

Embedded Multi-Screen Controller (3U)

User's Manual

V2.1.0

Important Safeguards and Warnings

Please read the following safeguards and warnings carefully before using the product in order to avoid damages and losses.

Note:

- 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.

Warning:

- Please use battery properly to avoid fire, explosion and other dangers.
- Please replace used battery with battery of the same type.
- Do not use power line other than the one specified. Please use it properly. Otherwise, it may cause fire or electric shock.

Special Announcement

- This manual is for reference only.
- All the designs and software here are subject to change without prior written notice.
- All trademarks and registered trademarks are the properties of their respective owners.
- If there is any uncertainty or controversy, please refer to the final explanation of us.
- Please visit our website for more information.

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1. Product Overview

1.1. Instruction

The device is a professional image processor based on solid hardware which can display multiple dynamic images on multiple screens, achieving video wall splicing. It is designed for need of multiple dynamic image display with high quality. It provides places like monitoring center, operation center, video conference, multimedia-function hall and etc. with a set of ideal solution.

1.2. Product Features

- The device adopts large scale of FPGA matrix combination with full hardware design and no OS. The controller integrates UWB video signal collection, real-time high definition digital image processing, 2D high order digital smoothing and etc. contributing to powerful capacity of processing. It also adopts processing mechanism of multiple BUS parallel and data exchange, thus it can guarantee a 3G band width of each channel for full real-time processing with minimized delay and zero loss of frame.
- The device supports multiple video inputs, including network signal, composite video signal (DVD or camera), PC signal (VGA and DVI) and etc. The network signal can supports majority of manufacturers. The composite signal can self-adapt to NTSC/PAL standards with DC, DI dynamic compensation. The PC signal can support almost all resolutions under VESA standard, plus 1080P HD video signal. The controller supports RGB, DVI outputs and all common standard resolution.
- The device adopts a method of control based on WEB which achieves window adjusting, window tour and etc. via flexible operation. Each channel can have its input displayed at any position on screen in any size. The display has minimum restriction.
- The device supports VGA and DVI outputs with highest definition of 1920*1080. This allows output signal to be displayed on any type of screen. DVI-I interface makes upgrading faster and more flexible.
- The device has no OS, so it avoids virus discovered on industrial control splicer and reduce time waited during boot up. The professional hardware design and highly efficient algorithm application together maximize capacity of the system.

2. Installation

2.1. Product Security Warning

This series product has been passed the thoroughly security test before it shipped out of the manufacturer. It is to maintain the operation security and remove the risk of electric shock. In the product and the user's manual, all the warning fonts or the labels are highlighted to guarantee the operation safety, protect the device, and ensure all the persons are away from the risk of accident and injury. The warning significance as follows:

 **Warning**  Any ignorance of this symbol may result in improper performance and error operation, which may cause death or other serious injuries to the operator and other persons.

 **Notice**  Any ignorance of this symbol may result in improper performance and error operation, which may cause personal injury or component damage.

- This series product is designed to use in the indoor environments only. It is not suitable for the outdoor use. Please make sure there is corresponding air conditioning device in the indoor environments. Please keep it away from the humidity environments or the environments of too much dust.
- Please keep the sound ventilation. Do not block the vent or the flow of the air around the product. The poor ventilation may result in high temperature in the internal device and may cause fire. The minimum ventilation distance is 50cm.

2.2. Specification

Please refer to Chart 2- 1 for device specification.

Name	Specification
Main processor	High performance industrial level embedded microprocessor
OS	Embedded LINUX
Operation	Via WEB
Host	3U, with two hot swap slots
Video output	9-ch DVI/VGA simultaneous outputs, max resolution of 1080P

Name	Specification
Video input (standard)	16-ch CVBS signal input
Video input (optional)	Two HD collecting board, each supports 4-ch DVI, VGA, HDMI, SDI signal input
Decoding input (optional)	Two network decoding board, each supports 4-ch 1080P or 4-ch D1 decoding input
USB	2 USB 2.0 ports
Network	1 RJ45 ports, 10/100/1000M self-adaptive for Ethernet port
RS485	1 RS485, supports alarm input and PTZ control
RS232	3 standard RS-232 ports, for parameter config, device maintenance, and peripheral control
Power	AC power: AC 110/220V self-adaptive
Consumption	≤90W (full load)
Temperature	-10°C～+55°C
Humidity	10%～90%
Atmosphere	86kpa～106kpa
Dimension	19 inch 3U 482.6mm (W)×496m (D)×133mm (H)
Weight	≤10Kg (full load)
Installation	Bracket, desktop
Work	Continuous

Chart 2- 1

2.3. Front Panel

Please see Figure 2- 1 for device front panel.

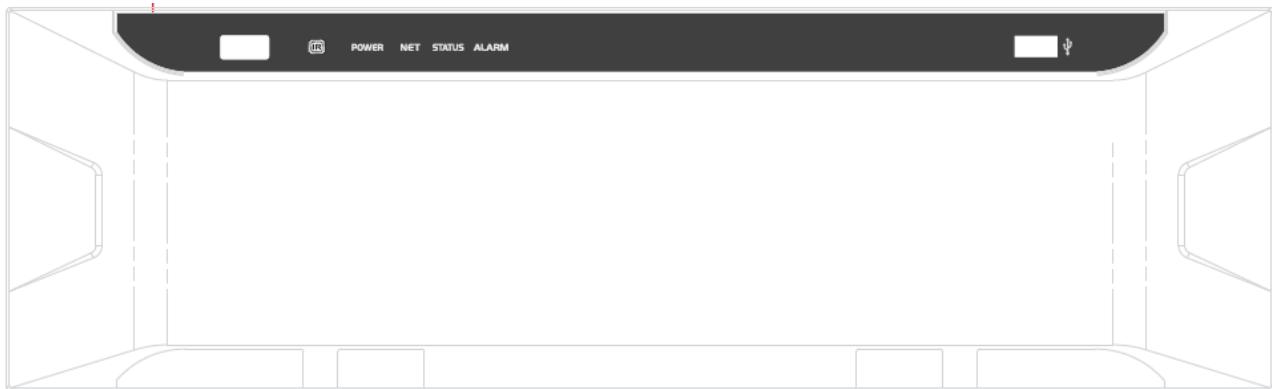


Figure 2- 1

Please refer to Chart 2- 2 for description of front panel.

Icon Name	Description
	Power switch off: long press the button when device is on. on: press the button when device is off.
IR	IR control (currently not supported)
POWER	Power indicator
NET	Network indicator, on when network is normal; off when network is abnormal.
STATUS	Status indicator: On When device has finished the boot up process, Off When the process is NOT completed.
ALARM	Alarm indicator, on when system is abnormal; off when system is normal.
	USB port

Chart 2- 2

2.4. Rear Panel

Please see Figure 2- 2.

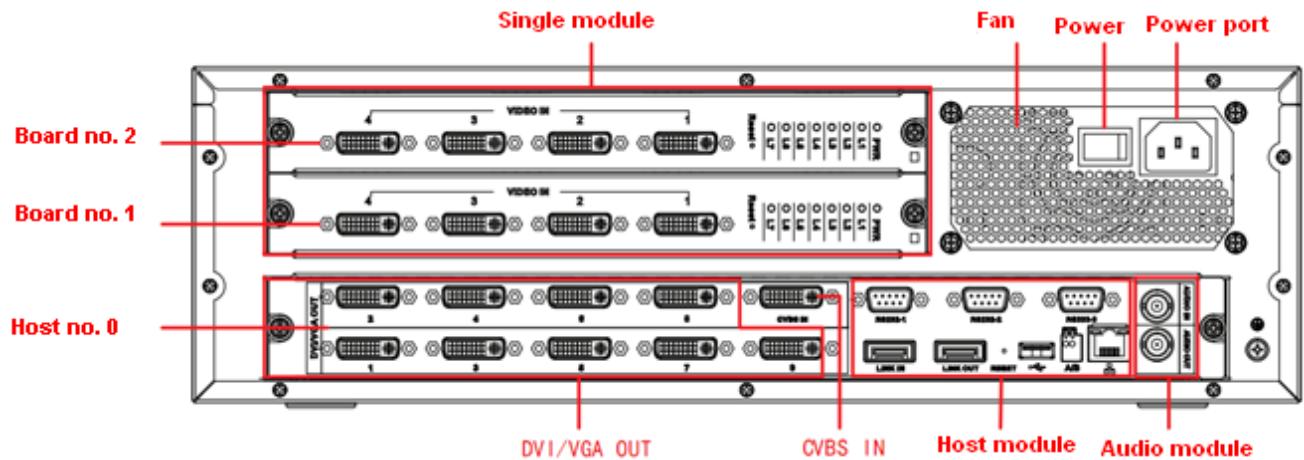


Figure 2- 2

2.4.1. Single Module

There are two slots for single module which match the following board in Chart 2- 3.

Board Type	Port Type	Port Quantity	Description
HD card	DVI-I	4	3 rd generation HD capture card, support DVI and VGA signal capture.
HD VGA signal input board	VGA	4	15-pin D-SUB port, max resolution of 1600x1200@60HZ, self-gain control, auto phase adjusting
HD DVI signal input board	DVI-I	4	Support max of 1080P signal input Support HDMI signal collecting (via converter)
HD SDI signal input board	BNC	4	<ul style="list-style-type: none"> ● 4-ch HD-SDI video port input (level: 1.0Vp-p; impedance: 75Ω) ● Built-in equalizer, HD-SDI signal can reach transmission distance of 150m.
Network decoding board	RJ45	1	4-ch 1080P, support Onvif protocol.

Chart 2- 3

Please see Figure 2- 3 for board indicator.

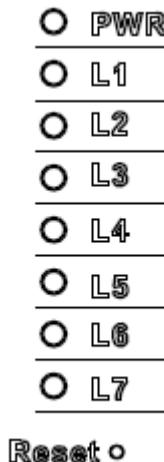


Figure 2- 3

Please refer to Chart 2- 4 for icon definition.

Icon Name	Definition
PWR	Power indicator
L1~L7	Status indicator
RESET	Reset

Chart 2- 4

2.4.2. CVBS IN

CVBS IN module is used to collect CVBS signal. The device has equipped with adapter and can acquire 16 channels signals simultaneously. See Figure 2- 4.



Figure 2- 4

2.4.3. DVI/VGA OUT

DVI/VGA OUT module contains 9 video output ports. Each channel can simultaneously output DVI/VGA signal, and supports multiple display devices, for example, LCD, plasma, DLP.

Tips:

You can output VGA signal with converter.

2.4.4. Host Module

Please see Figure 2- 5.

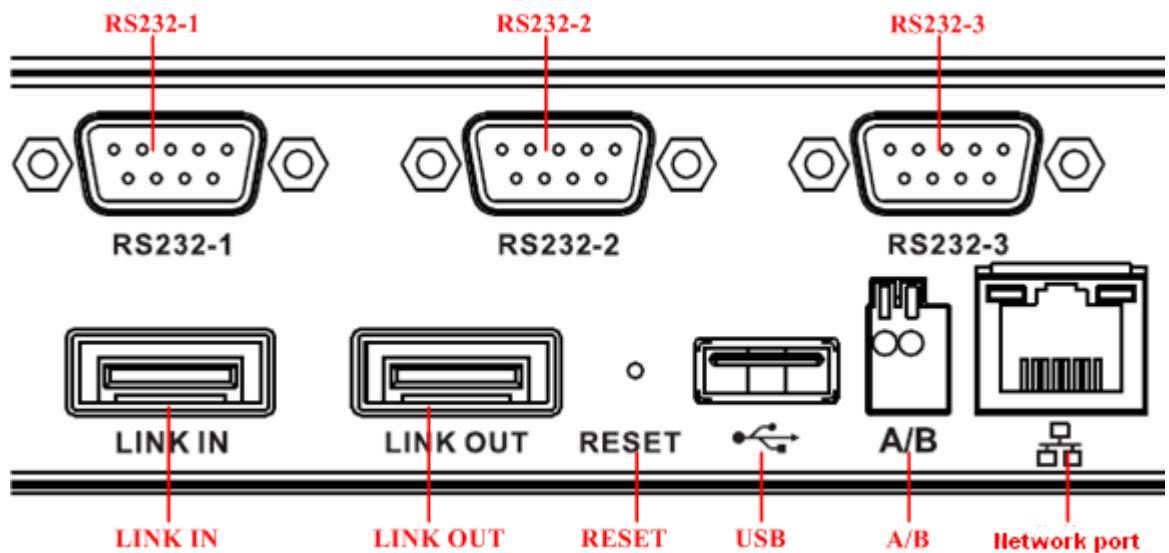


Figure 2- 5

Please refer to Chart 2- 5 for port description of host module.

Port Name	Port Description
RS232-1, RS232-3	RS232-2, It is for matrix, splicing unit and peripheral control.
RESET	Press reset button, the system will clear all config and restore default settings. IP address will return to 192.168.1.2.
USB	It is mainly for system maintenance, upgrading and background change.
A/B	RS485 Port, It can be used for alarm input and PTZ control.
Network port	It is to connect to the local network.

Chart 2- 5

2.4.5. Audio Module (Currently not available)

Note: This function is currently not supported.

Please refer to Chart 2- 6 for port definition.

Port Name	Definition
AUDIO OUT	BNC port, for audio output during talk, connecting speaker and etc.
AUDIO IN	BNC port, for audio input during talk, connecting MIC and etc.

Chart 2- 6

3. WEB Setup

3.1. WEB Login

Step 1. In Internet Explorer, input device IP address. System pops up the login interface as in Figure 3-1.

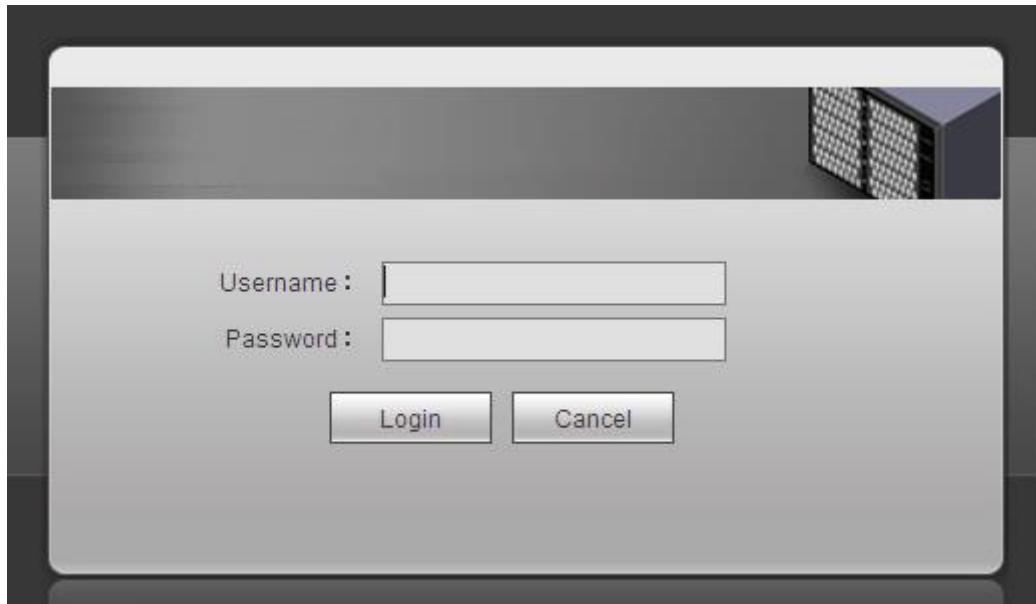


Figure 3- 1

Step 2. Input username and password, and click login to enter homepage.

Note:

- Default username is admin. Default password is admin. Please change password at your first login. Refer to Ch 3.4.1.2 for more detail.

3.2. Screen

Select Screen tab, system displays as in Figure 3- 2.



Figure 3- 2

3.2.1. Add Screen

You will need to add screen as in Figure 3- 3.

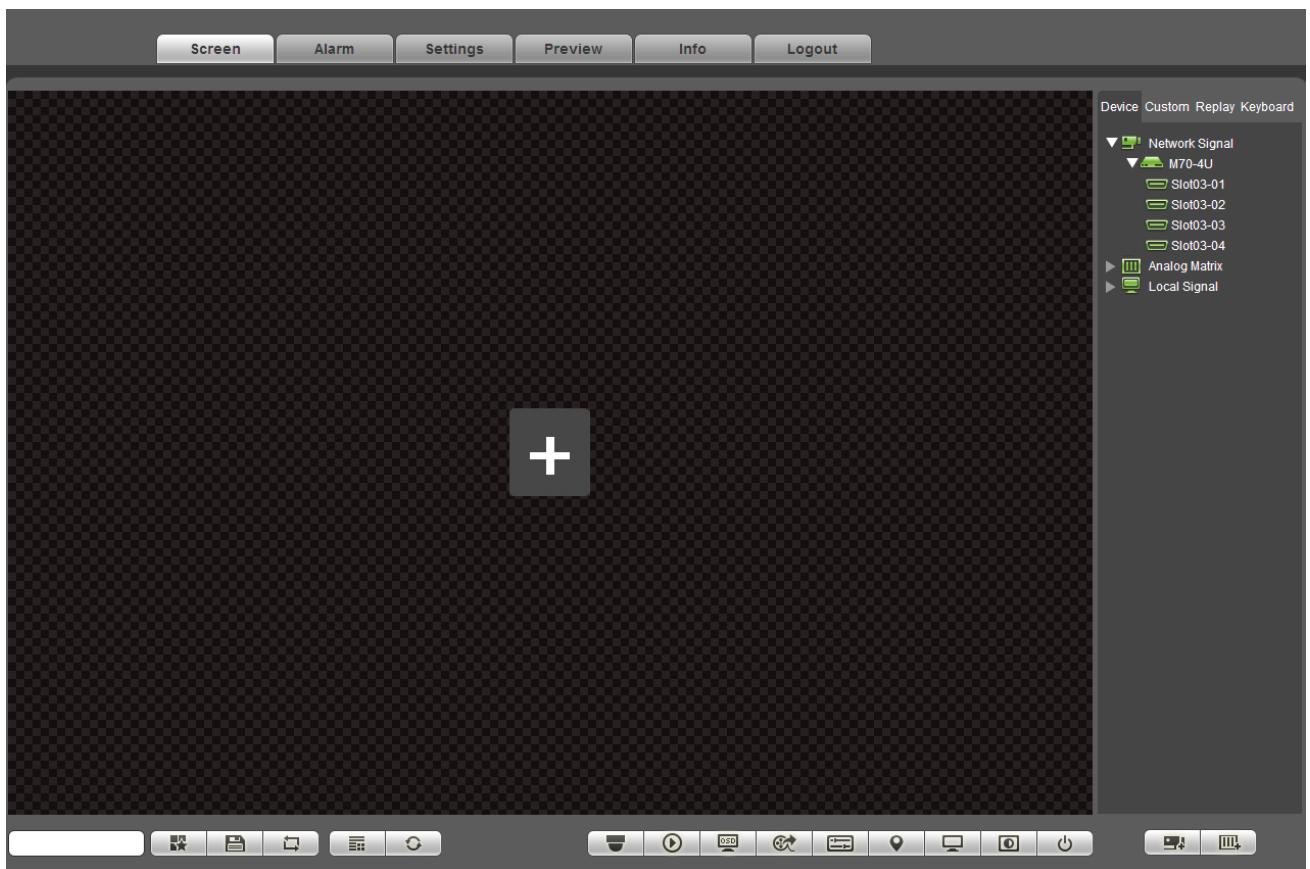


Figure 3- 3

Click to enter screen config interface. Please refer to Ch 3.4.5.1.

