayed and the download button will change to a stop button. Please see Figure 4- 87 and Figure 4- 88.

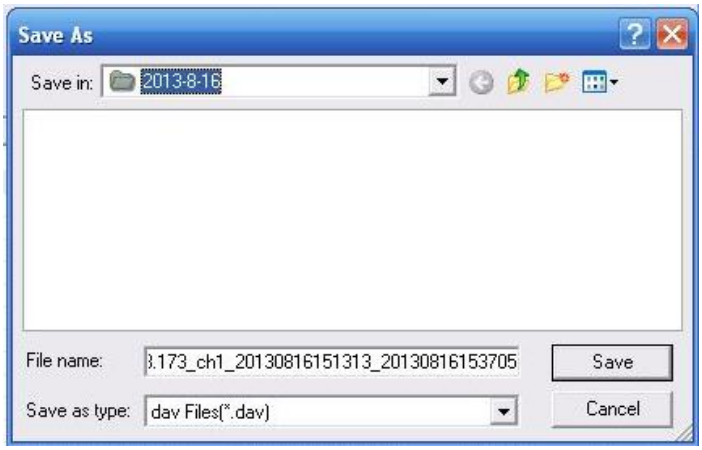


Figure 4- 87

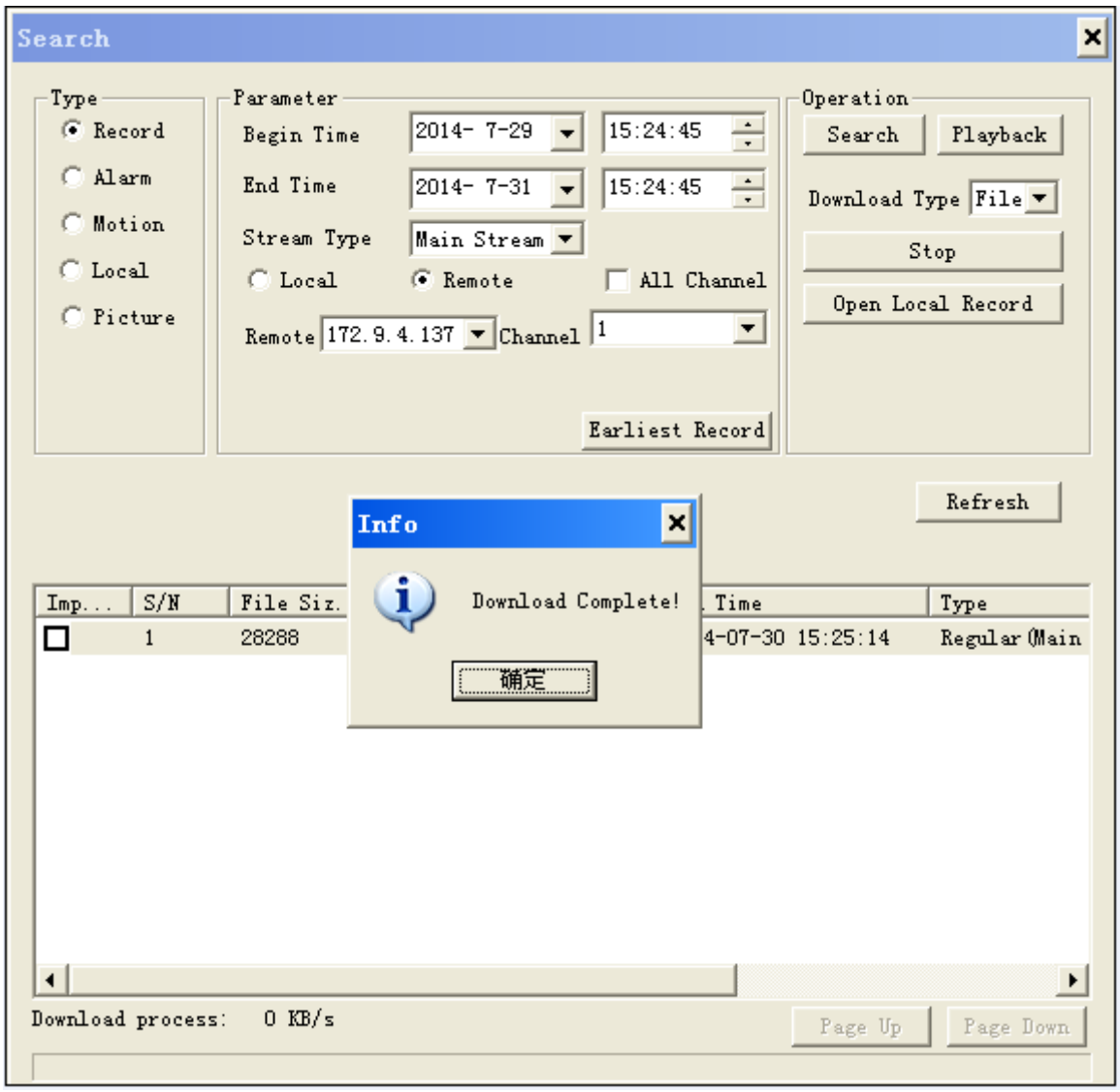


Figure 4- 88

Click open local record button, and select local record to play. Please see Figure 4- 89.

