User Manual

(Full HD Recording & Display)

Version 0.1.0

User Manual: (Full HD Recording & Display): Version 0.1.0

by

Publication date

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Chapter 1. Product Configuration

1.1. Features

- 4/8/16ch Stand-alone HD Display DVR (1080p)
- 1080p/720p/960H compatible (various analog HD format compatible)
- 1920x1080 recording
- UTC function support
- Smart phone push alarm notification
- Two-way audio support
- Alarm I/O extension (up to 20 inputs, 17 outputs using IoT units)
- DVR state (recording, video loss, event) notification using DHS (DVR Health Server)
- Full HD multiple spot using VMU (Video Management Unit)
- E-mail alert notifications function (attaching a AVI video clip)
- 10TB HDD support
- Independent for each channel resolution, quality and frame rate setting
- up to x256 playback speed
- Bookmark during playback, Repeat playback fucntion
- Backup function using bookmark
- Network connection status self-diagnosis function
- Support user configurable domain name and a default domain name based on MAC address
- Support S.M.A.R.T. function for checking Hard disks
- Admin and 100 users account support
- 100% identical CMS program on Mac and Windows PC
- iPhone, iPAD, Android device support

1.2. Components

- DVR
- Program/Manual CD
- Remote controller with battery (option)
- Power Adaptor
- Power Cable
- Screws(for HDD)

1.3. Name and Function of Each Part

1.3.1. Front Panel

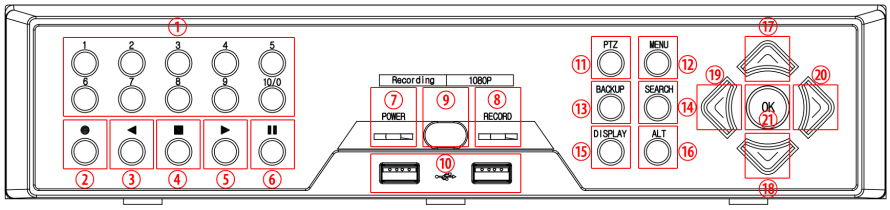

Figure 1.1. Front Panel

Number	Name	Function
1	Numeric buttons	Channel selection, Number input
2	Record	Record button
3	Reverse Playback	Reverse Playback
4	Stop	Stop Playback
5	Playback	Playback
6	Pause	Pause
7	Power LED	Power LED
8	Record LED	Record LED
9	IR receiver	Remote controller receiver
10	USB PORT	USB Port(Memory Stick, Mouse)
11	PTZ	PTZ control Button
12	MENU	Menu Button
13	BACKUP	Backup Button
14	SEARCH	Search Button
15	DISPLAY	Multi-channel screen switching button
16	ALT	Alternative function button
17	UP	Move up in the menu, Increase the channel number
18	DOWN	Move down from the menu , decrease the channel number
19	LEFT	Move left in the menu
20	RIGHT	Move right in the menu
21	OK	Select in the menu

Table 1.1. Discription of Front Pannel

1.3.2. Rear Panel

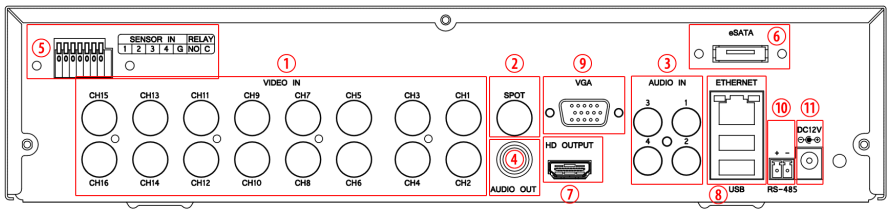

Figure 1.2. 16CH Rear Panel

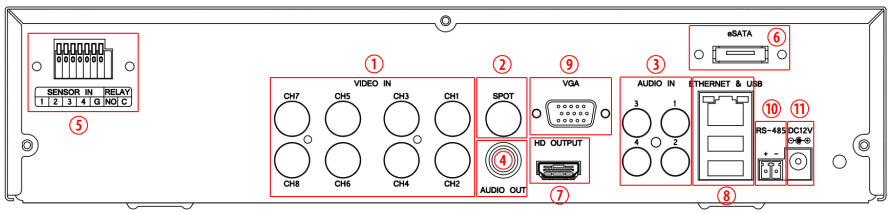

Figure 1.3. 8CH Rear Panel

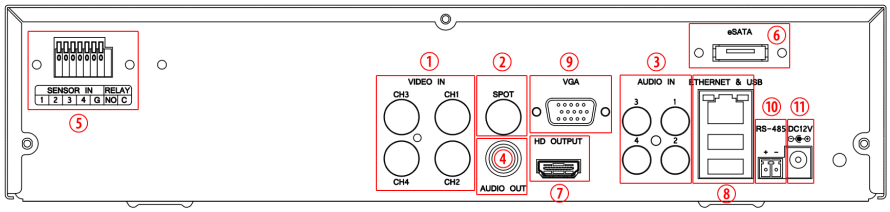

Figure 1.4. 4CH Rear Panel

Number	Name	Function
1	VIDEO IN	Camera video input
2	SPOT	SPOT output
3	AUDIO IN	Audio input
4	AUDIO OUT	Audion output
5	MULTI PORT	Sensor input, Relay output
6	eSATA	eSATA connector
7	HD OUTPUT PORT	HD OUTPUT Port
8	ETHERNET & USB PORT	ETHERNET & USB port
9	VGA PORT	VGA output
10	RS-485	RS-485 port
11	POWER INPUT	+12VDC Power input connector (Adaptor)

Table 1.2. Discription of Rear Pannel

1.3.3. Spec

Item		4CH	8CH	16CH
Video Input	No. of channel	4ch BNC	8ch BNC	16ch BNC
Video Output	Monitor	1ch HD OUTPUT, 1ch VGA, 1ch SPOT		
Multitasking		Quadplex		
Video Compression		H.264		
Recording	Resolution	1920x1080, 1920x540, 960x540, 1280x720, 1280x360, 640x360, 960x480, 960x240, 480x240(NTSC) / 1920x1080, 1920x540, 960x540, 1280x720, 1280x360, 640x360, 960x576, 960x288, 480x288(PAL)		
	No. of Frame	1,2,3,4,5,6,8,10,15,30 (NTSC,10 Steps) / 1,2,3,4,5,7,9,13,20,25 (PAL,10 Steps)		
	Quality	4 Levels (Low, Medium, High, Super)		

Item		4CH	8CH	16CH
	Max. Speed	60fps at 1080p (NTSC) / 50fps at 1080p (PAL)	120fps at 1080p (NTSC) / 100fps at 1080p (PAL)	240fps at 1080p (NTSC) / 200fps at 1080p (PAL)
	Mode	Schedule, Event(Sensor, Motion Detection), Manual, Continuous, Continuous+Event		
Display	Max. Speed	120fps (NTSC) 100fps (PAL)	240fps (NTSC) 200fps (PAL)	480fps (NTSC) 400fps (PAL)
	Resolution	1024x768, 1280x720, 1280x1024, 1440x900, 1920x1080		
Search	Mode	Quick, Calendar, Bookmark, Event (Sensor, Motion Detection), USB		
Playback	Speed	x1,x2,x4,x8,x16,x32,x64,x128,x256, Field by Field (Forward, Backward) x1/4, x1/2 Slow Motion (Forward Only), Repeat A-B		
	Multi Screen	1, 4ch	1, 4, 6, 9ch	1, 4, 6, 9, 13, 16ch
Sensor Input		4 (NO/NC Selectable)		
Alarm(Relay) Output		1 Relay Output		
Audio	No. of Input	4ch		
	No. of Output	1ch		
Network	Speed	10/100 Base-T		10/100/1000 Base-T
	TCP/IP	Static, DHCP, PPPoE, Auto UPnP, E-mail, DDNS server available		
	Codec	Dual Codec. (H.264)Specification Table		
	Bandwidth Limit	Yes		
Motion Detection		22x15 (NTSC) / 22x18 (PAL), 8Level Sensitivity		
Storage	No. of HDD(SATA)	1 HDD(Internal) + 1 eSATA(External)		
Backup		USB Flash Memory, Network		
Password Protection		101 Level (admin / 100 users)		
Interface	PTZ Control	RS-485		
SW Upgrade	Method	USB Flash Memory, Network		
	Blackout Protection	Yes		
Power Source Consumption		+12VDC/4A Adaptor (100-240VAC, 50Hz/60Hz, 60W)		
Dimension(mm)		320(W) x 340(D) x 70(H)		
Weight(Kg)		5Kg (net)		
Operating Temperature		+5 ~ +40 (Celsius)		

Table 1.3. Specification Table

Chapter 2. Operation

2.1. Product Installation

2.1.1. Harddisk installtion

Install SATA harddisk drivers to the DVR, using the provied rack brackets.