3.2.2. Signal Config

3.2.2.1. Device Tree

In device tree, it displays all signal sources.

- Network signal: display signal source of device added in remote device.
- Analog Matrix: display signal source of matrix added in matrix management.
- Local Signal: display local signal source.

3.2.2.2. Custom

It displays signal source of group and groups added in signal group.

3.2.2.3. Output to Wall

Step 1. In Device or Custom, select signal source. For example, see Device tab as in Figure 3- 4.

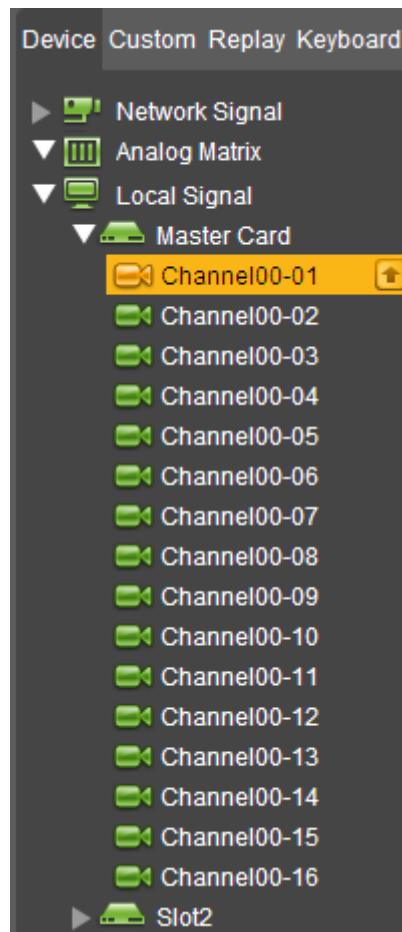


Figure 3- 4

Step 2. Click  and move mouse to corresponding screen.

Step 3. Left-click mouse and the selected signal will be outputted to screen.

Note:

Before step 3, user can open window on screen by pressing left mouse and drawing a box.

3.2.2.4. Signal Tour

Step 1. Select window to tour signal.

Step 2. In device tree or custom, select signal source, hold mouse left key, and drag signal to designated window. System pops up Signal Tour List.

Step 3. In list, set tour time interval, and unit is second.

Step 4. Repeat the operation until signal tour is complete. See Figure 3- 5.

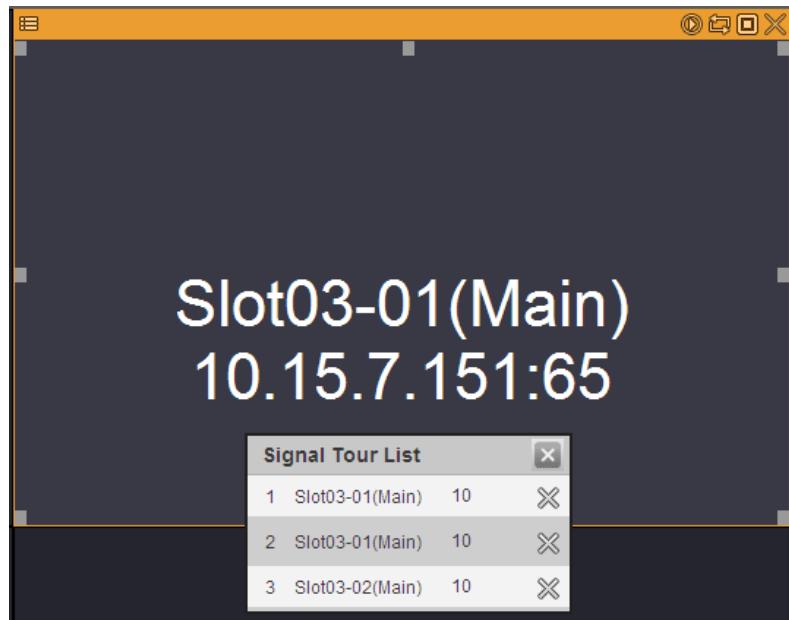


Figure 3- 5

Step 5. Click , the window starts signal tour.

3.2.2.5. Adjust Window

Adjustment of window is displayed in Figure 3- 6.

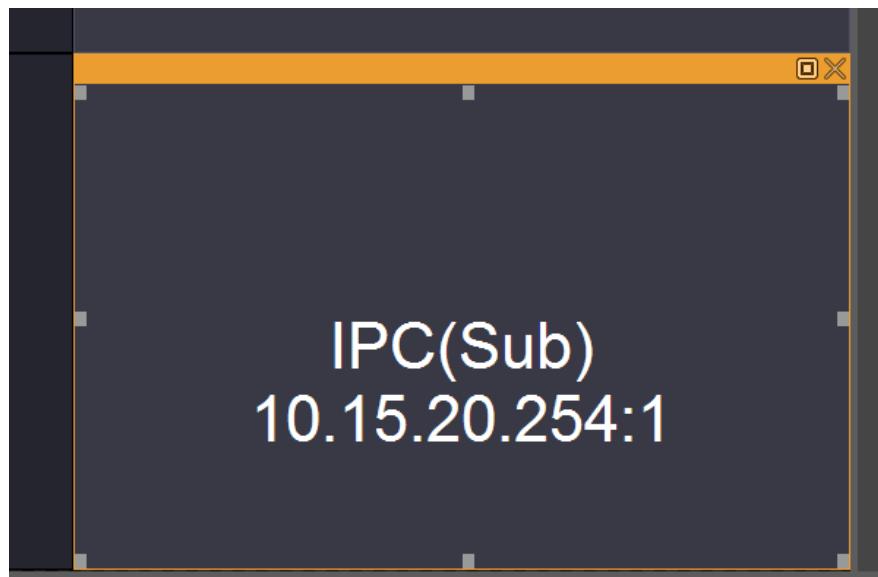


Figure 3- 6

- Adjust window position

Single-click window, you will see eight points around the screen representing eight directions. Place mouse in window, and you can move window to other position when you hold mouse. When you are done, release mouse.

- Adjust window size

Single-click window, and drag any one of the eight points to adjust size of the window.

■ Roam

Under  status, drag signal window, and it will automatically occupies a window.

Click , you will see  turning into .

■ Paste

Click  to paste signal window to current area.

■ 4-split

Click  to split window into 4 windows.

■ Close

Click  to close current window.

3.2.2.6. Signal Switch

Step 1. Select window for signal input.

Step 2. In Device or Custom, select signal source.

3.2.2.7. Window Management

When designated window is overlaid by other window or you want to make the window on top, click .

System displays Figure 3- 7.

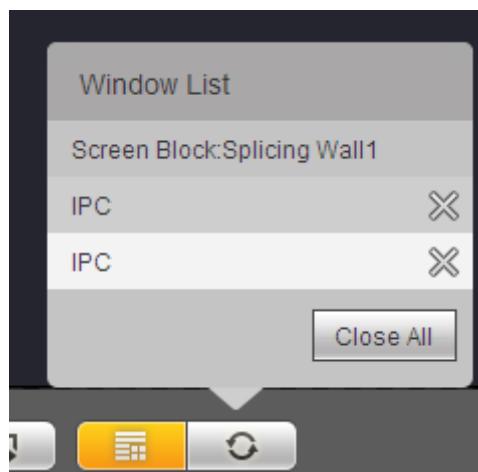


Figure 3- 7

- Select channel name to view to make window on top. Click  to close window.
- Click Close All to close all windows.

3.2.3. Scheme Config

3.2.3.1. Add Scheme

Step 1. After you have customized window on screen, click , system displays Figure 3- 8.

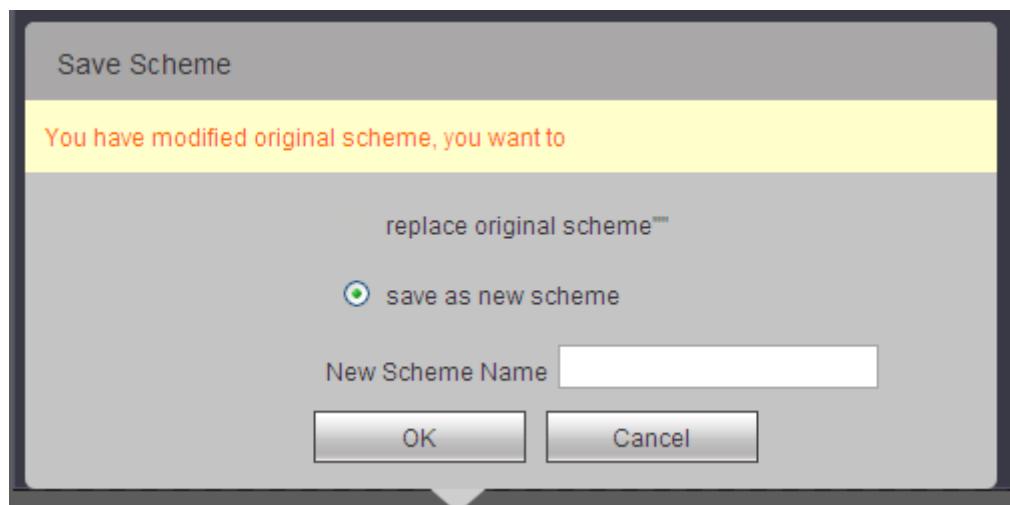


Figure 3- 8

Step 2. Fill in New Scheme Name.

If scheme name is repeated, you can rename it or choose to replace original scheme.

Step 3. Click OK. Added scheme will be displayed in scheme management.

3.2.3.2. Scheme Management

Click , system displays Figure 3- 9.

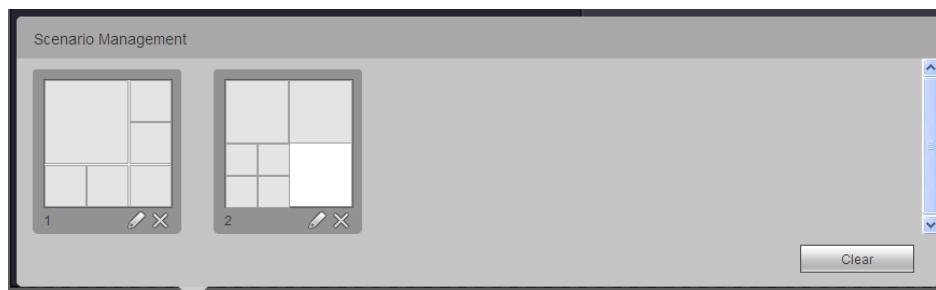


Figure 3- 9

You can select scheme according to your need.

- Click to modify scheme name and click to save.
- Click to delete scheme.
- Click Clear to delete all schemes.

3.2.3.3. Scheme Tour

Step 1. Click , system displays Figure 3- 10.

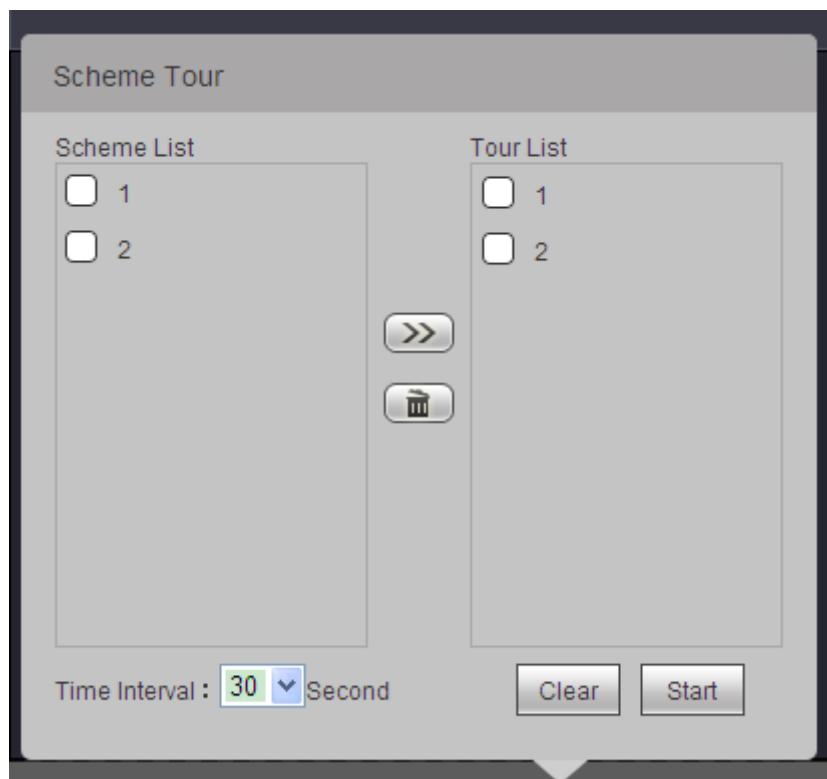


Figure 3- 10

Step 2. Select the scheme to be toured.

Step 3. Click  to add the selected schemes into tour list.

Step 4. Select time interval between each scheme in tour.

Step 5. Click Start to begin scheme tour.

Note:

During scheme tour, you can not operate screen interface.

3.2.4. Other Configurations and Operations

3.2.4.1. PTZ

Support PTZ control of camera with PTZ function.

Select window where the signal locates, and click . System displays Figure 3- 11.



Figure 3- 11

In dropdown list, select step length. Select direction key with mouse by long pressing mouse to send command. Release mouse when you are done.

You can control PTZ menu via arrows on the right.

3.2.4.2. Playback

You can playback record in window with . Playback function is available on network device with HDD recording function only.

Step 1. Select window to playback, system shows Figure 3- 12.

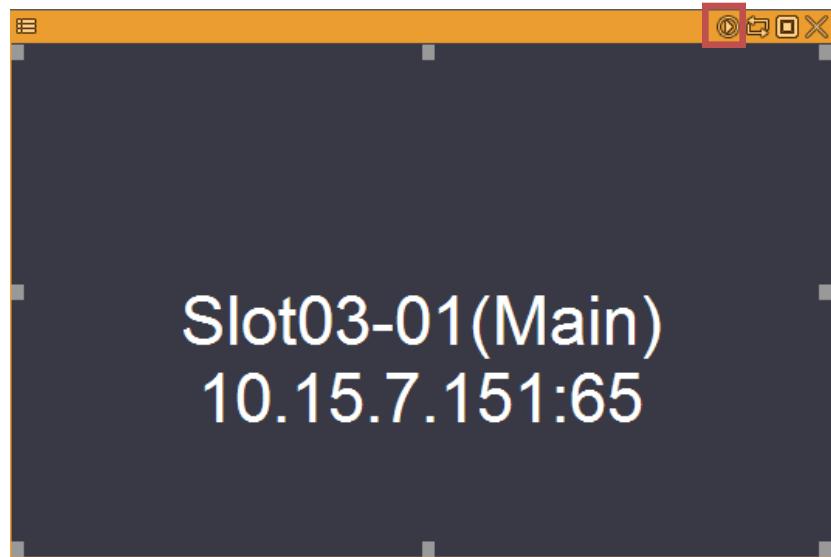


Figure 3- 12

Step 2. Click , system shows Figure 3- 13.

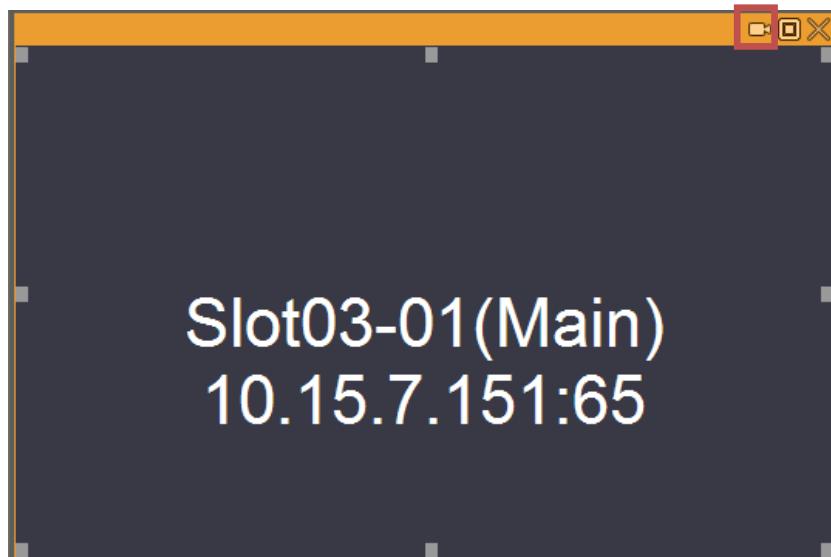


Figure 3- 13

Note:

After you click , enter playback mode. Icon changes to . Click  again to return to monitoring mode.

Step 3. Click  or in Playback tab, select a certain date. System shows Figure 3- 14.

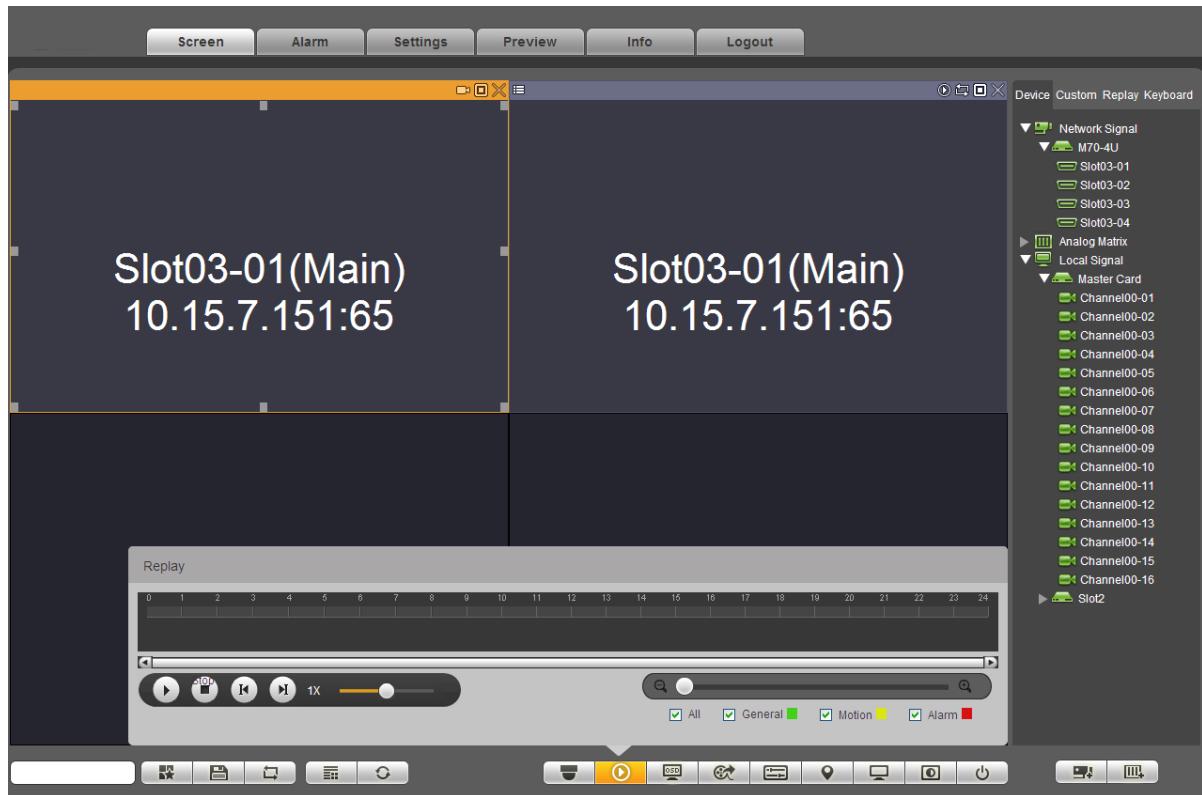


Figure 3- 14

No.	Product Function	Function Description
1	Playback Control	 <p>From left to right are: Play, Stop, Previous Frame, Next Frame, Slow Play/Quick Play.</p> <p>Tips:</p> <p>Next Frame button is available only when video is paused.</p>
2	Time Axis	<p>Display current record type and its corresponding period.</p> <p>Single click any point in colorful area as to start playback from that point of time.</p> <p>If page is under configuring status, time axis starts zooming in from 0.</p> <p>If page is under playing status, time axis starts zooming in the closest area of current play time.</p> <p>Green is normal type of record. Yellow is motion detection type of record. Red is alarm type of record.</p>
3	Record Type	 <p>Currently it supports record type of: normal, alarm, motion detection. Check record type so time axis will show record file of corresponding types.</p>

No.	Product Function	Function Description
4	Time Axis Unit	 This allows you to adjust time axis accurately to play record.
5	Date	Green means to view record of the date. Blue means there is record of the date. Black means there is no record of the date.