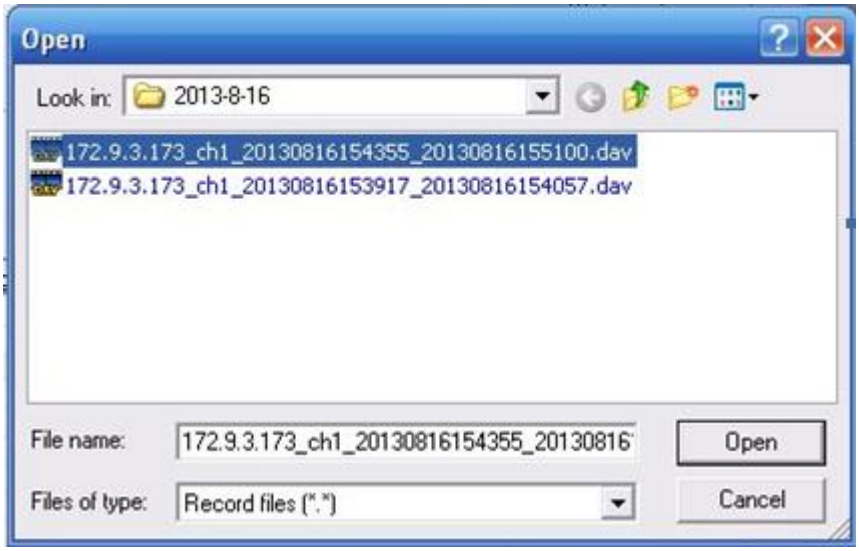


Figure 4- 89

4.7 Alarm

Here you can set WEB monitoring alarm type and alarm sound only if you enable alarm upload function. Please see Figure 4- 90.

In alarm type, select alarm event, check to enable event. When there are event checked, you can view alarm info below. In operation, you can check listen alarm and prompt. In alarm sound, check sound pop-up and you can select sound.