2.1.2. Connecting the camera

Connect the cameras.

2.1.3. Power supply

Connect the power supply to operate the product.

2.1.4. Product configuration

Using the default setting is sufficient, also the user can change the record setting according to the user's monitoring purpose, the network setting for the user's network environment.

2.2. System operating

2.2.1. The boot image



Figure 2.1. The boot image

During the booting time, boot image will appear. Booting takes about one minute to complete.

2.2.2. Start Menu

Two start menus are provided. The bottom start menu that appears on the bottom of the screen when you move the mouse pointer to the bottom of the screen and the Mouse menu that appears when you click the right button of the mouse.



Figure 2.2. Start Menu

Number	Name	Function
1	Menu	Enter the setup menu
2	4-split screen	4-split screen select
3	9-split screen	9-split screen select
4	16-split screen	16-split screen select
5	Search	Enter the search menu
6	Backup	Enter the backup menu
7	Record	Forced recording start / stop
8	Power off	Power off

Table 2.1. Description of Start Menu

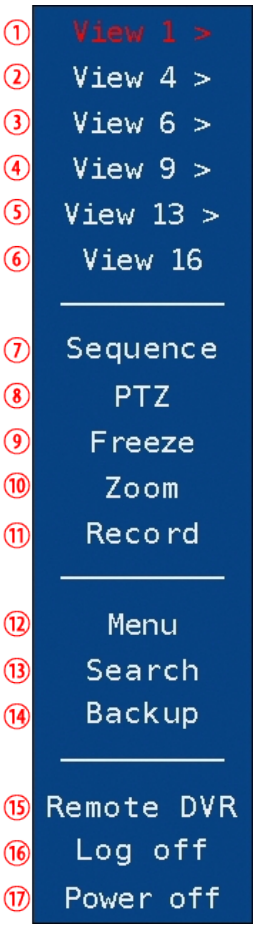

Figure 2.3. Mouse menu

Number	Name	Function
1	Single screen view	Single screen selection menu

Number	Name	Function
2	4-split view	4-split screen selection menu
3	6-split view	6-split screen selection menu
4	9-split view	9-split screen selection menu
5	13-split view	13-split screen selection menu
6	16-split view	16-split screen selection menu
7	Sequence	Running the sequence mode
8	PTZ	PTZ menu (only single screen mode)
9	Freeze screen	Freezing screen
10	Zoom	zooming (only single screen mode)
11	Record	Forced recording start / stop
12	Menu	Enter the setup menu
13	Search	Enter the search menu
14	Backup	Enter the backup menu
15	Remote DVR	Viewing other DVRs at remote location
16	Log off	Logging off
17	Power off	Power off

Table 2.2. Description of Mouse menu

2.3. Setup

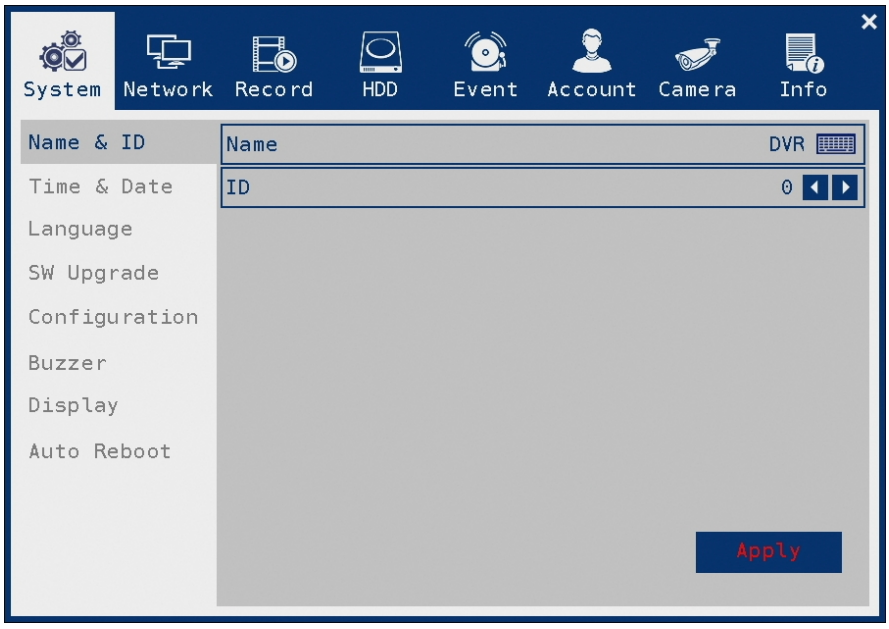

Figure 2.4. Setup menu

DVR setup menu. For more information, see the chapter of setup menu

2.4. Search

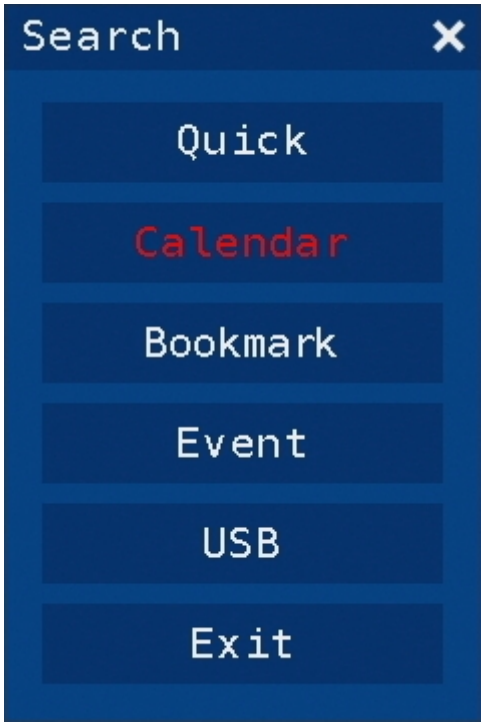

Figure 2.5. Search menu

Search menu displays as shown above . Depending on search method, Quick, Calendar, Bookmark, Event, USB search options are available.

2.4.1. Quick Search



Figure 2.6. Quick Search

Search menu window appeares as shown above. Select the playback start time.

- 2 minutes ago : Playback the video just two minutes ago from the current time.
- 10 minutes ago : Playback the video just 10 minutes ago from the current time.
- 1 hour ago : Playback the video just 1 hour ago from the current time.
- 6 hours ago : Play the video just 6 hours ago from the current time.
- 1 day ago : Playback the video just 1 day ago from the current time.