3.2.4.3. OSD Overlay

Select window unit where signal source locates, click . System shows interface in Figure 3- 15.

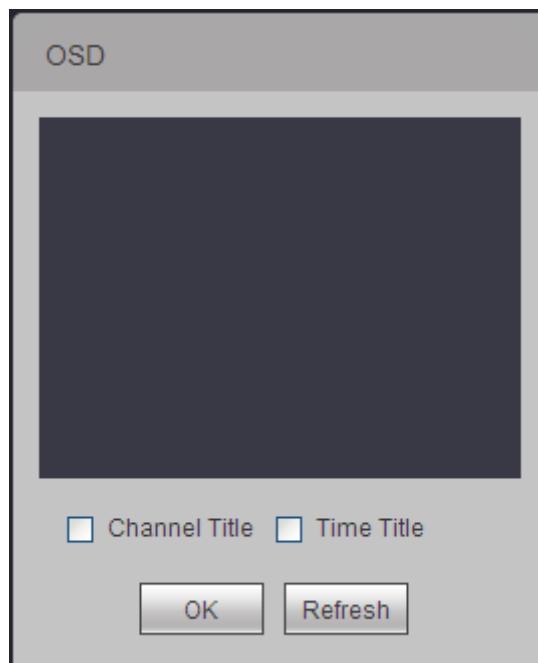


Figure 3- 15

User may check channel title and time title for overlay accordingly, and may also drag title to any position.

3.2.4.4. Decoding Strategy

Select network signal (do not support other signals) window, click  , to configure decoding strategy for network signal. See Figure 3- 16.



Figure 3- 16

3.2.4.5. Adjust Signal

Select window where signal source locates, click . System displays Figure 3- 17.

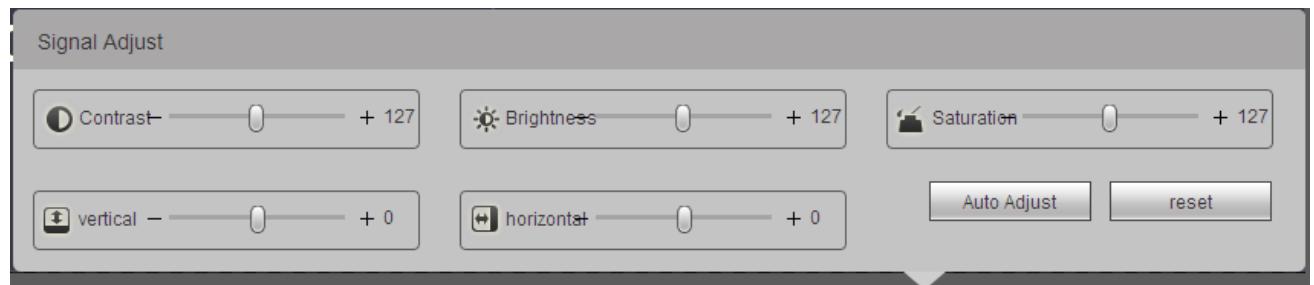


Figure 3- 17

You can adjust parameter of currently displayed signal. Two signal types are supported in this case: VGA and Video. VGA signal supports auto adjustment function.

Brightness, contrast, and saturation can be adjusted within 0~255. Vertical and horizontal range can be adjusted within -50~50.

Note:

Network signal and analog matrix do not support signal adjustment.

3.2.4.6. Map

Click , system displays Figure 3- 18.

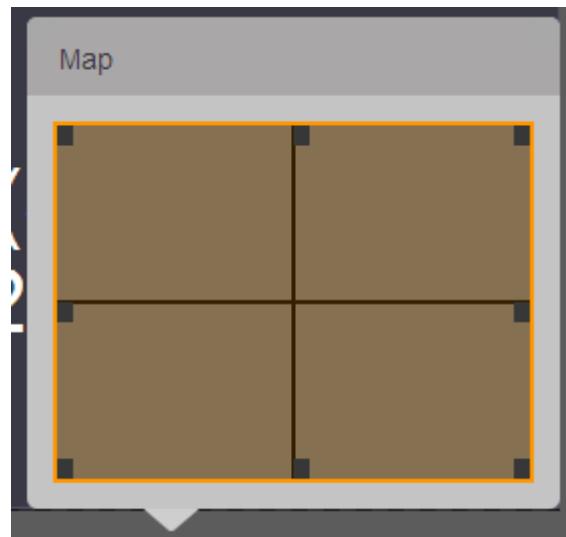


Figure 3- 18

By adjusting area box size with mouse or scrolling mouse, window will zoom in/out video in the area box.

3.2.4.7. Adjust Screen

Select window where signal locates, click , system displays Figure 3- 19.

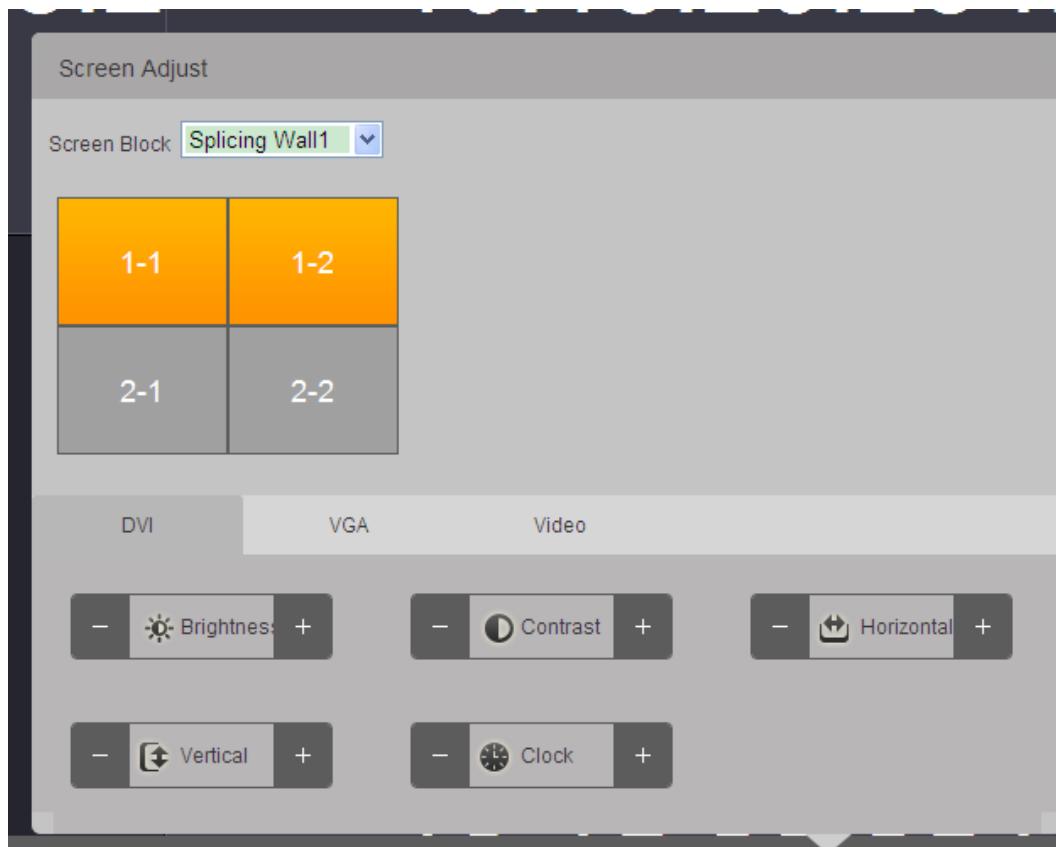


Figure 3- 19

You can adjust :DVI, VGA and Video. Actual adjustable parameters are depended on hardware condition.

Click + or – to adjust.

3.2.4.8. Screen Backlight Mode and Image Pause/Play

Click  , system shows Figure 3- 20.

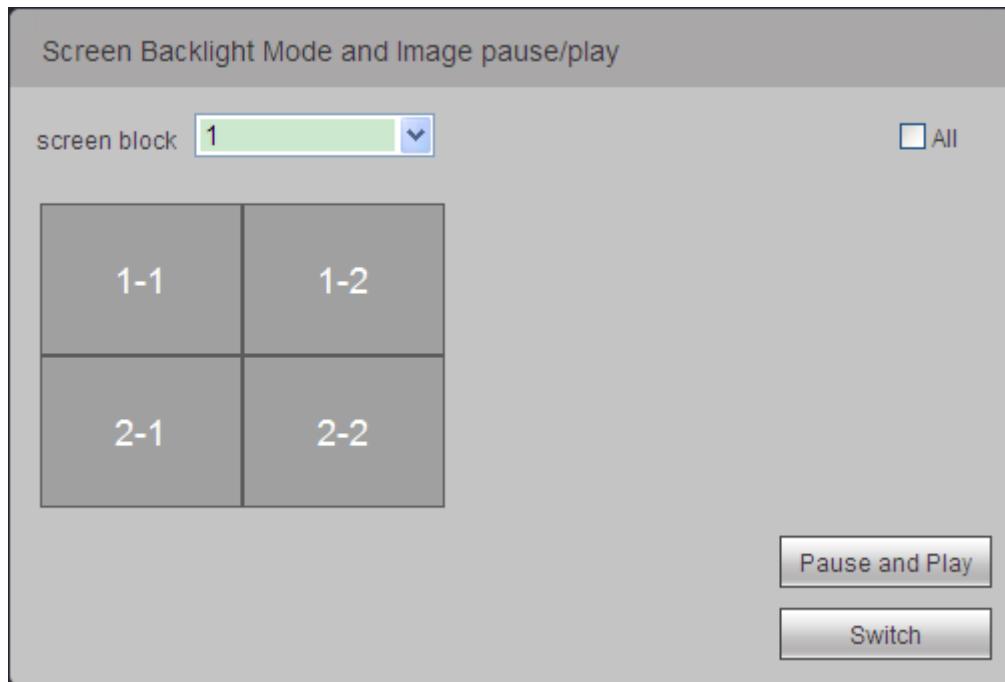


Figure 3- 20

- Select screen, you may select one or more than one, click Pause and Play or Switch.
- Check All to select all screens.

3.2.4.9. Screen Switch

Click  , system displays Figure 3- 21.

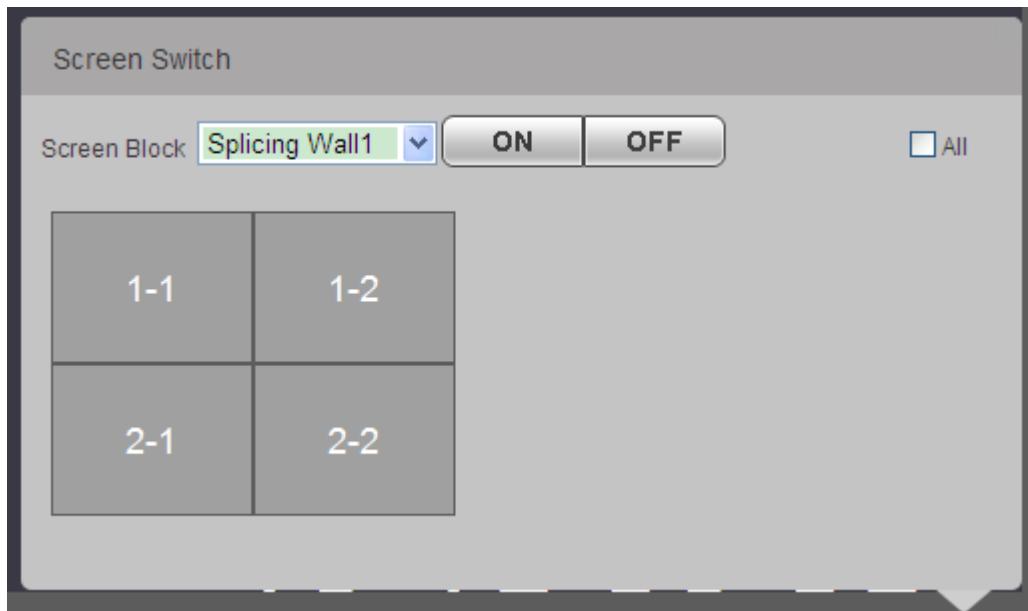


Figure 3- 21

- Select one or more screens, click ON or OFF to turn on/off the selected screens..
- Check All to select all screens.

3.2.4.10. Add Remote Device

Click  to enter Network Signal interface. Please refer to Ch 3.4.4.4.

3.2.4.11. Add Analog Matrix

Click  to enter Analog Matrix interface. Please refer to Ch 3.4.4.1.

3.3. Alarm

Select Alarm tab, see Figure 3- 22.

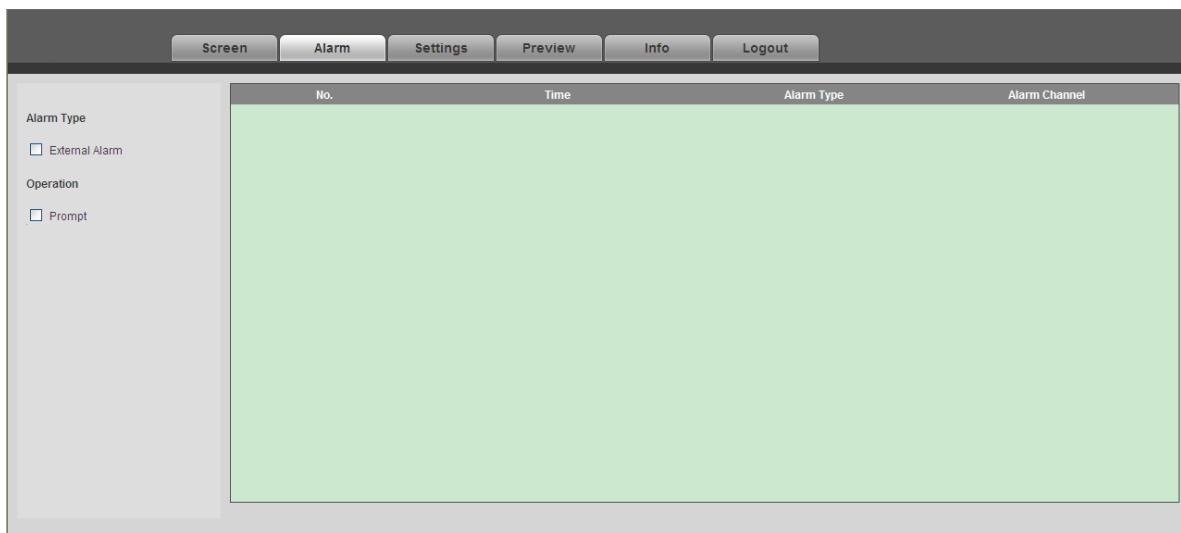


Figure 3- 22

- Check external alarm, system receives external alarm signal. If you have set beeper, then device will beep.
- Check prompt, external alarm info will be displayed on the right.

Please refer to Ch 3.4.3.1.

3.4. Settings

You can set system, network, signal management and display management via Settings tab.

3.4.1. System Config

You can set general setup, account, default, config backup, auto maintain, upgrade and decoding board.

3.4.1.1. General Setup

General Setup mainly sets device id, device no., language and date.

General

Step 1. Select settings>system config>general setup. System displays Figure 3- 23.

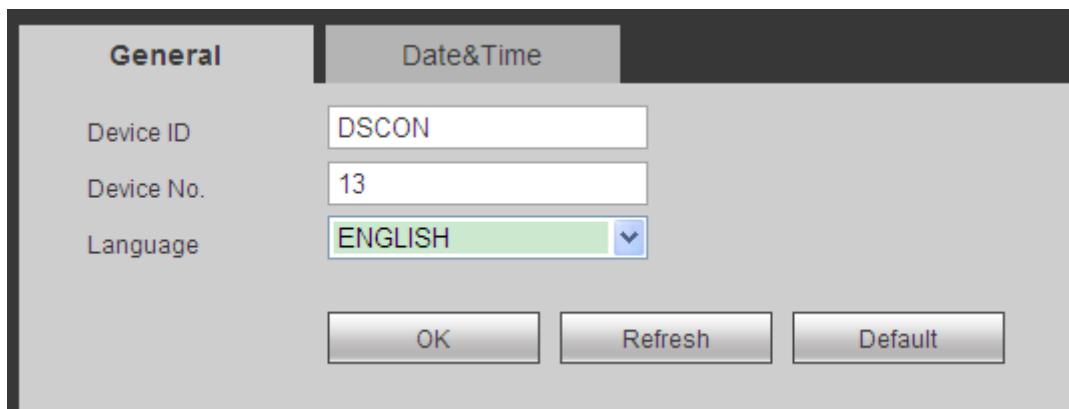


Figure 3- 23

Step 2. You can customize device name, device no. and select language.

Step 3. Click OK.

Date&Time

Step 1. Select date&time tab. System displays Figure 3- 24.