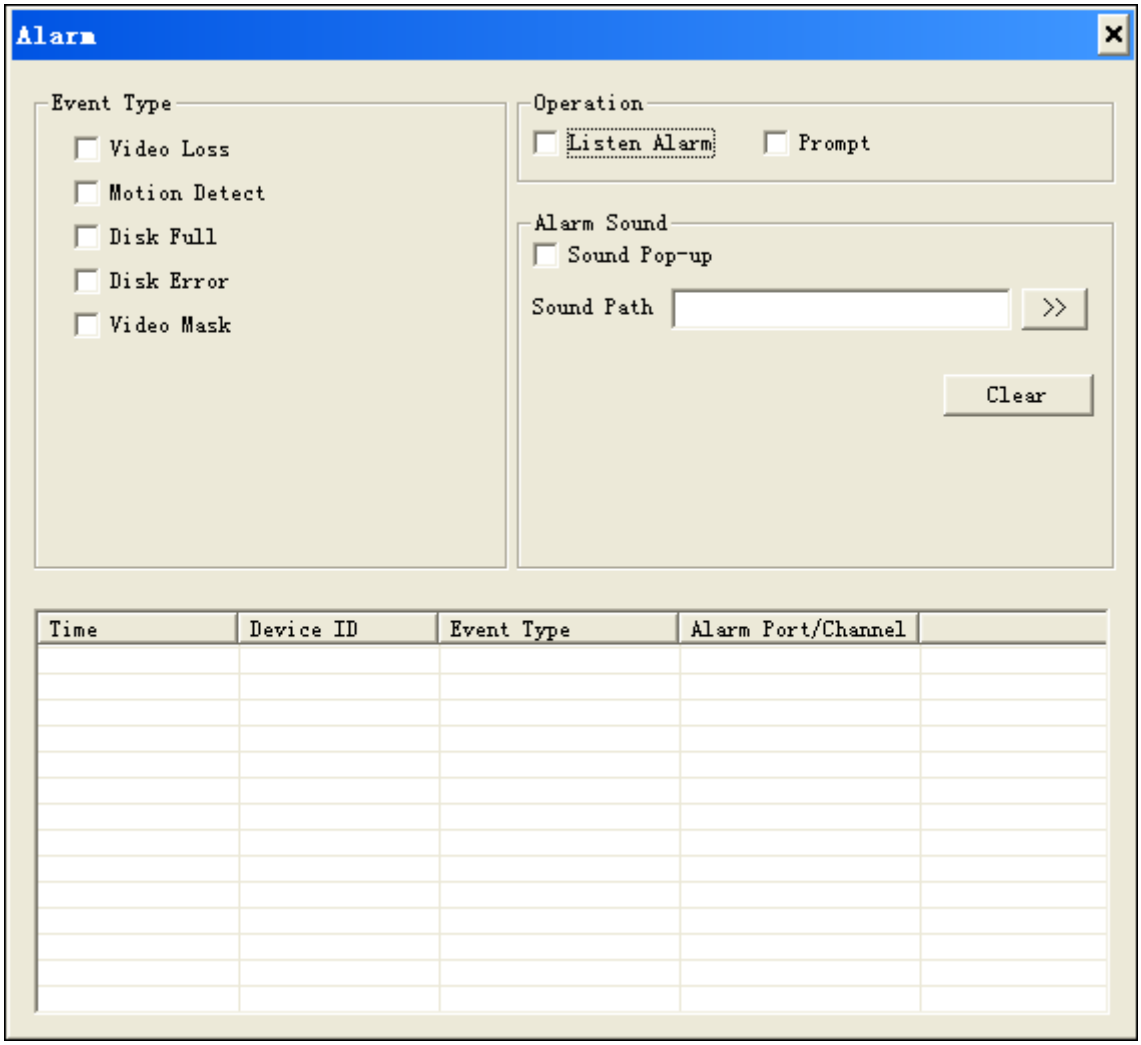


Figure 4- 90

Type	Parameter	Note
Event Type	Video Loss	When video is lost, it alarms.
	Motion Detect	When motion detect is ON, it triggers alarm.
	Disk Full	When disk is full, it triggers alarm.
	Disk Error	When disk error occurs, it triggers device alarm.
	Video Mask	When video is masked, it alarms.
Operation	Listen Alarm	Web subscribes alarm type checked above, when device alarms, it will notice WEB, and WEB will prompt user.
	Open Video	When alarm occurs, the system will auto enable video monitoring, and this is for alarm of alarm detection type, as motion detect, video loss and video mask.

Type	Parameter	Note
	Prompt	Auto pop up alarm prompt.
	Sound Pop-up	When alarm occurs, it generate alarm sound, which you maycustomize.
	Sound Path	Customize alarm sound storage path.

4.8 About

Click about button, you can view current web client information. Please see Figure 4- 91.

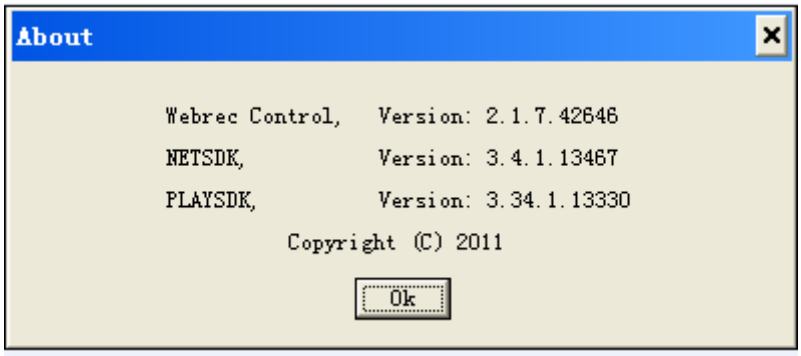


Figure 4- 91

4.9 Log Out

Click log out button, system goes back to log in interface.
You need to input user name and password to login again.

5 DSS Operation

Besides web-based operation, you can log in device via Digital Surveillance System (DSS). For detailed instructions please refer to DSS user's manual.

6 FAQ

6.1 FAQ

1. **Q: I cannot boot up the device properly after plug it to power supply.**
   A: When you plug to power supply after you properly turned it off, you must press the start button on the front panel in order to properly boot up the device.

2. **Q: Device buzzer turns on when I press the start button.**
   A: supports dual power supplies. Therefore if you only plug in one power line, then the alarm beeper will turn on:
   a) Plug in the other power line;
   b) There is a red button next to the power plug; you may press it to cancel the alarm.