2.4.2. Calendar Search

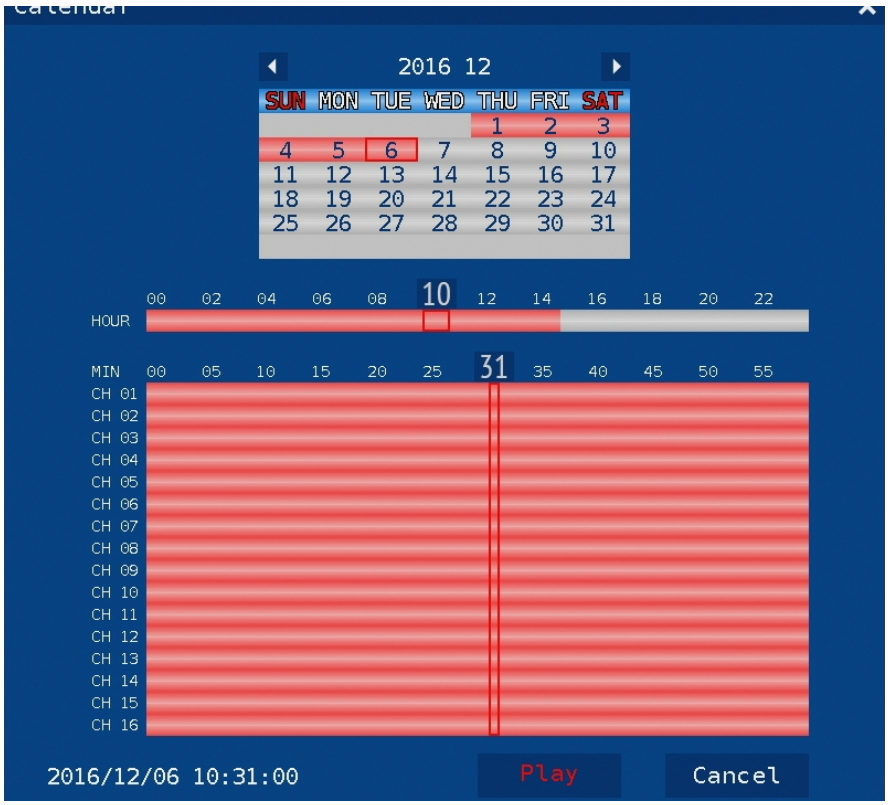

Figure 2.7. Calendar Search

Calendar search function is supported. Identifying the presence of recorded video per channel is easy. The time zone which the recording data exists is displayed with different colors. Red(Manual or Continous record), Green(Motion record), Orange(Sensor record).

2.4.3. Bookmark



Figure 2.8. Bookmark

Bookmark search function is supported. The list of bookmarks are displayed. It is convenient to use bookmarks on the plaback buckup.

2.4.4. Event

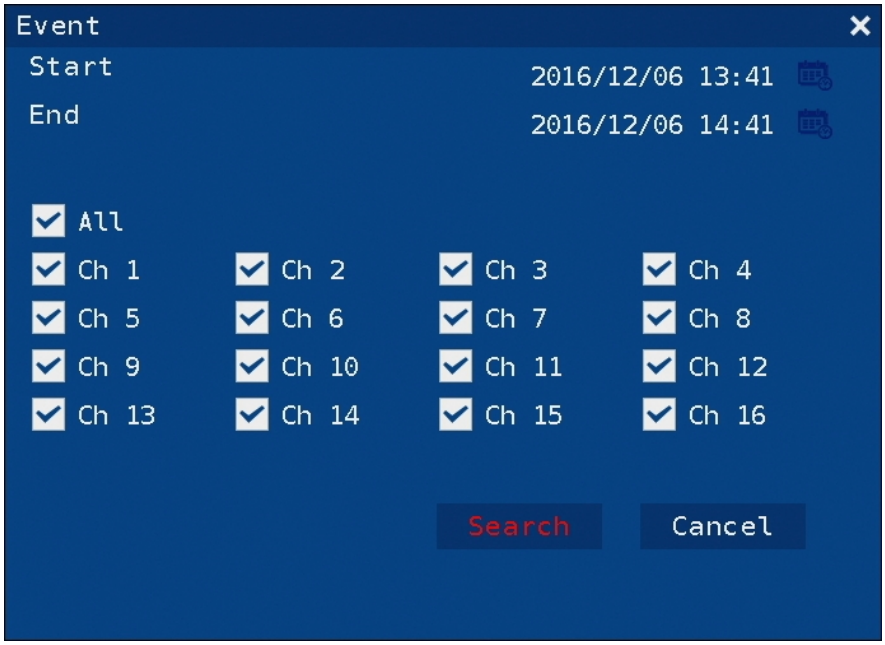

Figure 2.9. Event

Event search is supported. Select start time, end time and channels that you want to search in the event search menu, then event lists that occurred during that time period are displayed.

2.5. Playback

2.5.1. Playback menu bar



Figure 2.10. Playback menu bar

Split-screen selection, playback related buttons are displayed during playback.

Number	Name	Function
1	Time	Display playback time
2	Playback speed	Display playback speed
3	Search	Going to search menu
4	Stop	Stop Playback
5	Reverse Playback	Reverse Playback
6	Playback	Playback
7	Pause	Pause playback
8	Slow playback	Slow playback (x1/4 ~ x1/2)
9	Fast playback	Fast playback (x2 ~ x256)

Table 2.3. Playback menu

2.5.2. Playback Mouse menu

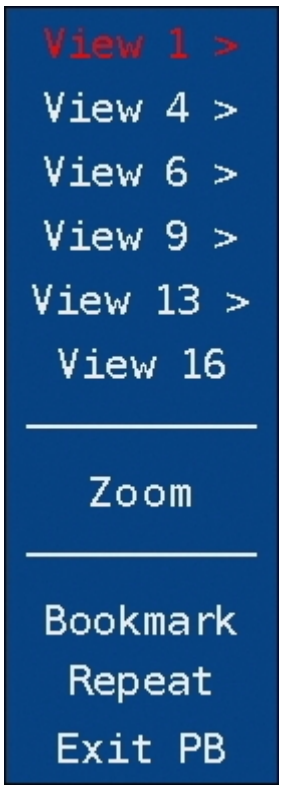

Figure 2.11. Playback Mouse menu

User can select the playback screen mode which is single, 4-split, 6-split, 9-split, 13-split, 16-split. support zoom fuction at display mode. User can set bookmarks during playback. The saved bookmarks are used A-B repeat during playback.

2.6. Backup

2.6.1. Backup menu

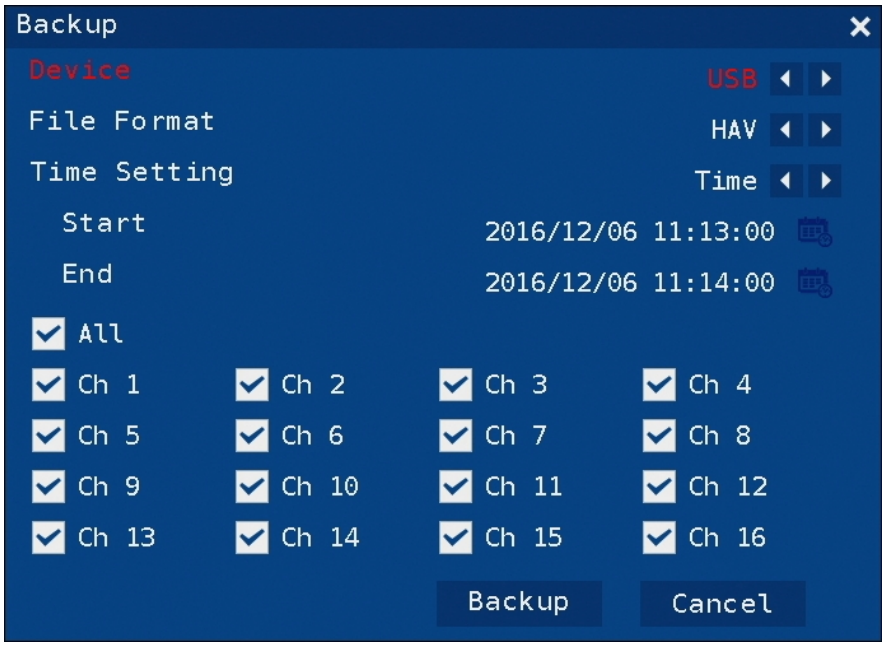

Figure 2.12. Backup menu

- Device : Select the device. USB memory is available.
- File Format : Select the file format to back up. HAV, AVI can be selected. EZPlayer will be stored together when HAV format is selected. The backed up data is displayed through EZPlayer without installing additional program. Files backed up in AVI format can be played back by a normal video player.
- Time Setting : Select the time to back up. Start and end point of backup can be set by time or bookmarks.
- Channel Selection : All channel or individual channel can be selected. After selecting the channel, you can back up by pressing the Backup button. During backup, the progress bar is displayed for noticing the status.