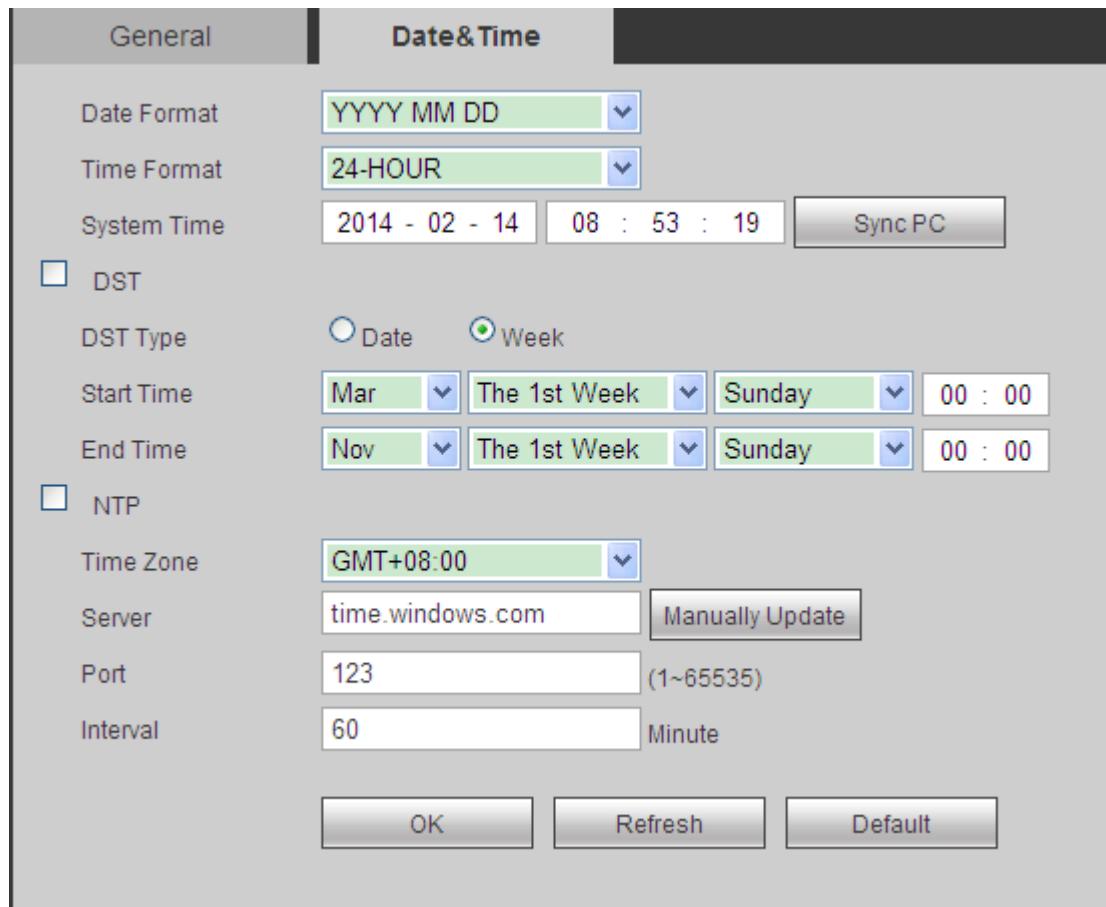


Figure 3- 24

Step 2. Set parameter, please refer to Chart 3- 1.

Parameter	Note
Date Format	Select date format in dropdown list.
Time Format	Select time format in dropdown list.
System Time	Set device system time, click Sync PC to sync with time on PC.
DST	Check box to enable DST.
DST Type	Select DST type to be either date or week.
Start Time/End Time	“DST type” select “date”, input year, month, day, start time and end time. “DST type” select “week”, select month, week, day, start time and end time.
NTP	Check box to enable NTP.
Time Zone	Select time zone.
Server	Input server address and domain name.
Port	Input NTP server port no.
Interval	Set update interval for sync with NTP server

Chart 3- 1

3.4.1.2. Account

Add User

Step 1. Select settings>system config>Account. System displays Figure 3- 25.

Account					
User	Group				
SN	User Name	Group Name	Memo	Modify	Delete
1	888888	admin	admin(888) 's account		
2	666666	user	666666 user's account		
3	admin	admin	admin 's account		
4	default	user	default account		

Authority					
Real-time Monitor	Account	System Info View	System Config	System Update	Auto Maintain
General Setup	Network Setup	Default	Config Backup	Remote Device	Scheme
Query Log Info	Signal Management	Matrix Management	Signal Source Group	Input Binding	Display Management
TV Wall	Screen Timer	Signal Adjust	Screen Adjust	Screen Switch	

Add User

Figure 3- 25

Step 2. Click Add User. See Figure 3- 26.

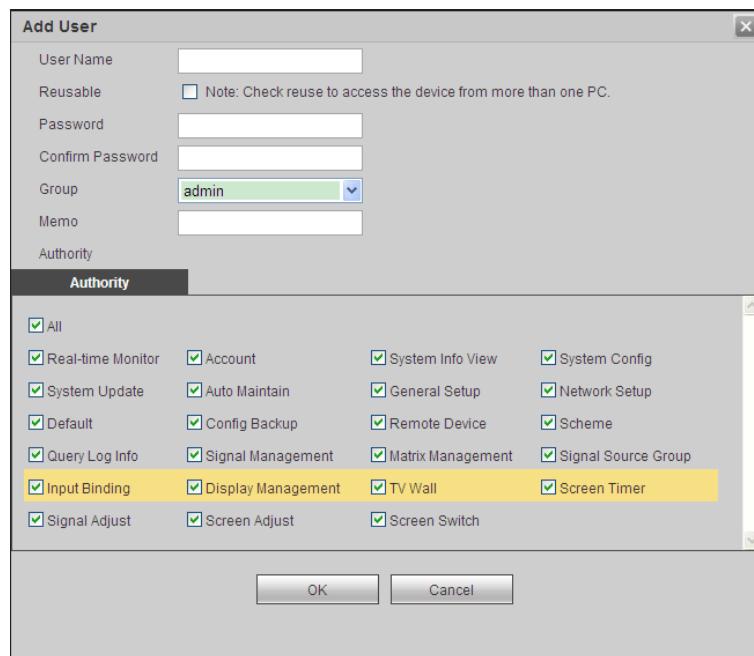


Figure 3- 26

Step 3. Input username, password, and confirm password. Select group and fill in memo.

Note:

- Check reusable box to allow more than one IP for the user.
- Group can be defined in group, please refer to add group chapter.

Step 4. In authority list, select user operation authority.

- Check box to enable corresponding authority.
- Check all to enable all authorities.

Step 5. Click OK.

Modify and Delete User

Click  , system displays Figure 3- 27.

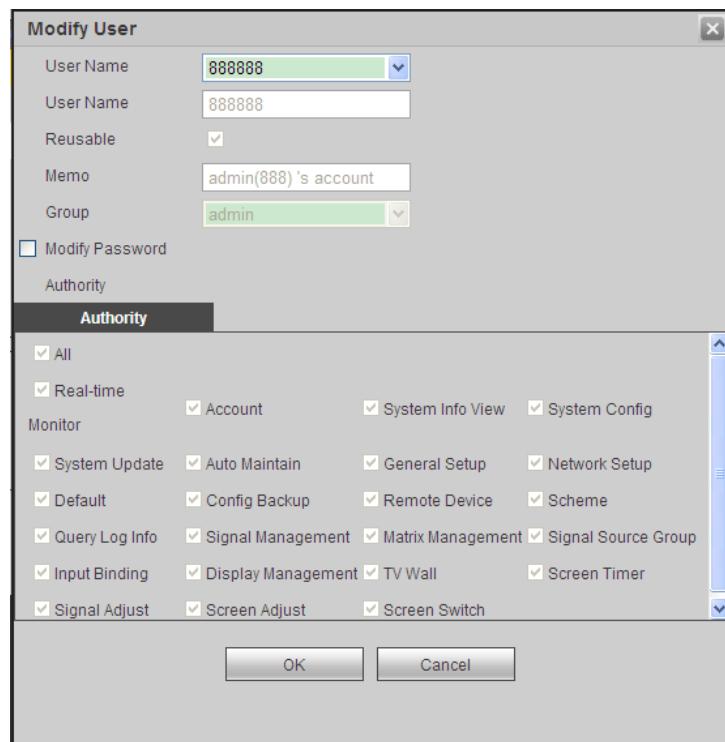


Figure 3- 27

You can modify username and password, check Modify Password to change password.

Note:

When selected user is not in admin group, you can modify its authorities.

Click  to delete user.

Add Group

Step 1. In Account interface, select group tab. System displays Figure 3- 28.

Account					
User	Group	Group Name	Memo	Modify	Delete
SN					
1		admin	administrator group		
2		user	user group		

Authority					
Real-time Monitor	Account	System Info View	System Config	System Update	Auto Maintain
General Setup	Network Setup	Default	Config Backup	Remote Device	Scheme
Query Log Info	Signal Management	Matrix Management	Signal Source Group	Input Binding	Display Management
TV Wall	Screen Timer	Signal Adjust	Screen Adjust	Screen Switch	

Figure 3- 28

Step 2. Click Add Group. System displays Figure 3- 29.

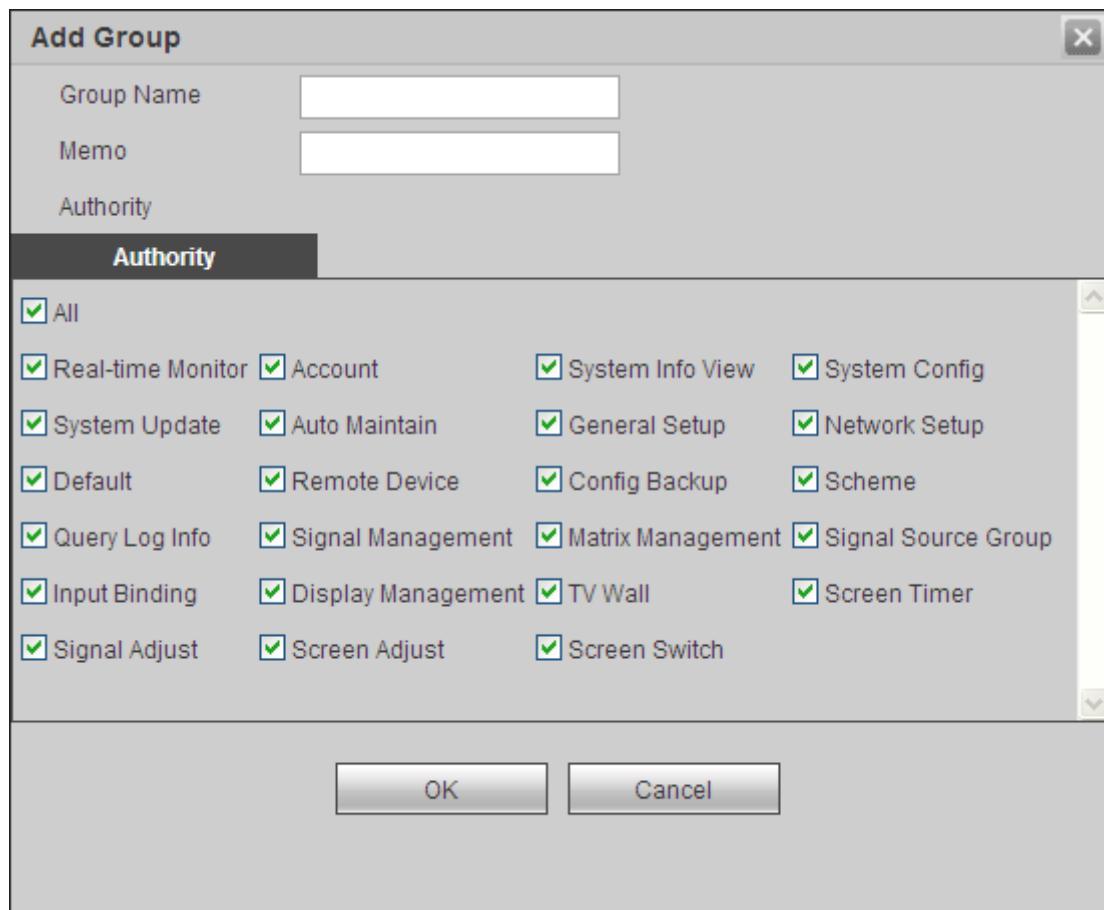


Figure 3- 29

Step 3. Input group name, memo and select authorities.

- Check box to enable corresponding authority.
- Check all to enable all authorities.

Step 4. Click OK.

3.4.1.3. Default

Step 1. Select settings>system config>default. System displays Figure 3- 30.

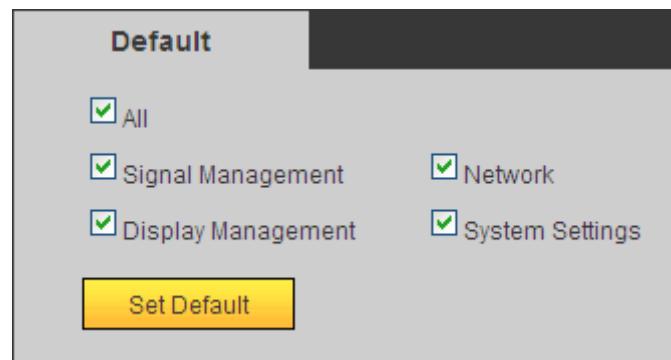


Figure 3- 30

Step 2. Check item to restore default settings.

- Check box of item to restore.

- Check all when you want to restore all items.
- Check Network, and IP address returns to default: 192.168.1.2.

Step 3. Click Set Default. System pops up a box.

Step 4. Click OK. System will reboot automatically and go to login page.

3.4.1.4. Config Backup

Select settings>system config>config backup. System displays Figure 3- 31.

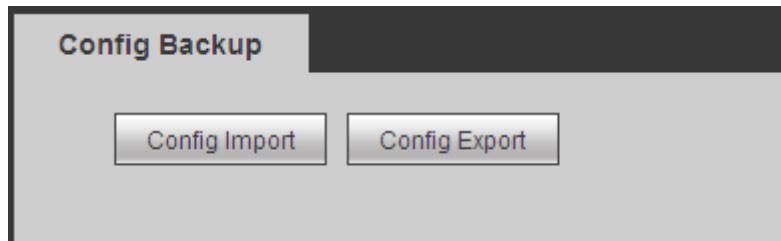


Figure 3- 31

- Click Config Import, select config file and import.
- Click Config Export, select path and export.

3.4.1.5. Auto Maintain

Step 1. Select settings>system config>auto maintain. System displays Figure 3- 32.

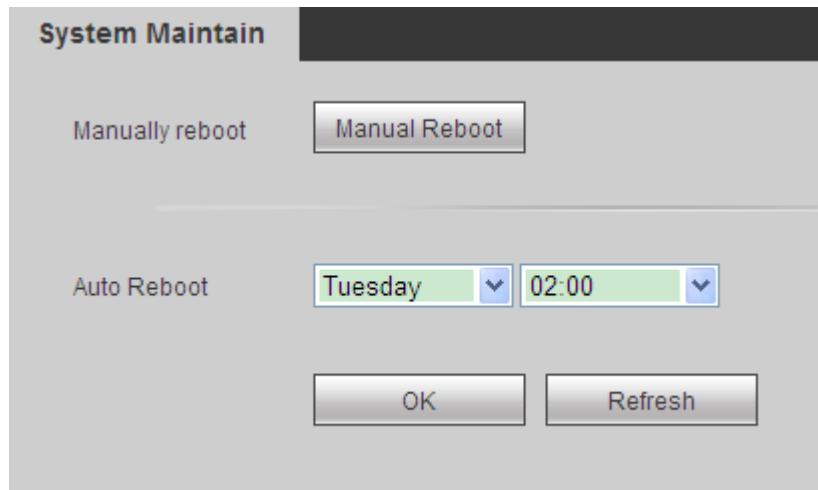


Figure 3- 32

Step 2. Select reboot method.

- Manual: click Manual Reboot.
- Auto, select day of week and time.

Step 3. Click OK.

3.4.1.6. Upgrade

Step 1. Select settings>system config>upgrade. System displays Figure 3- 33.

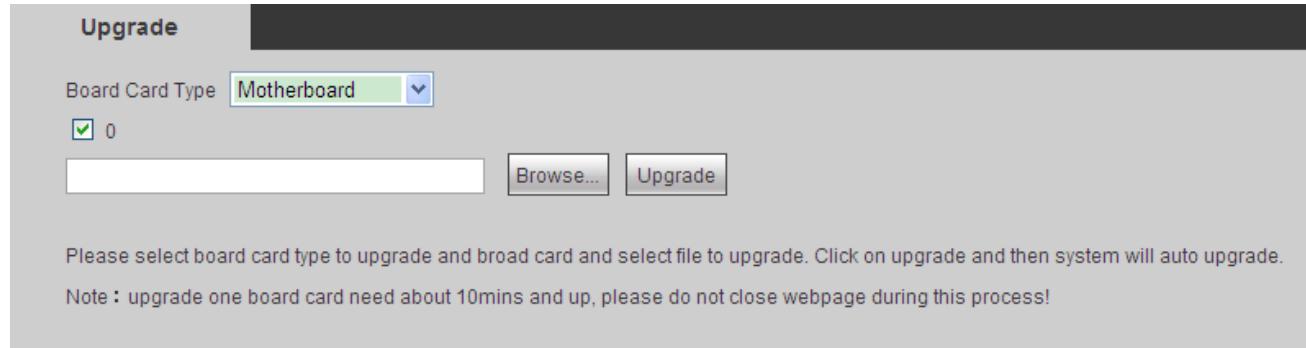


Figure 3- 33

Step 2. In board card type, select card type to upgrade. Check corresponding slot. System may upgrade board card individually, or as a batch for same-type board card.

Step 3. Click Browse to select file.

Step 4. Click Upgrade to upgrade. There will be progress bar during upgrading.

According to system message, when file is upgraded successfully, the controller will automatically reboot system. Please do not unplug the device from power until reboot completes.

3.4.1.7. Decoding Board

Step 1. Select settings>system config>decoding board. System displays Figure 3- 34.

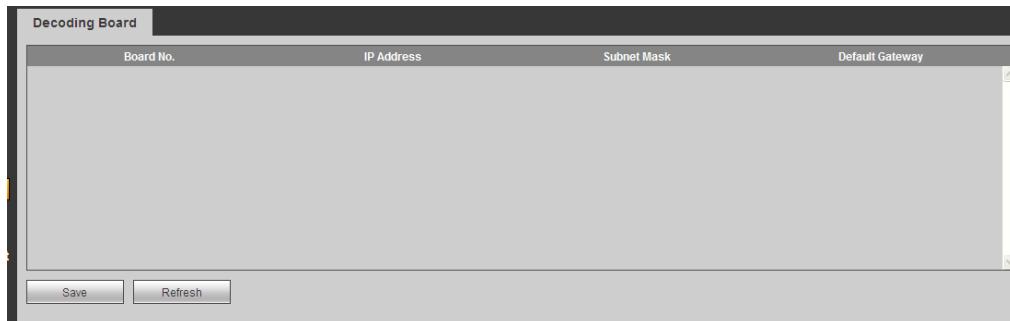


Figure 3- 34

Step 2. Click corresponding decoding board, input IP address, subnet mask and default gateway.

- IP address must be in the same segment with embedded multi-screen controller.
- Subnet mask is:255.255.255.0.
- Default gateway shall be same with embedded multi-screen controller.

3.4.1.8. Background Picture

After background picture is upgraded, user can use the background for screen.

Note:

Before you set background, you shall plug USB device into the host.

Step 1. Select Settings>System>Background Picture. See Figure 3- 35.