3. **Q: There is no local operation display after I boot up the device.**
   A: This may be due to:
   a) The device requires about 1 min to boot up, please be patient and wait a bit longer.
   b) Make sure the interface board is well connected to the mainboard, otherwise the operation interface signal is not sent to the interface board. You should re-plug the interface board.
   c) Upgrade error, please upgrade again.
   d) The configurations have changes, so cannot boot up. Please press the reset button (the tiny hole on mainboard) with a needle (or equivalent) for a few seconds until reboot.
   e) X86 board is damaged.

4. **Q: After video matrix boots up, there is no decoded outputs or preview.**
   A: This may be due to:
   a) is set to no output in default, so you have to set output in relevant channels manually.
   b) Make sure the front panel is well connected to the interface board, otherwise the VGA signal is not sent to the interface board. You should re-plug the front panel.
   c) There is error in front-end device.
   d) The screen of interest is not the one you configured.
   e) Display does not support decoding channel's output resolution.
   f) Network error.

5. **Q: There is no video output whether it is one-channel, multiple-channel or all-channel output.**
   A: This may be due to:
   a) Program is not compatible. Please upgrade to the latest version.
   b) There is no video input signal or it is too weak.
   c) hardware malfunctions.

6. **Q: Real-time video color is distorted.**
   A: This may be due to:
   a) Device is not compatible with the monitor resistance.

b) Video transmission is too long or degrading is too huge.
c) Device color or brightness setting is not correct.

7. **Q：Decoding and wall mount process are not fluent.**
   A：This may be due to:
   a) Poor network environment.
   b) Front-end device setup or malfunction.
   c) Limit in decoding channel capacity.
   d) Decoding channel malfunction.

8. **Q: Video flickers on wall with interference.**
   A:
   a) Display and matrix platform have no common grounding.
   b) Video cable quality is low or too long.

9. **Q: There is no audio when monitor.**
   A: This may be due to:
   a) It is not a power picker.
   b) It is not a power acoustics.
   c) Audio cable is damaged.
   d) Hardware malfunctions.

10. **Q: There is audio when monitor but there is no audio when system playback.**
    A: This may be due to:
    a) Setting is not correct. Please enable audio function.
    b) Corresponding channel has no video input. Playback is not continuous when the screen is blue.

11. **Q: Time display is not correct.**
    A: This may be due to:
    a) Setting is not correct.
    b) Battery contact is poor or voltage is too low.
    c) Crystal is broken.

12. **Q: Device cannot control PTZ.**
    A: This may be due to:
    a) Front panel PTZ error.
    b) PTZ installation is not correct.
    c) Cable connection is not correct.
    d) PTZ parameter setting is not correct.
    e) PTZ protocol is not compatible with device.
    f) The distance is too far.

13. **Q: Motion detection function does not work.**
    A: This may be due to:

a) Period setting is not correct.
b) Motion detection zone setting is not correct.
c) Sensitivity is too low.

14. Q: I cannot login client-end or web.

A: This may be due to:
a) ActiveX control has been disabled.
b) Network connection error.
c) Network setting error.
d) Username or password is invalid.
e) Client-end is not compatible with program. Clear C:\Program Files\webrec.

15. Q: There is only mosaic or no video when preview or playback video file remotely.

A: This may be due to:
a) Network fluency is not good.
b) Client-end resources are limit.
c) There is privacy mask or channel protection setting.
d) Current user has no authority to monitor.
e) Device local video output quality is not good.

16. Q: Network connection is not stable.

A: This may be due to:
a) Network is not stable.
b) IP address conflict.
c) MAC address conflict.
d) LAN switch malfunction or config
e) Device network card malfunction.

17. Q: Alarm signal cannot be disarmed.

A: This may be due to:
a) Alarm setting is not correct.
b) Alarm output has been open manually.
c) Input device error or connection is not correct.
d) Some program versions may have this problem. Please upgrade your system.

18. Q: Alarm function is null.

A: This may be due to:
a) Alarm setting is not correct.
b) Alarm cable connection is not correct.
c) Alarm input signal is not correct.
d) There are two loops connect to one alarm device.

19. Q: Record storage period is not enough.

A: This may be due to:

a) Camera quality is too low. Lens is dirty. Camera is installed against the light. Camera aperture setting is not correct.

b) HDD capacity is not enough.

c) HDD is damaged.

20. Q: I cannot playback the downloaded file.

A: This may be due to:

a) There is no video player.

b) No DXB8.1 or higher graphic acceleration software.

c) There is no DivX503Bundle.exe control when you play the file transformed to AVI via media player.

d) No DivX503Bundle.exe or ffdshow-2004 1012 .exe in Windows XP OS.