2.7. Network monitoring

2.7.1. CMS

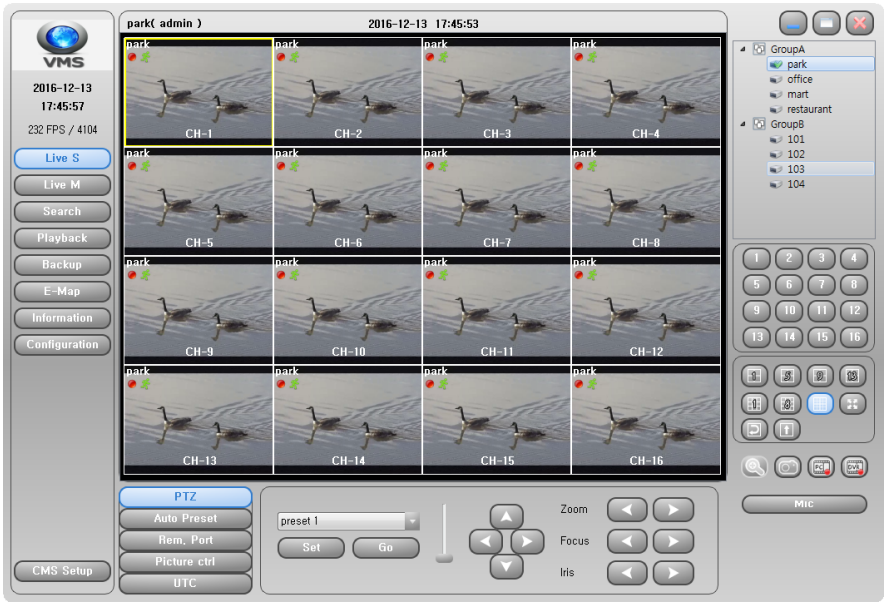

Figure 2.13. CMS

Network monitoring program is provided. It supports Windows PC and Mac PC.

2.7.2. Mobile

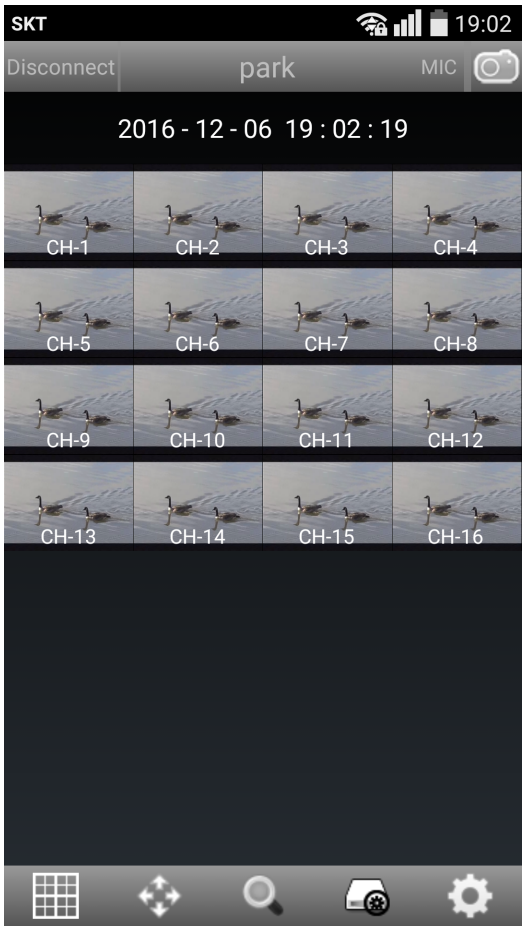

Figure 2.14. Mobile

Smart Phone application is also supported. iPhone, iPAD, Android smartphones are supported.

Chapter 3. Setup menu

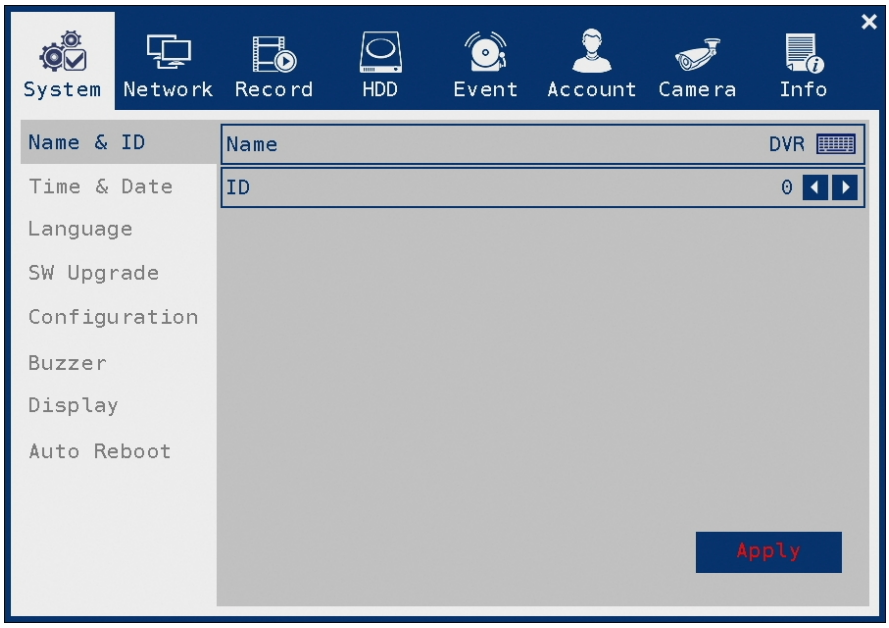

Figure 3.1. Setup menu screen

Level 1	Level 2	Level 3	Level 4
System	Name & ID	Name	
		ID	
	Time & Date	Date Format	
		Time Format	
		Time Zone	
		NTP	
		Date	
		Time	
	Language		
	SW Upgrade	Type	Application, Kernel
	Configuration	Factory Default	
		Conf. file export	
		Conf. file import	
	Buzzer	Sensor	
		Motion	
		Video Loss	
		Record Fail	
		Record Warning	
	Display	Camera Name	
		Camera Resolution	
		Motion Icon	
		Sensor Icon	

Level 1	Level 2	Level 3	Level 4
		Record Icon	
		Status Bar	
		Resolution	
		HD OUTPUT & VGA	
		VGA	
	Auto Reboot	Day	
		Time	
Network	TCP/IP	Type	Auto UPnP
			Static
			DHCP
			PPPoE
	DDNS	DDNS Type	Private DDNS, Dyndns DDNS
		Default	
		Hostname	
	Stream	Channel	Resolution
			Quality
			Framerate
	Status	IP Address	
		EXT. IP Address	
		Network Test	
		UPnP Test	
		DNS Test	
		DDNS Test	
	Client Info		
	Remote DVR		
	Health	Address	
		Port	
		Health	Record, Video Loss, Motion, Sensor
Record	Channel	Channel	ALL, CH1 ~ CH16
		Resolution	100%, 50%, 25%
		Quality	Low, Medium, High, Super
		Framerate	
		Mode	Manual, Continuous, Motion, Sensor, Motion +Sensor, Continuous +Event, Schedule
	Schedule	Number	1~4
	Misc	Record	Audio Record