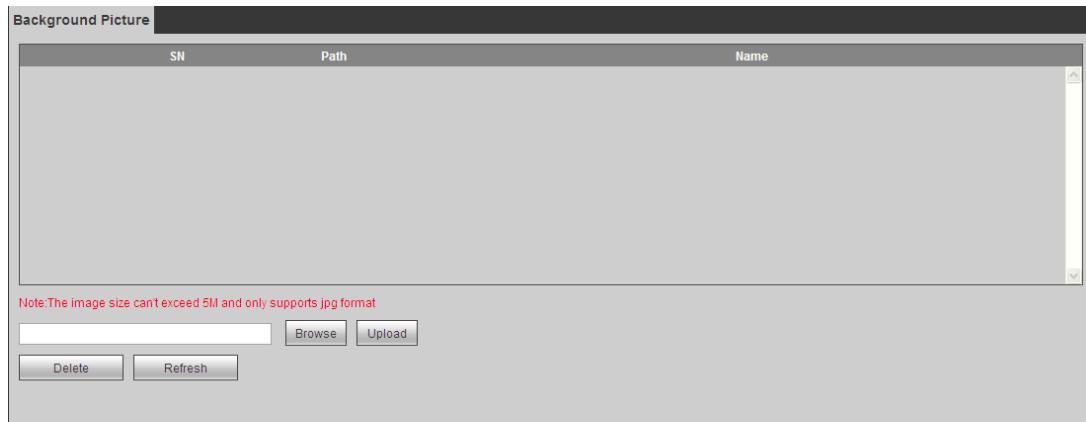


Figure 3- 35

Step 2. Click Browse, select local picture.

Step 3. Click Upload to upload local picture.

Note:

- Click Delete to delete picture.
- After background is successfully uploaded, you shall select corresponding background picture in TV wall config. Please refer to TV wall config.

3.4.2. Network Setup

You can modify device IP and set IP right PPPoE, DDNS, SMTP, UPnP, SNMP.

3.4.2.1. TCP/IP

Step 1. Select settings>network setup>TCP/IP. System displays Figure 3- 36.

TCP/IP

Mode	<input checked="" type="radio"/> Static <input type="radio"/> DHCP
MAC Address	20 . 32 . 04 . 01 . 50 . 37
IP Version	IPv4
IP Address	10 . 15 . 7 . 160
Subnet Mask	255 . 255 . 0 . 0
Default Gateway	10 . 15 . 0 . 1
Preferred DNS	8 . 8 . 8 . 8
Alternate DNS	8 . 8 . 4 . 4
<input type="button" value="OK"/> <input type="button" value="Refresh"/> <input type="button" value="Default"/>	

Figure 3- 36

Step 2. Set parameter, please refer to Chart 3- 2.

Parameter	Note
Mode	When you select static mode, you shall manually set IP, subnet mask and default gateway. Select DHCP mode for auto IP search.
MAC Address	Display host Mac address.
IP Version	Select IP version as IPV4
IP Address	Device IP address
Subnet Mask	Please fill in device subnet mask according to IP address
Default Gateway	Please fill in default gateway according to IP address.
Preferred DNS	Please fill in DNS IP address
Alternate DNS	Please fill in alternate DNS IP address

Chart 3- 2

Step 3. Click OK.

3.4.2.2. PPPoE

Input PPPoE username and password provided by ISP, and select enable. After being enabled, device will create network connection automatically via PPPoE. When connection is successful, IP in IP address field will be modified into WAN dynamic IP.

Note:

After PPPoE dial is successful, you need to login device via LAN IP. In PPPoE setup page, it will show registered WAN IP, and Client will access via this IP. See Figure 3- 37.

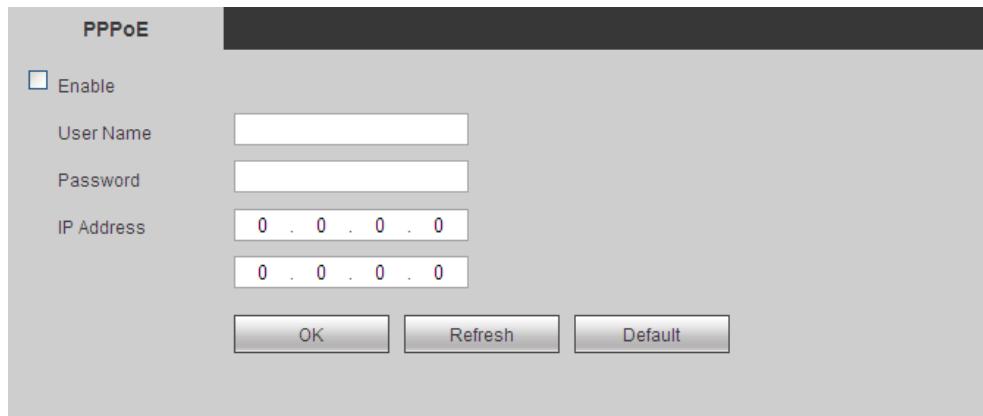


Figure 3- 37

3.4.2.3. DDNS

DDNS, by setting connection to different servers, access system via server. Apply for domain name in each server site, and access the system via domain name (even IP address changed).

Select DDNS type, user select one or more setup according to domain analysis server type. See Figure 3- 38

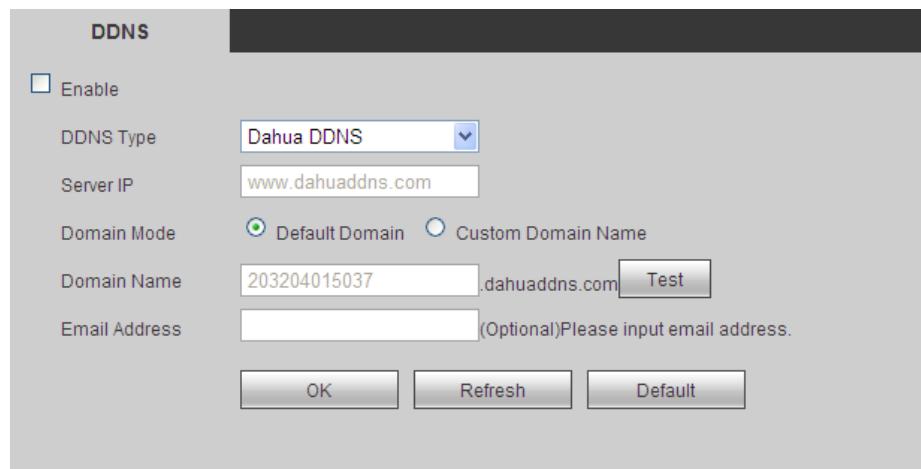


Figure 3- 38

3.4.2.4. IP Right

Step 1. Select settings>network setup>IP right. System displays Figure 3- 39.

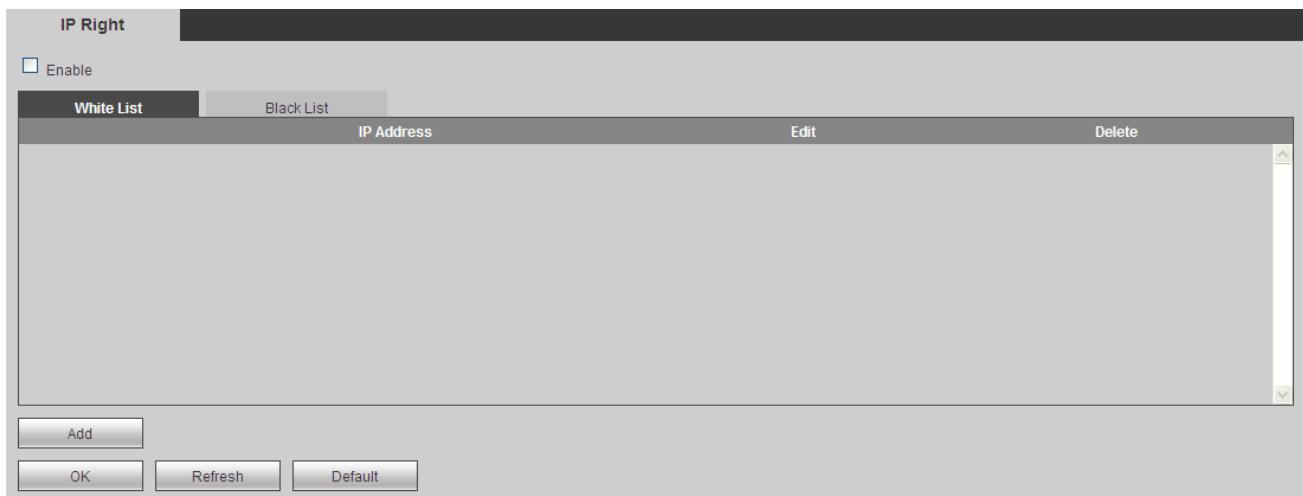


Figure 3- 39

Step 2. Check Enable to enable white list and black list.

- Select white list so only IP on white list can access device.
- Select black list so IP on black list cannot access device.

Step 3. Select white list or black list tab, add device.

a) Click Add, system displays Figure 3- 40.

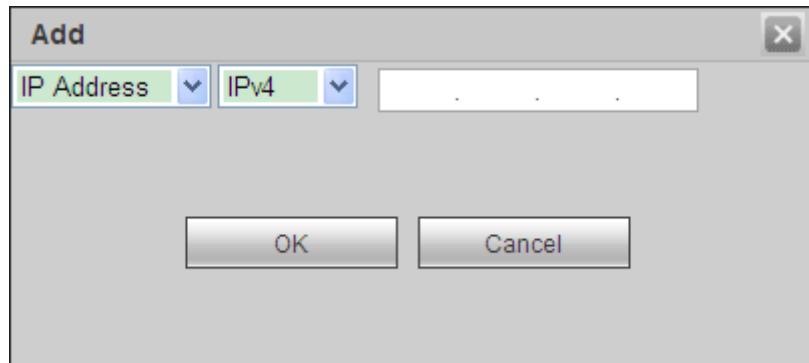


Figure 3- 40

b) In dropdown list, select IP address or IP segment.

- When you add IP address, input IP address.
- When you add IP segment, input start IP and end IP of the segment.

c) Click ok.

Step 4. Click OK.

a) Click  to modify.

b) Click  to delete.

3.4.2.5. SMTP

Set sender's SMTP server, port, username, password/receiver's mail and health mail info, sending interval. Title supports English and number input, max 3 characters. You can set up to 3 receivers and SSL, TLS encrypted mail. See Figure 3- 41.

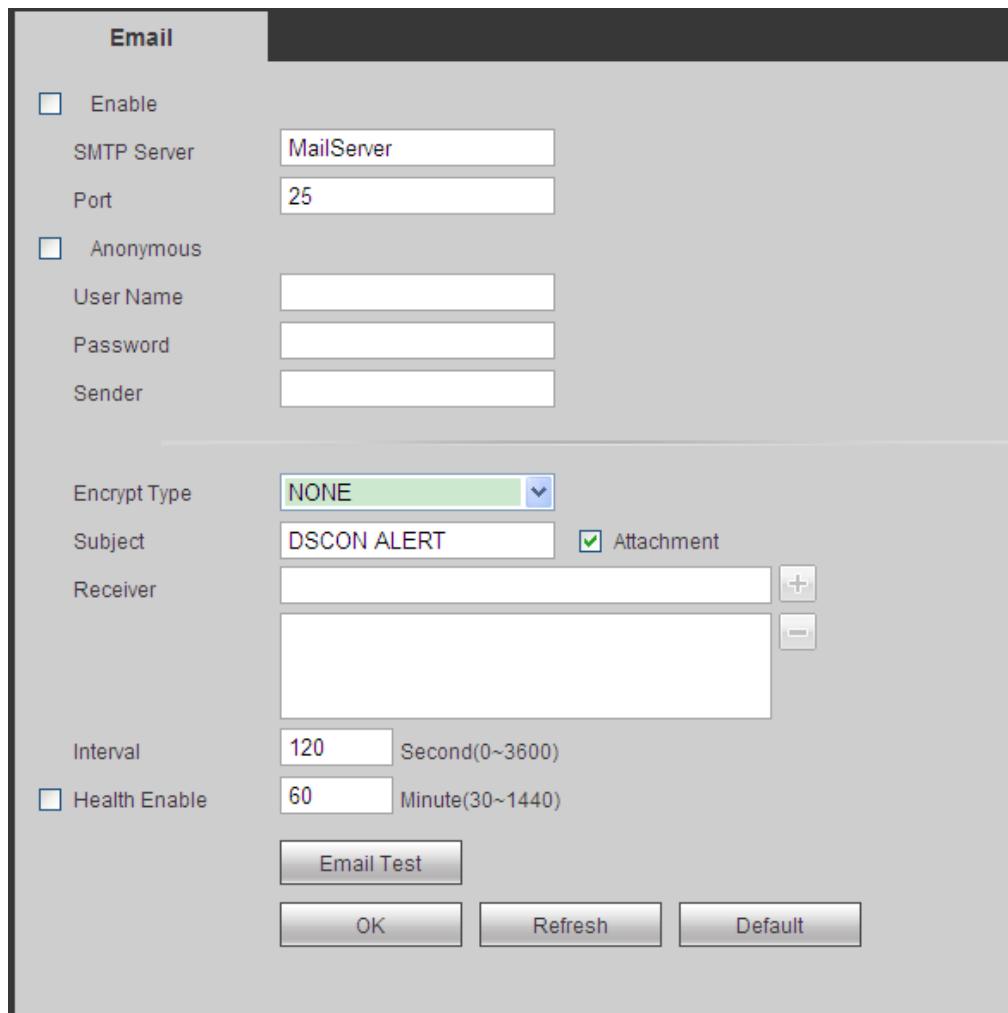


Figure 3- 41

Sending Interval

Mail sending interval range is 0-3600s, 0 is no interval. After setting interval, when alarm, video detection, abnormal event trigger EMAIL, then email will not be sent immediately, instead, email will be sent according to previous event of the same type. It is mainly used in time when there is lots of email to send.

Send Health Mail

Health mail tests if mail is successfully sent automatically. Enable this function, and set health mail sending interval, then system will send health mail accordingly.

Mail Test

Test if mail sending and receiving are normal. If configuration is right, mail box will receive test mail. Before test mail, you must click OK to save config.

3.4.2.6. UPnP

Via UPnP, create mapping relationship between LAN and WAN. Select info in port mapping list and delete it. Double click info in the list to modify it. You can add by clicking on add mapping. After setup is done, click OK to save config.

Step 1. In Window, install UPnP network service.

- a) Open Control Panel. Select add/delete program.
- b) Click add/delete Window component.
- c) Select network service, and click detail info.
- d) Check Internet gateway device discover and control client, and UPnP user interface. Confirm and Install.

Step 2. Enable UPnP on web.

Under Windows, if system UPnP is enabled, network camera will be automatically detected in Network Place. See Figure 3- 42.

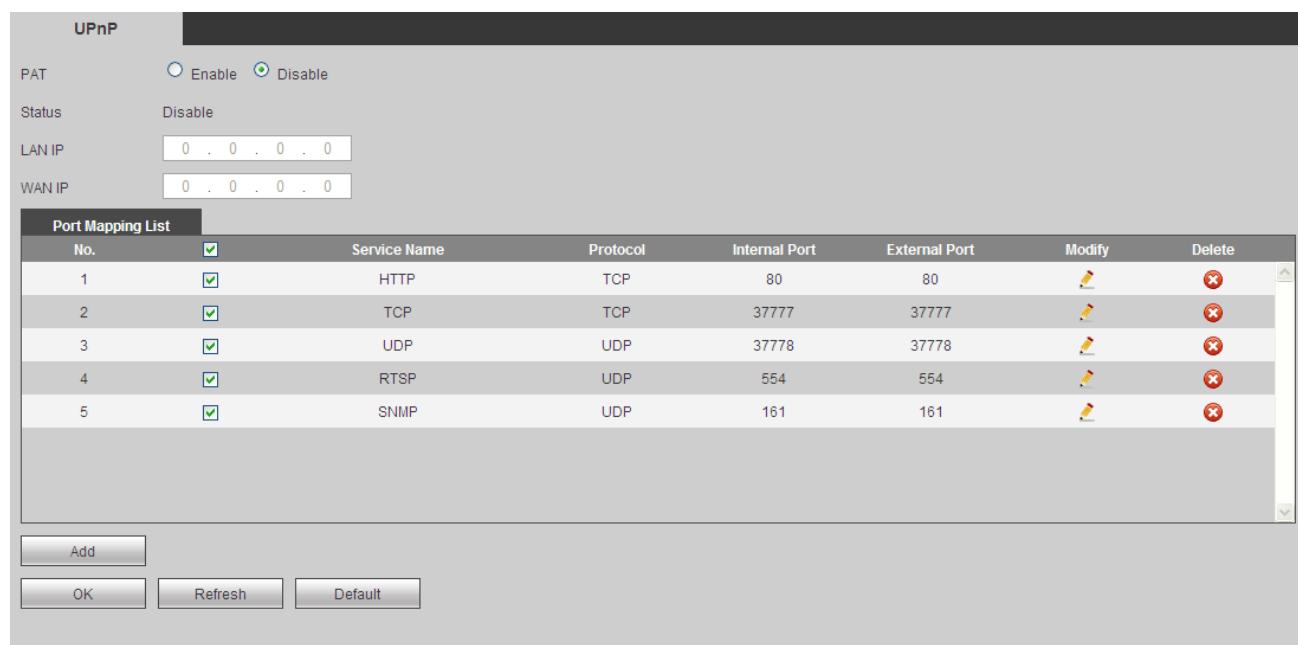


Figure 3- 42

3.4.2.7. SNMP

SNMP provides basic network management frame for network management system. Network service setup allows you to control SNMP function. See Figure 3- 43.

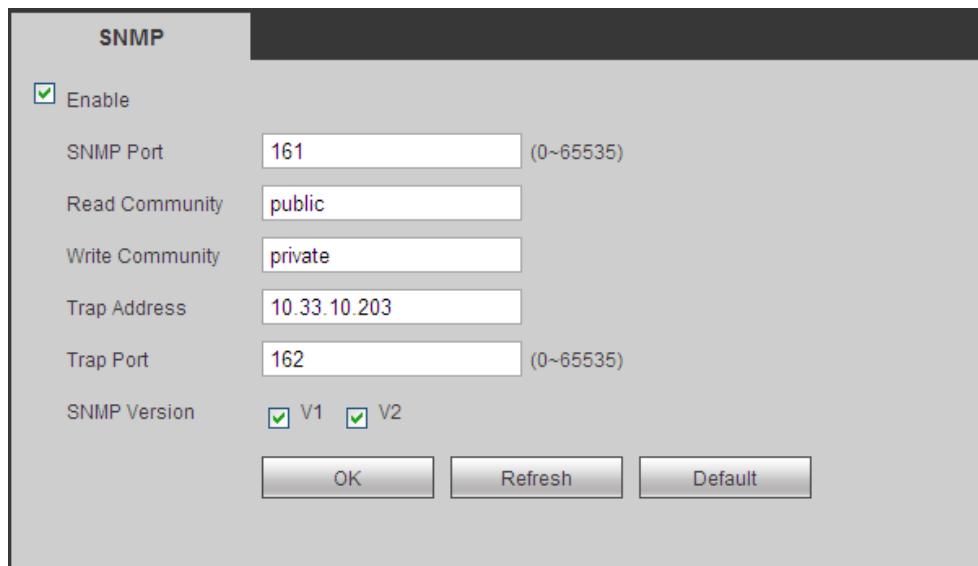


Figure 3- 43

- SNMP port: Device proxy program listening port, as UDP port, not TCP port, default is 161. Its range is 1~65535.
- Read community: One string, as text password between management program and proxy program. It defines the authentication between one proxy and one group of manager, and access control, and hosting. Device and proxy shall match each other. Read community appointed name, read-only access all objects that support SNMP. Default config : public.
- Write community: One string, as text password between management program and proxy program. It defines the authentication between one proxy and one group of manager, and access control, and hosting. Device and proxy shall match each other. Write community appointed name, read/write access all objects that support SNMP. Default config : private.
- Trap address: Device proxy program sends Trap info's target address.
- Trap port: Device proxy program sends Trap info's target port, for switch between gateway device and LAN client. This port as a non-connection protocol port, does not affect normal network application. It is as UDP port, not TCP port, default is 162, and range is 1~65535.
- Version: Check SNMP V1, device only can process V1 version info, and check SNMP V2 and then device only can process V2 version info

3.4.3. Event Management

3.4.3.1. Alarm Setup

Select Settings>Event Management>Alarm Setup. See Figure 3- 44.