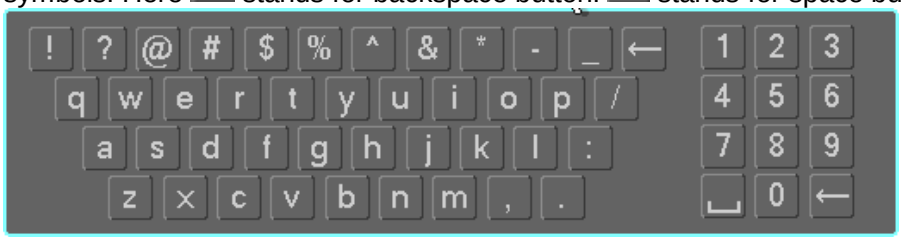
6.2 Maintenance

- Do not expose the device to lampblack, steam or dust. Otherwise it may cause fire or electric shock.
- Do not install the device at position exposed to sunlight or in high temperature. Temperature rise in device may cause fire.
- Do not expose the device to humid environment. Otherwise it may cause fire.
- The device must be installed on solid and flat surface in order to guarantee safety under load and earthquake. Otherwise, it may cause device to fall off or turnover.
- Do not place the device on carpet or quilt.
- Do not block air vent of the device or ventilation around the device. Otherwise, temperature in device will rise and may cause fire.
- Do not place any object on the device.
- Do not disassemble the device without professional instruction.
- Do not put any heavy objects on the device or insert any objects into the device.
- Do not use any hard or sharp objects to place the standard pen.
- Please take out batteries in the remote control if not used for long term. Please use standard battery only, and do not mix new and used batteries. Otherwise, it may cause battery liquid leakage, which may result in battery damage, fire, personal injury or product damage.
- For A/V signal cable and RS-232, RS-485 port, do not plug them when it is connected to power.
- Please inspect the device regularly.

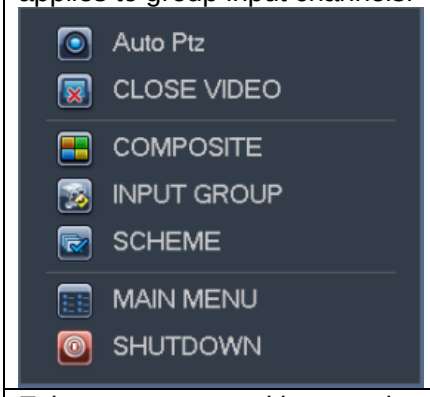
Appendix A Mouse Control

Note: This section is designed for mouse operation with right hand.

User must connect a mouse to via USB interface in order to access the menu for mouse operation.

<table>
<tr><td rowspan="8">Left click mouse</td><td>System pops up password input dialogue box if you have not logged in.</td></tr>
<tr><td>When you have selected one menu item, left click mouse to view menu content.</td></tr>
<tr><td>Implement the control operation.</td></tr>
<tr><td>Modify checkbox or motion detection status.</td></tr>
<tr><td>Click combo box to pop up drop down list</td></tr>
<tr><td>In input box, you can select input methods. Left click the corresponding button on the panel you can input numeral/English character (small/capitalized) and symbols. Here ← stands for backspace button. ␣ stands for space button.
 
Click Shift to switch upper/lower cases.

1) In English input mode: _stands for input a backspace icon and ← stands for deleting the previous character.
2) In numeral input mode: _ stands for clear and ← stands for deleting the previous numeral.
3) In symbol input mode: _ stands input a backspace icon and ← stands for deleting the previous symbol.
 </td></tr>
<tr><td rowspan="2">Double left click mouse</td><td>Implement special control operation such as double clicke item in the file list to playback the video.</td></tr>
<tr><td>In multiple-window mode, double left clicke channel to view in full screen. Double left click current video again to go back to previous multiple-window view.</td></tr>
</table>

Right click mouse	In real-time monitor mode, pops up shortcut menu: video off, cubeless screen, input,scheme, main menu, logoff and power off. Among which, video off applies to turn off video of selected window. Cubeless screen applies to combine video of different screens into one screen. Input applies to group input channels. 
	Exit current menu without saving the modification.
Scroll Mouse Wheel	In numeral input box: Increase or decrease numeral value.
	Switch the items in the check box.
	Page up or page down
Move mouse	Select current control or move control
Drag mouse	Select motion detection zone.
	Select cover area.
	Drag input channel into target output channel.

Note:

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- **If there is any uncertainty or controversy, please refer to the final explanation of us.**
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