Level 1	Level 2	Level 3	Level 4
			Time Overlay
			Manual Record Time
	Playback	Channel	1CH ~ 16CH, ALL
		Start Point	First Data, 2 minutes ago, 10 minutes ago, 1 hour ago, 6 hours ago, 1 day ago
		Audio Play	
HDD	Mode	Mode	Overwrite, Once
		Forced Deletion	0, 1day ~ 99days
	S.M.A.R.T.	S.M.A.R.T.	On, Off
		Check Interval	6hours, 12hours, 24hours
	Format		
	Information1	Model, Usage	
	Information2	Model, Temperature, SMART test result	
	Record Time	Available Record Time	
Event	Motion	Channel	Sensitivity
			Detection Zone
			Pop Up
			Email AVI Attachment
			Sound
		Pop Down	Continuous, 5 secs, 10 secs, 30 secs
	Sensor	Number	Type
			Link Channel
			Pop Up
			Email AVI Attachment
			Sound
		Pop Down	Continuous, 5 secs, 10 secs, 30 secs
	Relay	Sensor	
		Motion	
		Video Loss	
		Record Fail	
		Record Warning	
		Keep Time	None, 5 secs, 10 secs, 30 secs
	Email	Address	Sender, Receiver
		SMTP	Address, Port, ID, Password, SSL
		Condition	Period, Prohibition

Level 1	Level 2	Level 3	Level 4
		Contents	Motion, Sensor, Video Loss, Record Status, System Access
	Post Record	Post Alarm Record	None, 10 secs ~ 60 secs
	IOT	IOT	Off, 1 ~ 4EA
Account	Admin	Password	
	User	Name	
		Password	
		Permission	Channel, PTZ, Playback, Backup, Network, Network Timeout, Network Prohibition
	Log off	Auto	
		Wait Time	30 secs, 1 min, 3 mins, 5 mins, 10 mins
Camera	Name		
	Covert		
	Adjustment	Channel	Channel
			Contrast
			Brightness
			Saturation
			H. Sharpness
			V. Sharpness
		Sharpness	
	UTC	Channel	
	PTZ	Channel	CH-1 ~ CH-16
		Model	PELCO_D, UTC
		ID	0 ~ 255
		Reverse Control	Pan, Tilt, Zoom, Focus
		Baudrate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
	PTZ Tour	Channel	
		Number	Preset, Time
	Sequence	Channel	Ch1 ~ Ch16, Ch1-4, Ch5-8, Ch9-12, Ch13-16, Ch1-9, Ch8-16, Ch1-16
		Wait Time	1sec, 2secs, 4secs, 5secs, 8secs, 10secs, 15secs, 30secs
	Spot	Mode	Off, Single, Sequence, Main
	Privacy	Channel	

Level 1	Level 2	Level 3	Level 4
		Enable	
		Zone	
Information	Event Log		
	System Log		
	Information	Model	
		Video Type	
		Version	Hardware, Kernel, Software
		MAC Address	

Table 3.1. Menu tree

3.1. System

3.1.1. Name & ID

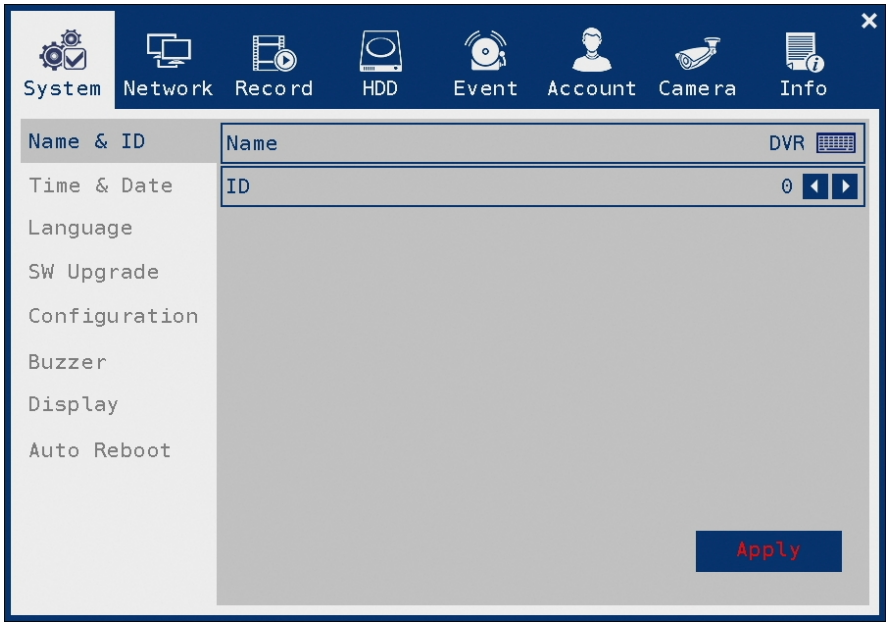

Figure 3.2. Name & ID

3.1.1.1. Name

Set the name of the DVR. When keyboard button is clicked, the keyboard input window opens. Set the name you want. CapsLock button allows you to switch between upper and lower case. OK button saves the information you entered and CANCEL button exits to the previous menu without saving.

3.1.1.2. ID

ID is used to distinguish DVR when several DVR's are controlled by a remote controller or RS-485 controller. You must click the Apply button to save your selections.

3.1.2. Time & Date

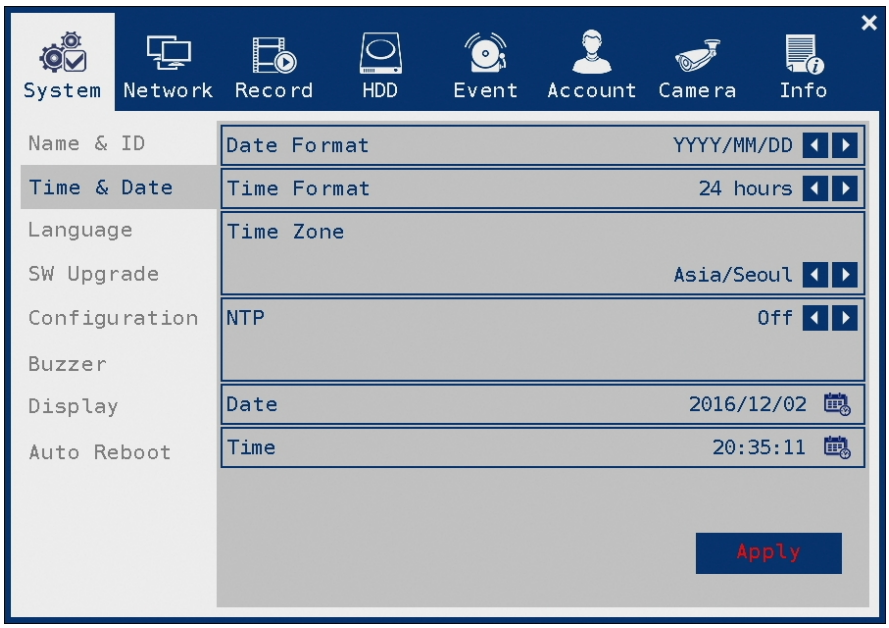

Figure 3.3. Time & Date

3.1.2.1. Date format

Select date format. YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY three options are available.

3.1.2.2. Time Format

Select time format. 24 hours/12 hours can be selectied.

3.1.2.3. Time Zone

Select the time zone where a DVR is installed. Daylight saving time is set by the time zone.