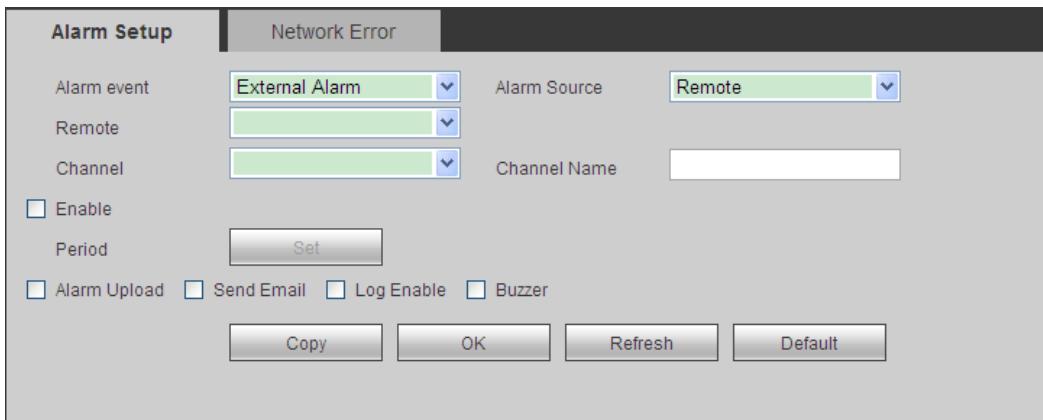


Figure 3- 44

Set each parameter according to actual condition, click OK to save.

3.4.3.2. Network Error

Select Settings>Event Management>Alarm Setup>Network Error, see Figure 3- 45.

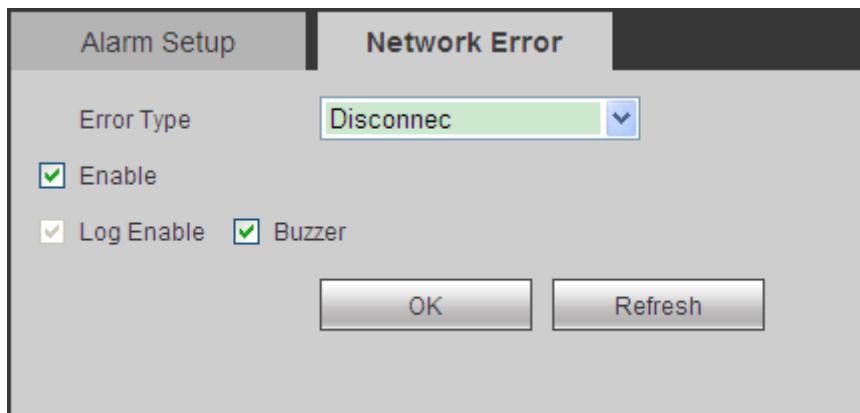


Figure 3- 45

Enable and buzzer according to different types of error. Click OK to save.

3.4.4. Signal Management

In signal management, you can set analog matrix, input binding, matrix protocol, remote device, local signal and signal group.

3.4.4.1. Analog Matrix

Select settings>signal management>analog matrix. System displays Figure 3- 46.

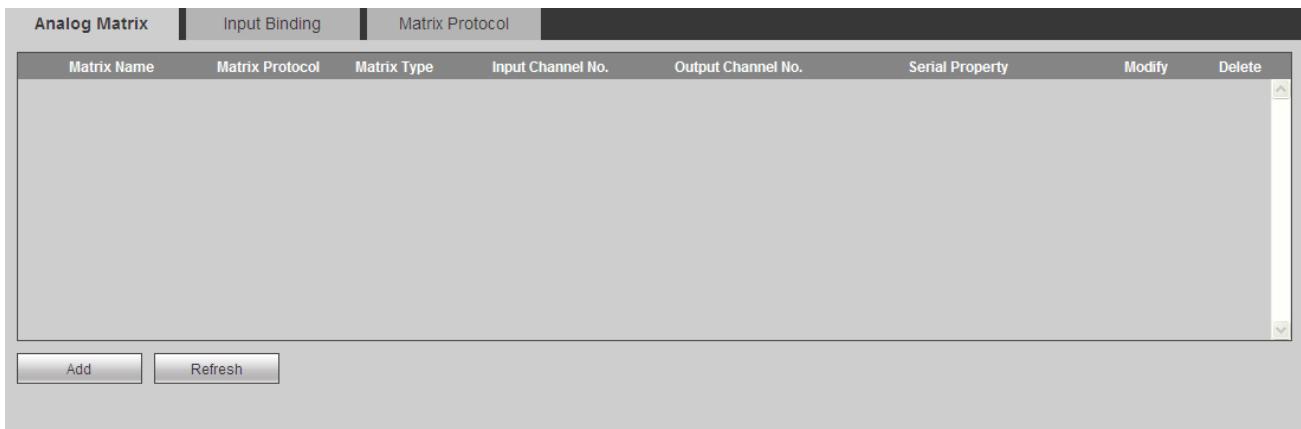


Figure 3- 46

Add Matrix

Step 1. Select analog matrix tab.
 Step 2. Click Add. System displays Figure 3- 47.

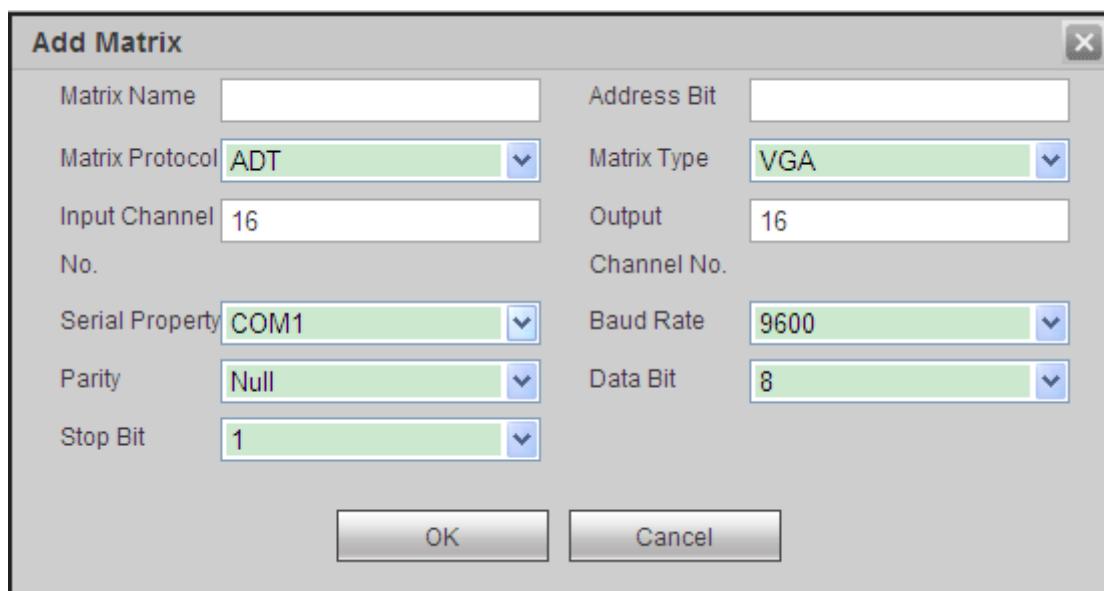


Figure 3- 47

Step 3. Set parameter, please refer to Chart 3- 3.

Parameter	Note
Matrix Name	Customize.
Matrix Protocol	According to connected matrix, select protocol. Please refer to Appendix 1.
Serial Property	Select the serial port used to control this matrix. COM1=RS232-1 port COM2= RS232-2 port COM3=RS232-3 port COM4=RS485 port

Parameter	Note
Address Bit	Address code for this matrix
Input Channel No.	Matrix input port no.
Output Channel No.	Matrix output port no.
Baud Rate	Baud rate of serial
Parity	Parity bit of serial protocol
Data Bit	Data bit of serial protocol
Stop Bit	Stop bit of serial protocol
Channel Name	User may modify channel name accordingly.

Chart 3- 3

Step 4. Click OK.

3.4.4.2. Input Binding

According to actual condition of connection between matrix and device input port, set input binding.

Step 1. Select settings>signal management>input binding. System displays Figure 3- 48.

Analog Matrix	Input Binding	Matrix Protocol				
No.	Signal Type	Input board no.	Channel No.	Corresponding Device	Device Output Channel	
1	CVBS	0:0	1	Null	Null	
2	CVBS	0:0	2	Null	Null	
3	CVBS	0:0	3	Null	Null	
4	CVBS	0:0	4	Null	Null	
5	CVBS	0:0	5	Null	Null	
6	CVBS	0:0	6	Null	Null	
7	CVBS	0:0	7	Null	Null	
8	CVBS	0:0	8	Null	Null	

Save **Refresh**

Figure 3- 48

Step 2. Select signal type row and you can select matrix device under Corresponding Device column. In Device Output Channel column, select matrix actual output channel which connects to corresponding channel no. on collection board. This shall match actual device connection.

Note:

Matrix in corresponding device is added in matrix management.

Step 3. Click save.

3.4.4.3. Add Matrix Protocol

Step 1. Select Matrix Protocol tab. System displays Figure 3- 49.

Matrix Protocol					
SN	Protocol Name	Protocol Content	ASCII Type	Modify	Delete
1	Creator	25492a254f26	<input type="checkbox"/>		
2	Extron	25492a254f21	<input type="checkbox"/>		
3	Infinova	254f4d6125492361	<input type="checkbox"/>		

Figure 3- 49

Step 2. Click Add. System displays Figure 3- 50.

Add

Protocol Name	<input type="text"/>
Protocol Content	<input type="text"/> Example: 2%A%O(%!)
HEX Content	<input type="text"/>
ASCII Type	<input type="checkbox"/> Note: Please input protocol content.
Protocol Note: (1) —— First number represents width of port value. (2) —— A is address. (3) —— %I is input port no. (4) —— %O is output port no.	
<input type="button" value="OK"/> <input type="button" value="Cancel"/>	

Figure 3- 50

Step 3. Input protocol name, protocol content and HEX content.

- Protocol name cannot be repeated with existing protocol.
- Protocol content naming rule is:
 - %A=address code.
 - %I=input port no.
 - %O=output port no.
 For example a protocol content is “B1*3&”, address code is B, input port no. is 1, output port no. is 3, then input content box string is “%A%I*%O&”.
- If protocol is ASCII type, please check box.

Step 4. Click OK.

- Click to modify.

- Click  to delete.

Upload Matrix Protocol

User may provide currently not supported matrix protocol to manufacturer and after it is converted into LUA script format, you can upload protocol file to complete adding of protocol.

3.4.4.4. Network Signal

You can add device within network to achieve signal preview and output to wall. You also can control remote device.

Note:

Only specific model has local decoding function.

Select settings>signal management>network signal. System displays Figure 3- 51.

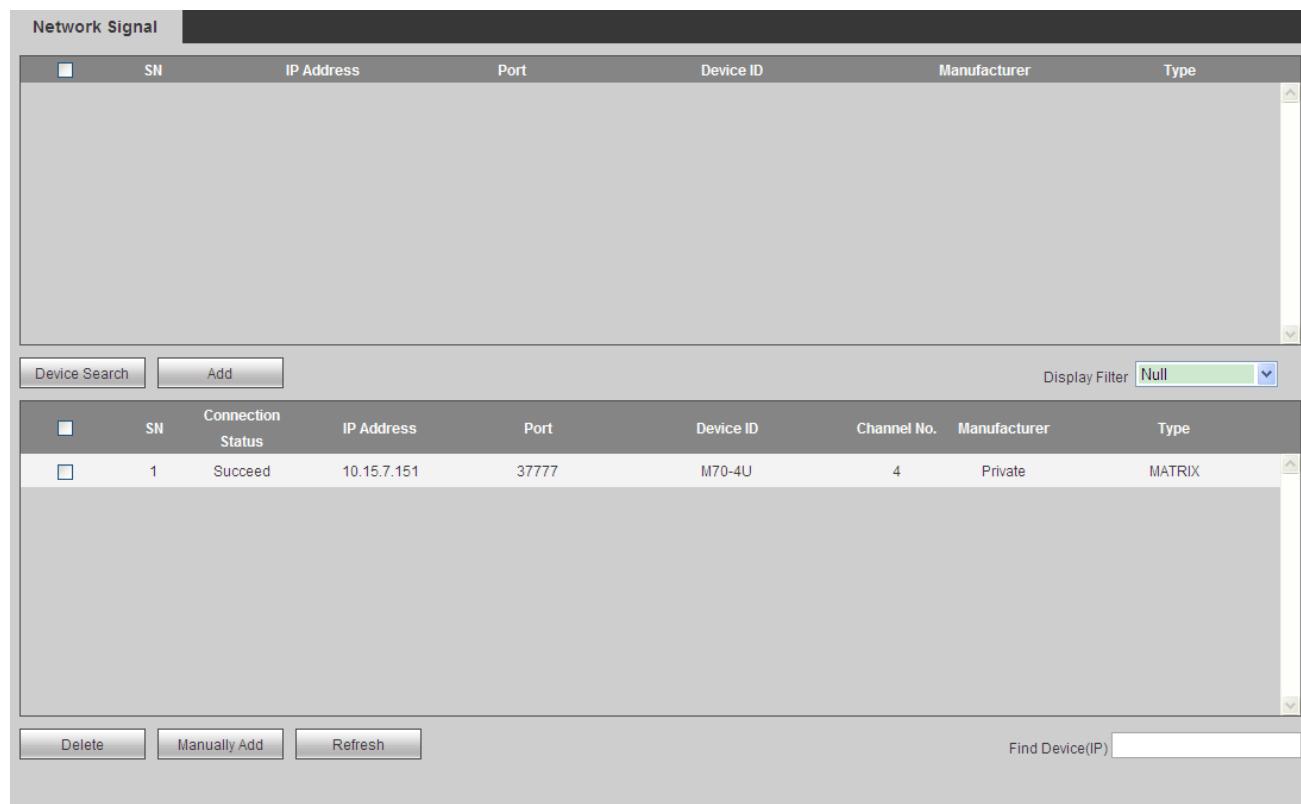


Figure 3- 51

Auto Add

Step 1. Click Device Search.

The interface will display the devices searched in current network.

Note:

In Display Filter dropdown list, you can select device type. Only device of the selected type will be displayed.

Step 2. Check box in front of SN column to select device to add.

Step 3. Click Add.

Manually Add

Step 1. Click Manually Add. System displays Figure 3- 52.

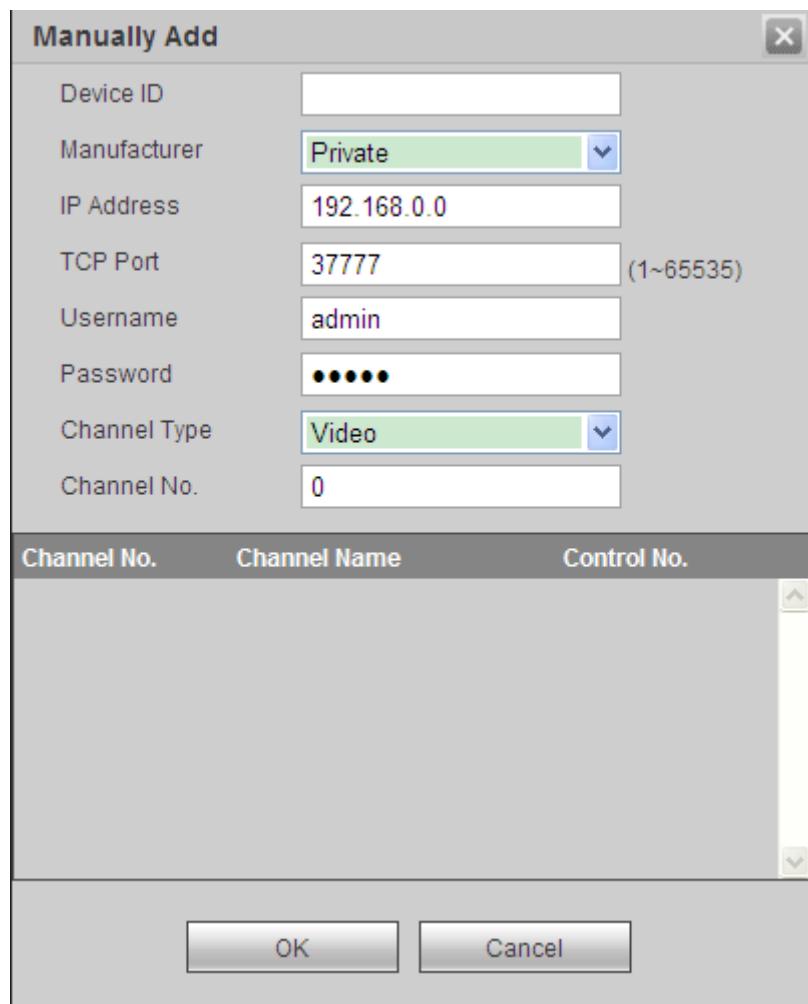


Figure 3- 52

Step 2. Set parameter, please refer to Chart 3- 4

Parameter	Note
Device ID	Input name of device to add.
Manufacturer	Match the device. Note: For manufacturer, after you select General, you can output to video wall via url address which supports rtsp stream.

Parameter	Note
IP Address	Remote device IP address
TCP Port	Remote device TCP port no.
Username	Remote device username
Password	Remote device password of above username
Channel Type	Select video or alarm.
Channel No.	Device channel no.

Chart 3- 4

Step 3. Check the box to select the corresponding channel to enable the video preview function.

Step 4. Click OK.

3.4.4.5. Local Signal

You can view each card signal of local device, and modify signal name. System displays Figure 3- 53.



Figure 3- 53

3.4.4.6. Signal Group

You can manage network signals as groups.

Step 1. Select settings>signal management>signal group. System displays Figure 3- 54.