3.1.2.4. NTP

Select whether to use NTP. When it is ON states, it takes time from network time server and applys to DVR. Depending on the selected time zone, daylight saving time will be applied automatically. Only ON condition, an NTP server address can be entered. The address of the default NTP server is pool.ntp.org.

3.1.2.5. Date

Adjust the DVR date manually.

3.1.2.6. Time

Adjust the DVR time manually.

3.1.3. Language

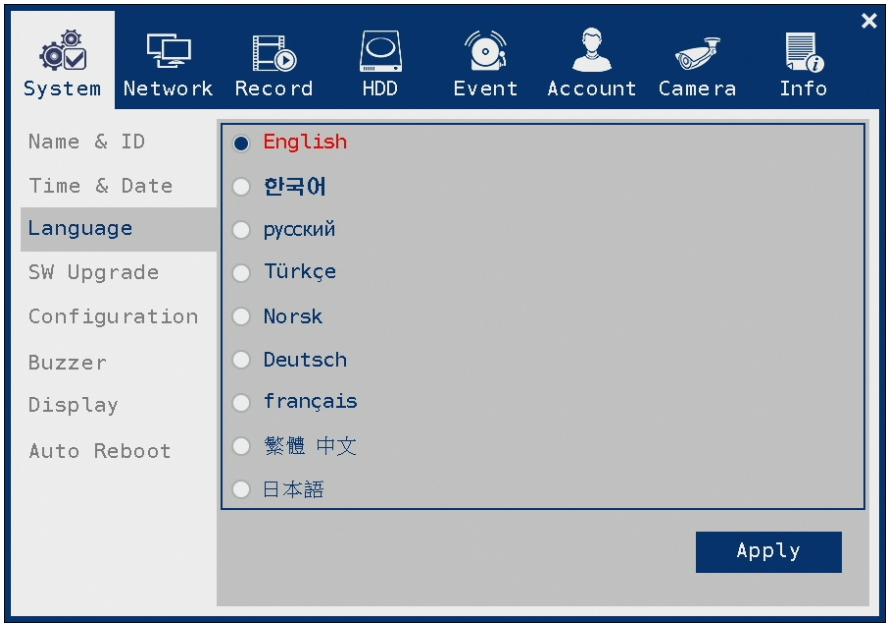

Figure 3.4. Language

3.1.3.1. Language

Select the language you want to use.

3.1.4. SW Upgrade

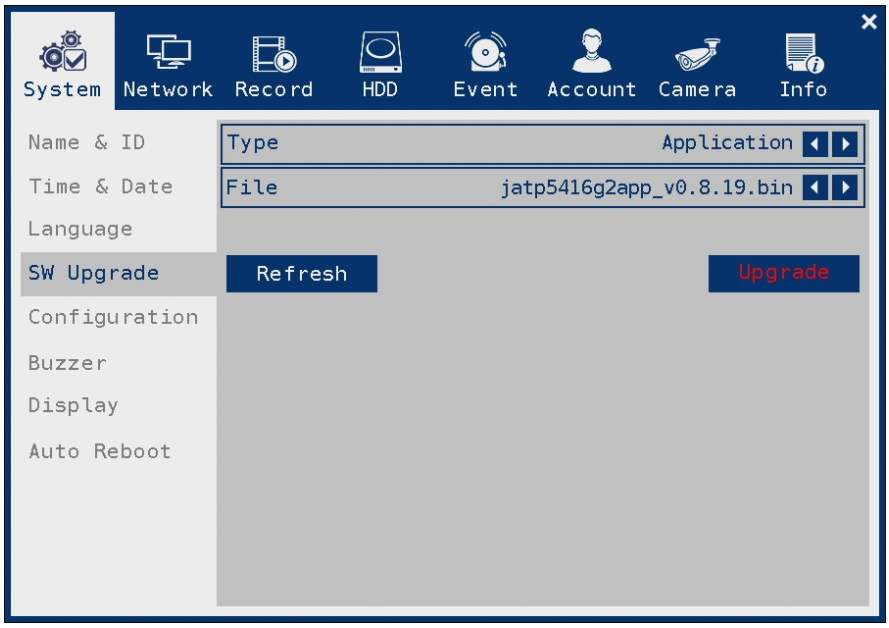

Figure 3.5. SW Upgrade

Application or kernel of the DVR can be upgraded by USB memory. After receiving the upgrade file from homepage, you can copy it to a USB memory.

3.1.4.1. Type

Select the program to upgrad. Upgrade by selecting either application or kernel.

3.1.4.2. File

Press refresh button after inserting a USB memory to the USB port of the DVR. Upgrade will be in progress when upgrade button is pressed after selecting the upgrade file. Be careful not to turn off during the upgrade DVR. If the power outage occurs during the upgrade, the emergency recovery method using USB memory will recover the DVR. Please refer to the emergency recovery mathod on the appendix.

3.1.5. Configuration

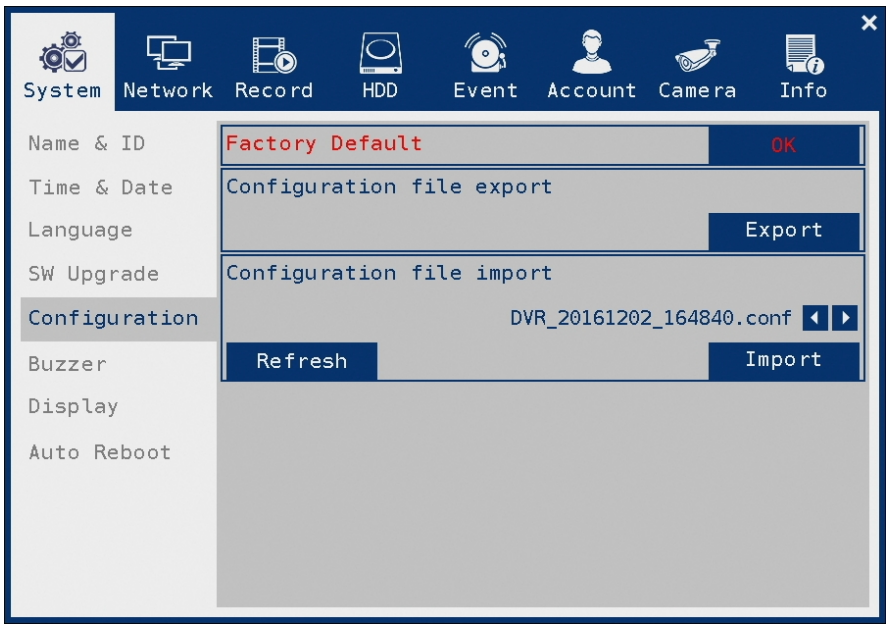

Figure 3.6. Configuration

3.1.5.1. Factory Default

DVR setting is initialized to the factory default.

3.1.5.2. Conf. file export

Current DVR setting value is saved to USB memory.

3.1.5.3. Conf. file import

Read the setting values stored in the USB memory and apply to the DVR. After inserting the USB memory, press the refresh button to read files in the USB and select a file. Pressing Import button applies the setting values to the DVR.