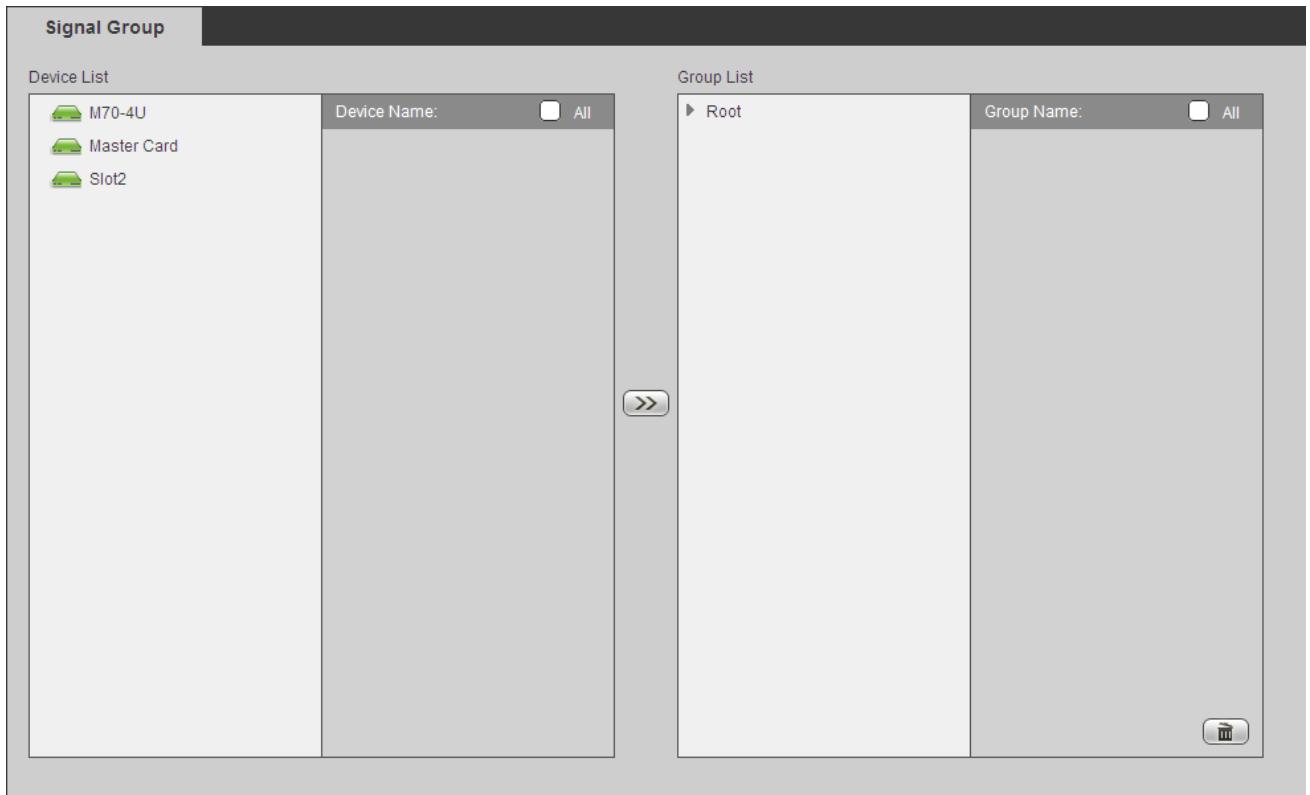


Figure 3- 54

Step 2. In Group List, select root, click . You can create group under root.

Note:

Click next to group to modify group name and click to save.

Click to add group below.

Step 3. In device list, select device to add into the group, and when you click the device, you can see its channel in device name column.

Step 4. Check channel to add, click . When you have successfully added channel, you can see it in Custom tab under Screen tab.

- Select group name, click Delete to delete group.
- Select group name, in group name column, you can see all channels under selected group. You can check corresponding box and click to delete them.

3.4.5. Display Management

You can set TV wall and screen on/off schedule(timer) via display management.

3.4.5.1. TV Wall

Step 1. Select settings>display management>TV wall. System displays Figure 3- 55.

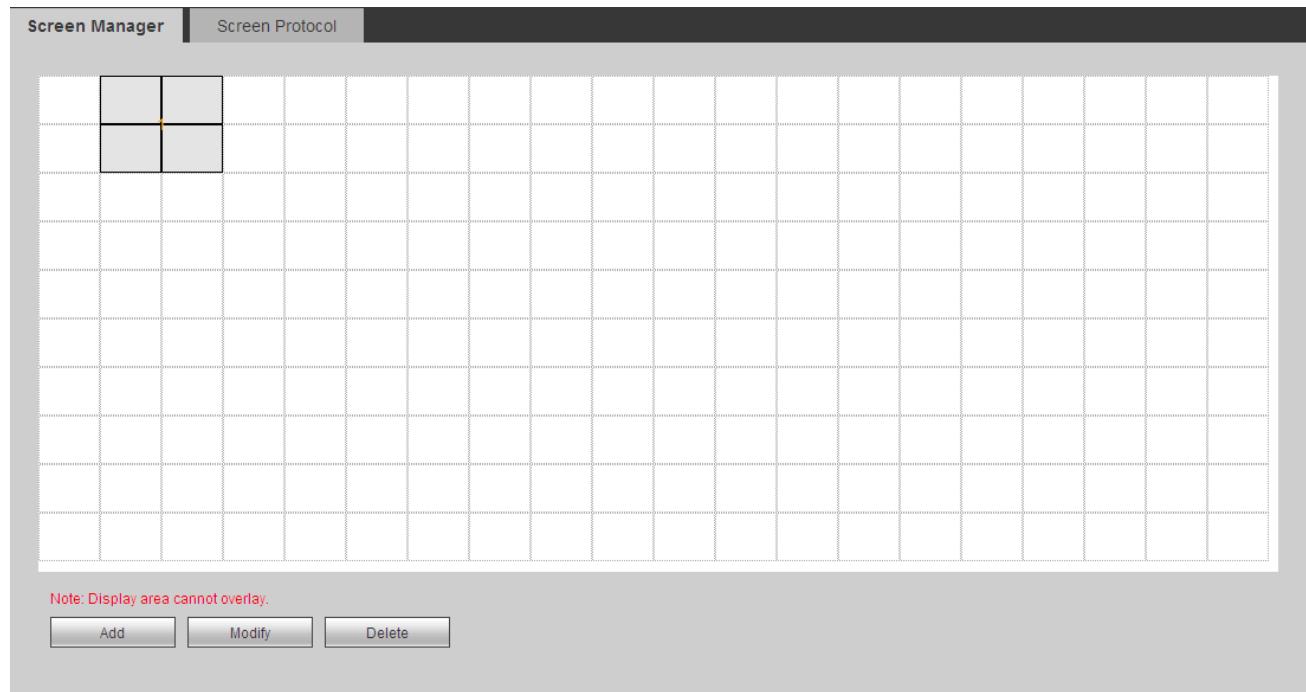


Figure 3- 55

Step 2. Click Add. System displays Figure 3- 56.

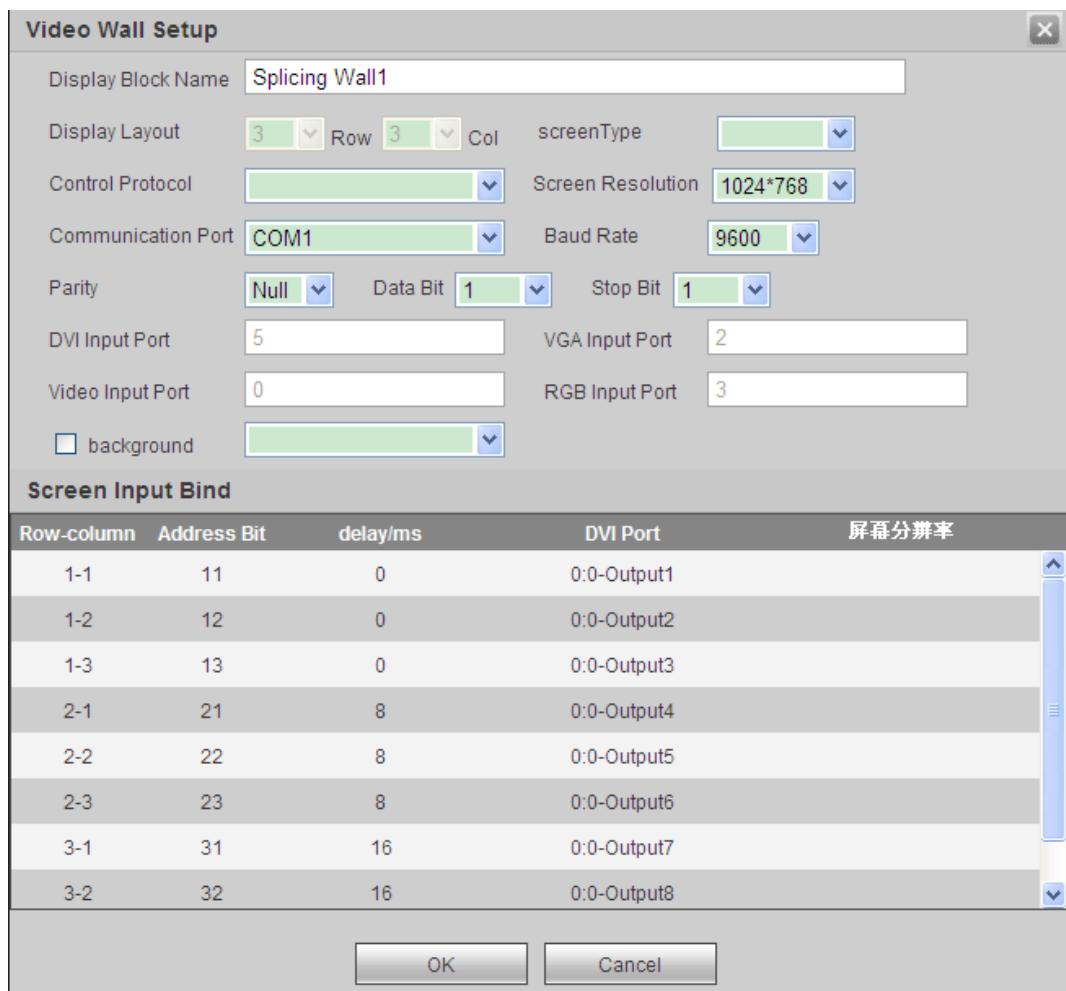


Figure 3- 56

Step 3. Set parameter, please refer to Chart 3- 5 and Chart 3- 6.

Parameter	Note
Display Block Name	Named by user
Display Layout	Config quantity of block in display area
Control Protocol	Display device control protocol
Screen Resolution	Device output resolution
Communication Port	Device output serial, COM1-COM3
Baud Rate	Communication baud rate
Parity	Communication serial parity
Data Bit	Communication serial protocol data bit
Stop Bit	Communication serial protocol stop bit
Background	Upload local picture, and check to enable. When there is no TV wall display, it displays this background.

Chart 3- 5

Control Protocol	DVI Input Port	VGA Input Port	RGB Input Port	Video Input Port
Samsung	24	20	10	12
Zhongda	3	2	5	4

Chart 3- 6

Step 4. Set screen input binding.

- Delay/ms: Screen delay, select by clicking on dropdown list.
- DVI: it is the connection relationship between device output port and display input port. Select in dropdown list by clicking on designated row.

Step 5. Click OK.

Note:

“0:0 output 1” as 0:0 is Board No. Device rear panel can insert into master card and single board. Board No. is used to label the physical locations of master card, single board. For example, Board No. 0:2 means single panel locates at master card no. 0 and single board no.2. See Figure 2- 2.

3.4.5.2. Screen Protocol

User may provide currently not supported matrix protocol to manufacturer and after it is converted into LUA script format, you can upload protocol file to complete adding of protocol. See Figure 3- 57.



Figure 3- 57

3.4.5.3. Screen Timer

You can set screen on/off timer.

Step 1. Select settings>display management>screen timers. System displays Figure 3- 58.

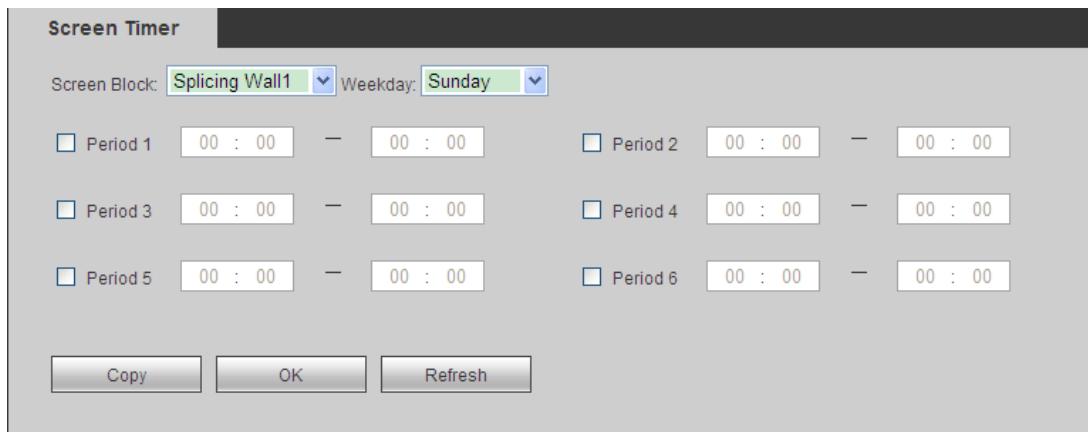


Figure 3- 58

Step 2. Select Screen Block and Weekday. There are six periods available to use. When you finish setting time, check box of corresponding period.

Step 3. Click OK.

Note:

Click Copy, system pops up Figure 3- 59. You can set time period, and apply it to other day of week by checking corresponding box and clicking on OK.

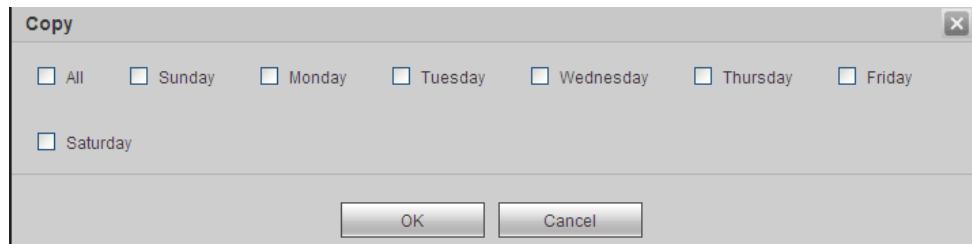
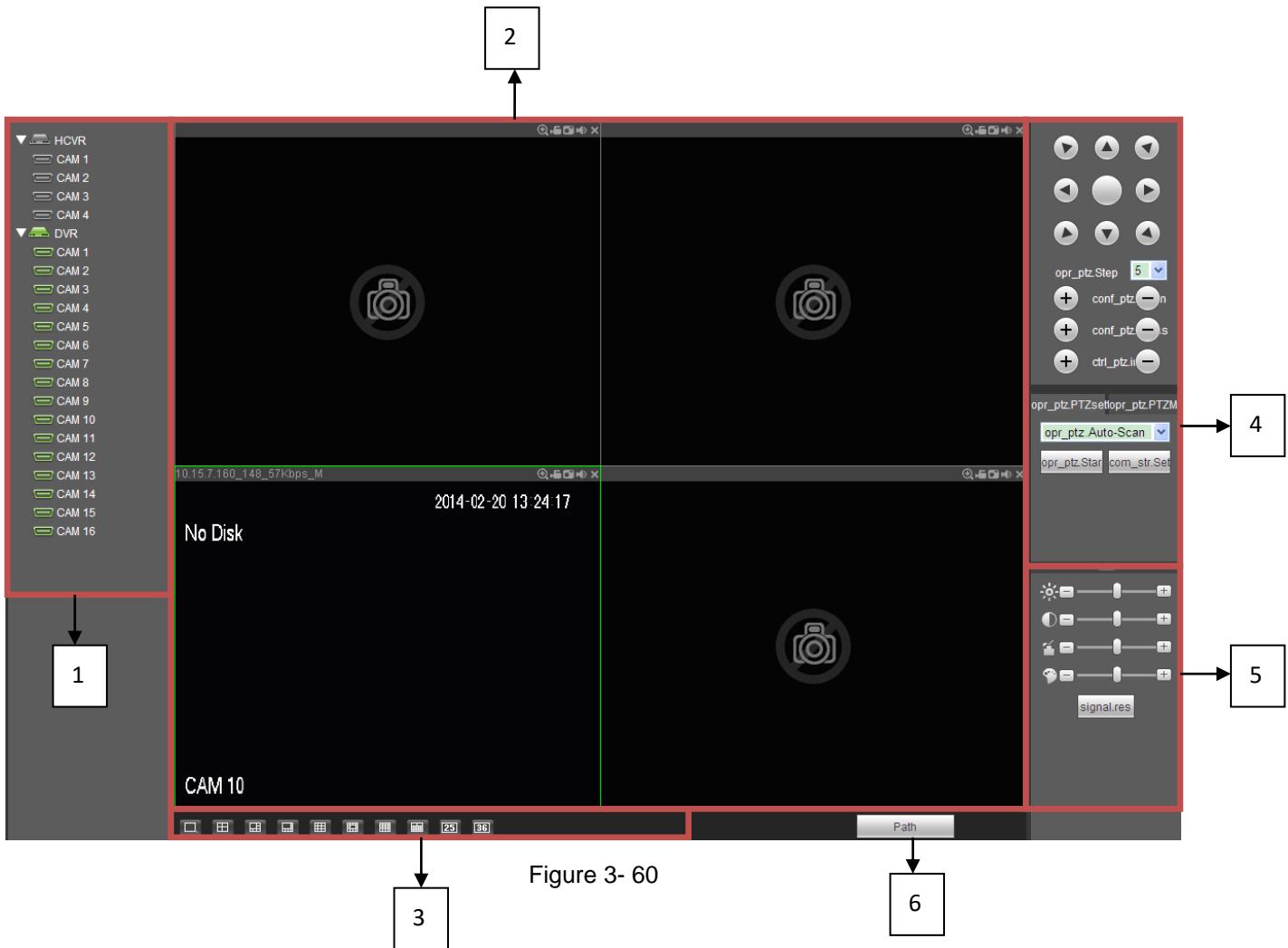


Figure 3- 59

3.5. Preview

You can view the video signals of remote devices on-line, after you have added those channels in "Remote Device" .Select Preview tab, system displays Figure 3- 60.



Please refer to Chart 3- 7.

No.	Name	Note
1	Device List	Display device available for preview
2	Preview	<p>In preview window, click device channel in device list to preview the selected channel.</p> <p>10.15.7.160_148_56Kbps_M: Display IP address, channel no., stream type of the device. M is main stream; S is extra stream (sub stream).</p> <p>: Click this button, and in preview window, drag left mouse to select any area in window. The selected area will be zoomed in. Right click to cancel.</p> <p>: Click this button to start recording. Record file will be saved to RecordDownload.</p> <p>: Click this button to snapshot. Snapshot will be saved to PictureDownload.</p> <p>: Turn on/off audio. If you do not enable this function, there will be no sound during monitoring.</p> <p>: Close video monitoring of the window.</p>
3	Window Switch	Can change quantity of window.

4	PTZ	Can control PTZ direction step length, zoom, focus, iris, preset, tour, pattern, scanning, wiper, rotation and etc. Step length mainly used in speed operation. For example, 8 step length rotation is faster than 1 step length rotation. PTZ can rotate in up/down/left/right/upper left/upper right/lower left/lower right.
5	Image	Select any one channel (in green box), you can adjust its brightness, contrast, HUE, saturation.
6	Path	Save file under this path after snapshot and record. You can customize it.

Chart 3- 7

3.6. Info

You can view device info and user's manual info.

3.6.1. Device Info

3.6.1.1. Board Card Info

You can view information of board card in each slot.

Select info>device info>board card info. System displays Figure 3- 61.

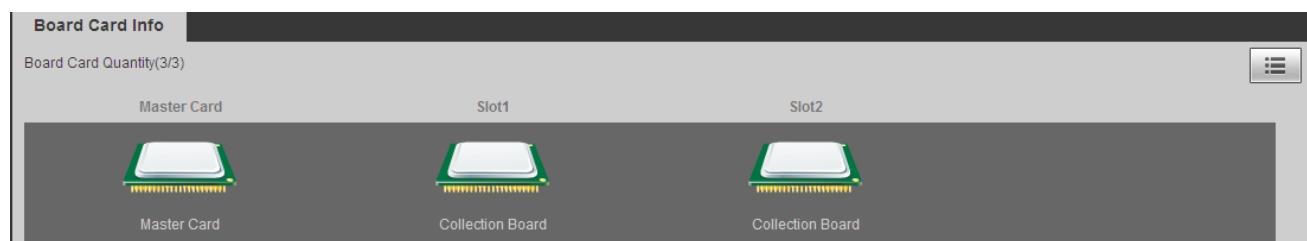


Figure 3- 61

- Click corresponding board card, and you can view info of the board card as in Figure 3- 62.

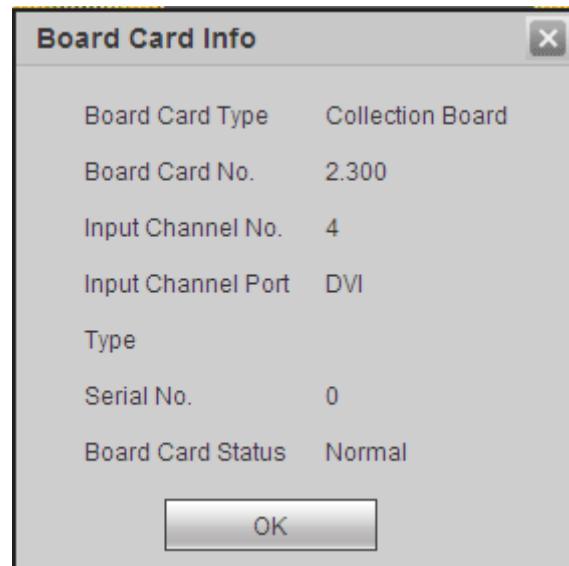


Figure 3- 62

- Click to view in list format.
- Click to view in diagram format.

3.6.1.2. System Log

You can view system log in this interface.

Step 1. Select info>device info>log. System displays Figure 3- 63.

The interface is titled "Log". It includes the following controls:

- Start Time: 2014 - 02 - 01 00 : 00 : 00
- End Time: 2014 - 02 - 15 00 : 00 : 00
- Types: All (selected)
- Search button

Below these are the log entries:

No.	Time	Event
1	2014-02-12 16:11:08	Shut down
2	2014-02-12 16:11:08	Boot up
3	2014-02-12 16:11:08	User logged in
4	2014-02-13 11:44:48	User logged in
5	2014-02-13 13:21:28	User logged out
6	2014-02-13 13:21:28	User logged out
7	2014-02-13 15:28:28	User logged in
8	2014-02-13 15:34:28	User logged out

Below the log table is a "System Log Info" text area. At the bottom are "Backup" and "Clear" buttons, along with navigation icons.

Figure 3- 63

Step 2. Input start time and end time, select log type.

Step 3. Click Search.

- Click Backup to backup log to local PC.
- Click Clear to delete all logs within selected period.

3.6.1.3. Online User

Step 1. Select info>device info>online user.

Step 2. Click Refresh. It displays current online user as in Figure 3- 64.

No.	Username	Group Name	IP Address	User Login Time
1	admin	admin	10.15.7.145	2014-02-12 16:10:51
2	admin	admin	10.18.116.161	2014-02-14 08:40:24

Figure 3- 64

3.6.1.4. About

Select info>device info>about, and you can view local info as in Figure 3- 65.

Version	
SN:	00000000000000000000
Web:	3.0, 2013-01-13
System Version:	2.610.0000.0, Build Date : 2014-01-16

Figure 3- 65

3.6.2. Help

Select info>help>user's manual to view or download user's manual.

4. Quick Guide

If it is your first time using the device, you can refer to the following section for quick start guide.

4.1. Cabling

Open device package, check if device is complete without damage and check if accessories are complete too. Then please follow these steps to connect wires and cables.

Note:

During installation, you shall hold module stable with hand, and after you have checked direction of module port, progressively push in it into slot. Stop when there is 1~2cm in distance to the bottom. Lightly push in module and tighten the set screws on top and at bottom of module.

Step 1. Video signal output port connection.

Step 2. Video signal input port connection.

Single board module can connect to different front-end devices via switching collection board and input different video signals. For example, VGA signal, HDMI signal, DVI signal, and SDI signal.

Step 3. (Optional) control signal output port connection. Device master module has three RSS232 ports.

You can connect screen to any one of these ports. Device controls splicing screen on/off timer via this port.

Step 4. Plug in power line.

Note:

For rear panel cabling, please refer to Ch 2.2. See Figure 4- 1.

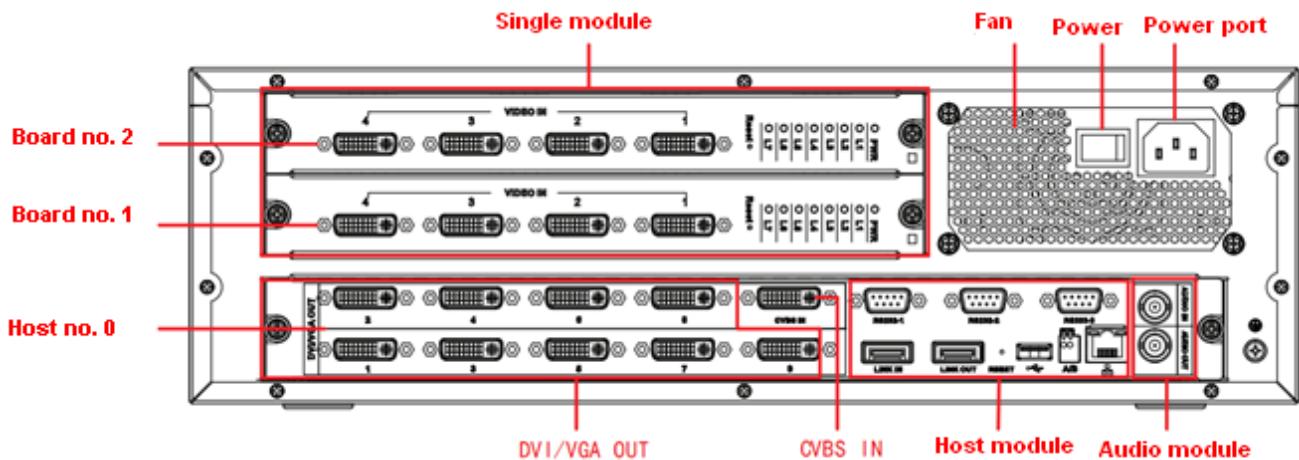


Figure 4- 1

4.2. Modify Network Parameter

Please modify device default network parameter for current network condition.

Step 1. Connect device to PC with network cable. Set IP of the PC in segment of 192.168.1.*.

Note:

Default device ID address is 192.168.1.2, subnet mask is 255.255.255.0 and gateway is 192.168.1.1.

Step 2. On PC, use ping command to check is network connection is normal.

If network works properly, you can go to step 3. Otherwise, please check network connection, parameter and power supply.

Step 3. In Internet Explorer, input device IP address (<http://192.168.1.2>), and press Enter.

Step 4. Input admin and admin to login as administrator.

Step 5. In WEB homepage, select settings>network setup>TCP/IP, change device IP address, default gateway, subnet mask.

4.3. Login WEB

Please refer to Ch 3.1.

4.4. Set TV Wall

For example, you want to add 3 row*3 column display blocks.

Step 1. Select settings>display management>TV wall. See Figure 4- 2.

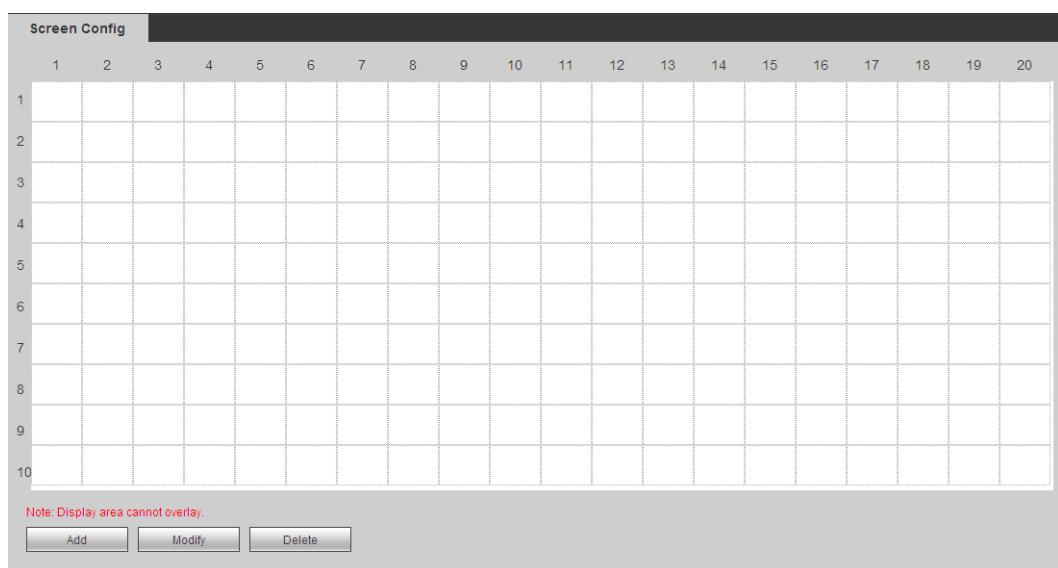


Figure 4- 2

Step 2. Click Add. See Figure 4- 3.

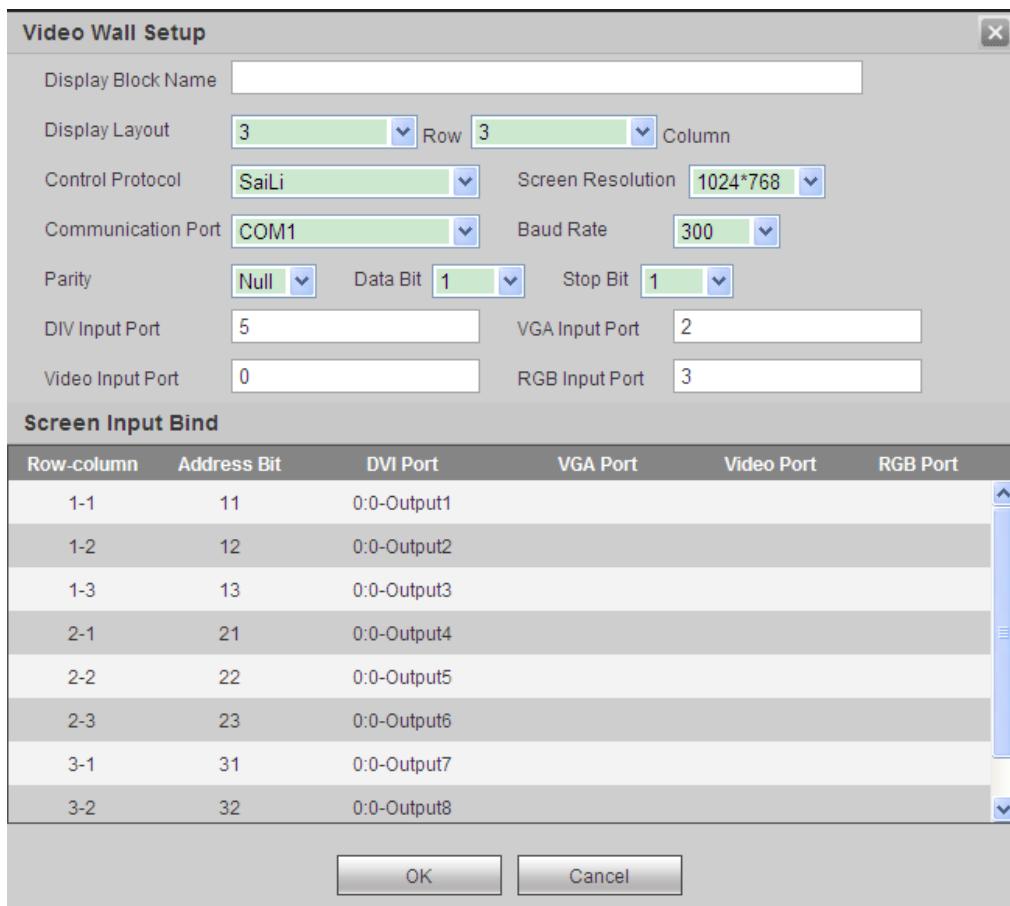


Figure 4- 3

Step 3. Set parameter, click OK. Please refer to Ch 3.4.5.1.

4.5. Add Matrix

Device input channel must be identical with matrix output channel. Before setting output channel, you must set matrix first.

Step 1. Select Settings>Signal Management> Analog Matrix.

Step 2. Click Add. System displays Figure 4- 4.

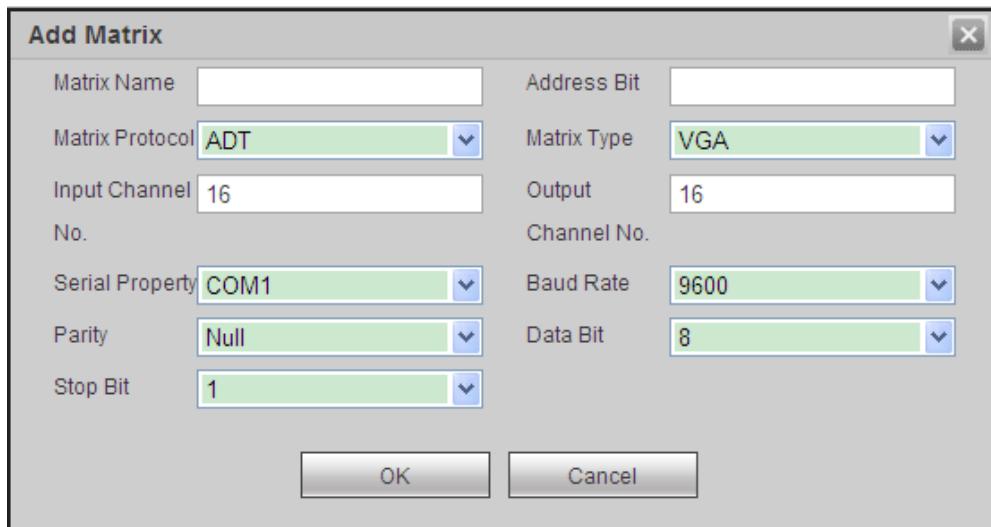


Figure 4- 4

Step 3. Set parameter, click OK.

Note:

For detailed parameter setup and matrix protocol, please refer to Ch 3.3.3.1.

4.6. Input Binding Setup

According to actual condition of matrix and device input port, set input binding on software.

Step 1. Select settings>signal management>input binding. System displays Figure 4- 5.

Input Binding					
No.	Signal Type	Input board no.	Channel No.	Corresponding Device	Device Output Channel
1	CVBS	0:0	1	Null	Null
2	CVBS	0:0	2	Null	Null
3	CVBS	0:0	3	Null	Null
4	CVBS	0:0	4	Null	Null
5	CVBS	0:0	5	Null	Null
6	CVBS	0:0	6	Null	Null
7	CVBS	0:0	7	Null	Null
8	CVBS	0:0	8	Null	Null

Figure 4- 5

Step 2. Select signal type row and you can select matrix device under Corresponding Device column. In Device Output Channel column, select matrix actual output channel which connects to corresponding channel no. on collection board. This shall match actual device connection.

Note:

Matrix in corresponding device is added in analog matrix.

Step 3. Click Save.

4.7. Add Front-End Signal

In network signal interface, you can add, modify or delete a certain front-end device. All front-end device info are displayed in device tree on the right of homepage. See Figure 4- 6.

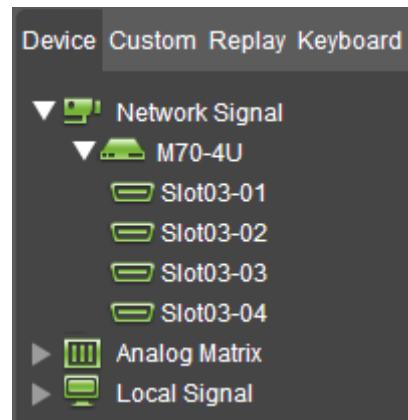


Figure 4- 6

System supports two methods to add network signal source: auto and manual. Please refer to Ch 3.4.4.4.

Note:

Only specific model has local decoding function.

Appendix 1 Control Protocol

Default Protocol
ADT
BoShi
ChuangKai
ChuangYuan
Creator
DHW_AV1
DHW_AV2
DHW_AV_Ex
DJYD
Direct
Exron
Infinova
JUAN
SISO
TC8800
TCNP
VGA
DVI
Video
RGB

Appendix 2 Toxic or Hazardous Materials or Elements

Component Name	Toxic or Hazardous Materials or Elements					
	Pb	Hg	Cd	Cr VI	PBB	PBDE
Circuit Board Component	○	○	○	○	○	○
Device Case	○	○	○	○	○	○
Wire and Cable	○	○	○	○	○	○
Packing Components	○	○	○	○	○	○
Accessories	○	○	○	○	○	○

O: Indicates that the concentration of the hazardous substance in all homogeneous materials in the parts is below the relevant threshold of the SJ/T11363-2006 standard.

X: Indicates that the concentration of the hazardous substance of at least one of all homogeneous materials in the parts is above the relevant threshold of the SJ/T11363-2006 standard. During the environmental-friendly use period (EFUP) period, the toxic or hazardous substance or elements contained in products will not leak or mutate so that the use of these (substances or elements) will not result in any severe environmental pollution, any bodily injury or damage to any assets. The consumer is not authorized to process such kind of substances or elements, please return to the corresponding local authorities to process according to your local government statutes.

Note

- This user's manual is for reference only. Slight difference may be found in user interface.
- All the designs and software here are subject to change without prior written notice.
- All trademarks and registered trademarks mentioned are the properties of their respective owners.
- If there is any uncertainty or controversy, please refer to the final explanation of us.
- Please visit our website for more information.