3.1.6. Buzzer

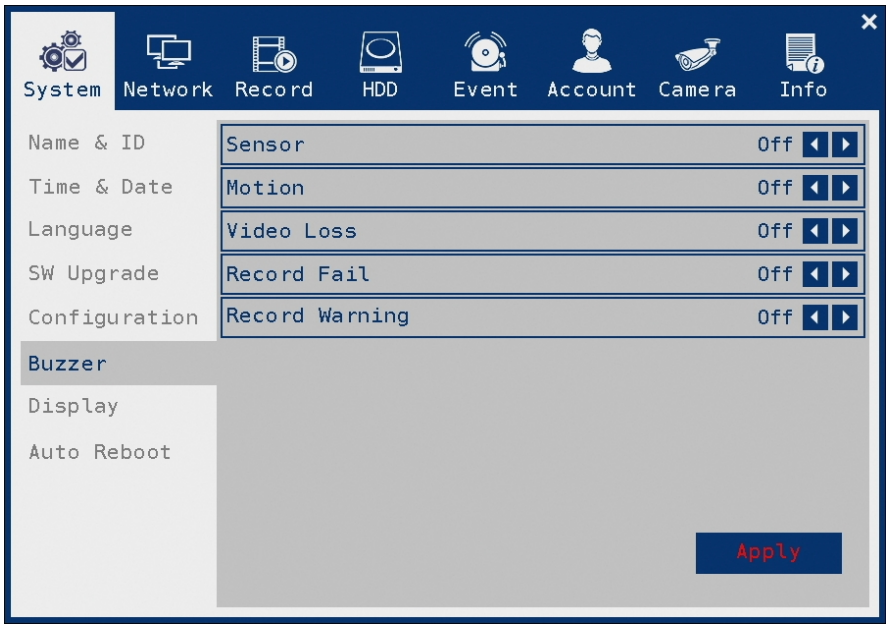

Figure 3.7. Buzzer

Set the operating condition of the buzzer.

- Sensor : Select whether to operate the buzzer when sensor inputs are detected.
- Motion : Select whether to operate the buzzer when motions are detected.
- Video Loss : Select whether to operate the buzzer when video loss is detected.
- Record Fail : Select whether to operate the buzzer when record fail is occurred.
- Record Warning : Select whether to operate the buzzer when recording warning is occurred.

3.1.7. Display

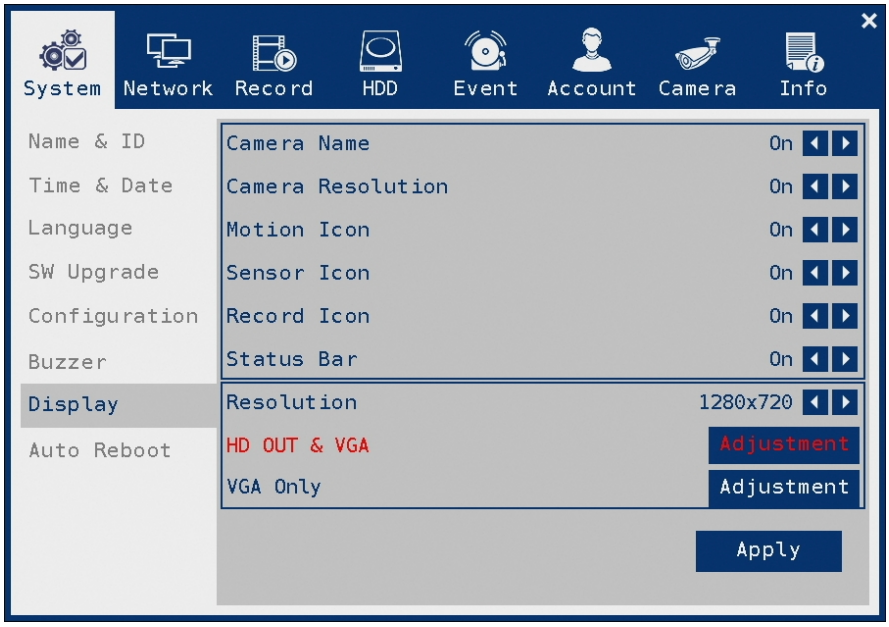

Figure 3.8. Display

Select whether to display information on the screen.

- Camera Name : Select whether to display camera name on the screen.
- Camera Resolution : Select whether to display the camera resolution. It will be displayed on the top right corner of each channel.
- Motion Icon : Select whether to display motion detection icon on the screen.
- Sensor Icon : Select whether to display sensor detection icon on the screen.
- Record Icon : Select whether to display recording status icon on the screen.
- Status Bar : Select whether to display status bar on the screen.
- Resolution : Select the output resolution for HD OUTPUT and VGA ports. Selectable resolutions are 1024x768, 1280x720, 1280x1024, 1440x900, 1920x1080.
- HD OUTPUT & VGA : Adjust the display parameters of HD OUTPUT, VGA port. Luminance, Contrast, Hue, Saturation can be adjusted.
- VGA Only : Adjust the display parameters of VGA port only. Luminance, Contrast, Hue, Saturation, Color Gain can be adjusted.

3.1.8. Auto Reboot

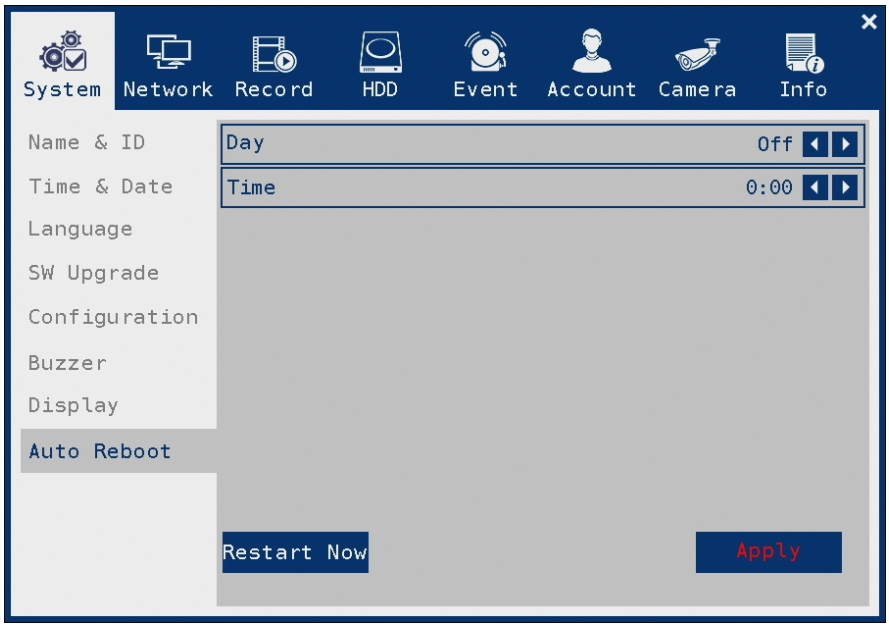

Figure 3.9. Auto Reboot

It is possible to set specific time for restarting the DVR.

- Day : Select whether or not to use the automatic restart feature and the day of the week. You can select Off, Mon, Tue, Wed, Thu, Fri, Sat, Sun, or Daily.
- Time : Auto restart time can be set.

3.2. Network

3.2.1. TCP/IP

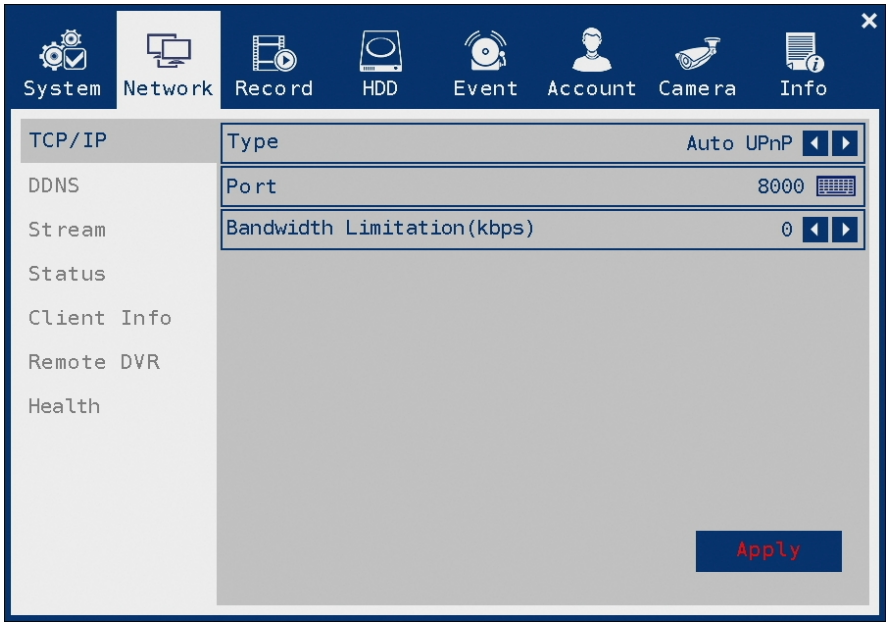

Figure 3.10. TCP/IP

3.2.1.1. Type

Select the type of network. Auto UPnP, STATIC, DHCP and PPPoE can be selected.

3.2.1.1.1. Auto UPnP

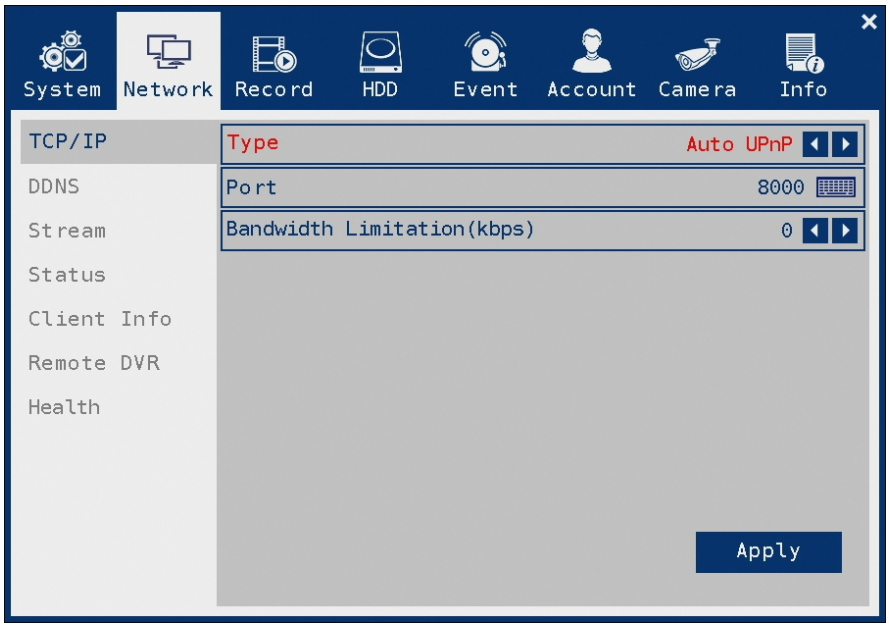

Figure 3.11. Auto UPnP

Select when a router supports Auto UPnP mode under an evironment that uses a router. Default port is 80 and the user can choose. If there are no problems on the status menu, then network settup is done. Bandwidth Limitation function is used for limiting the network data bandwidth.

3.2.1.1.2. Static

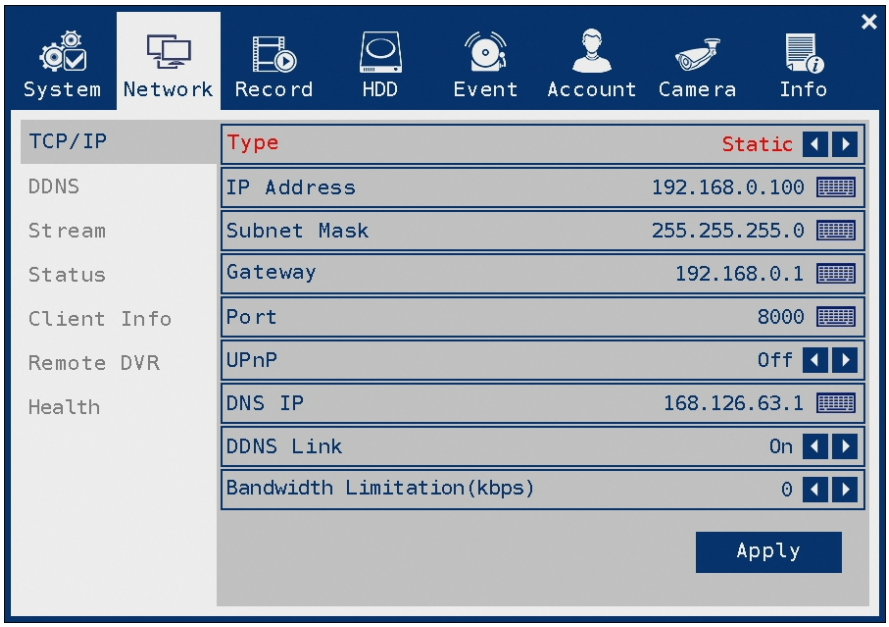

Figure 3.12. Static

- IP Address : Click the keyboard icon and enter the IP address to use.
- Subnet Mask : Click the keyboard icon and enter the Subnet mask.
- Gateway : Click the keyboard icon and enter the gateway number.
- Port : Click the keyboard icon and enter the port number. You can select from 1 to 65535. The port number used to connect to the CMS.
- UPnP : Select whether to use UPnP function.
- DSN IP : It shows current DNS IP. The default number is google's public DNS IP(8.8.8.8). User can choose a DNS IP wanting to use.
- DDNS Link : Select whether to use the DDNS connection. To access the DVR from an external network, in most cases, user must choose it ON. Only access from the internal network or using Public Static IP, then user can choose OFF.
- Bandwidth Limitation : Use to limit the bandwidth of network transmission data.

3.2.1.1.3. DHCP

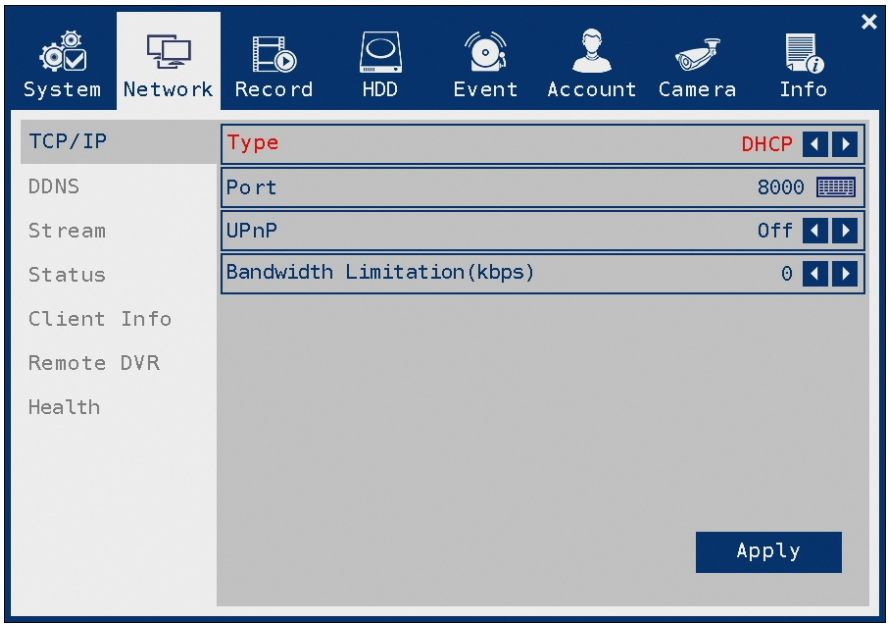

Figure 3.13. DHCP

- Port : Click the keyboard icon and enter the port number. You can select from 1 to 65535. The port number used to connect to the CMS.
- UPnP : Select whether to use UPnP function.
- Bandwidth Limitation : Use to limit the bandwidth of network transmission data.

3.2.2. DDNS

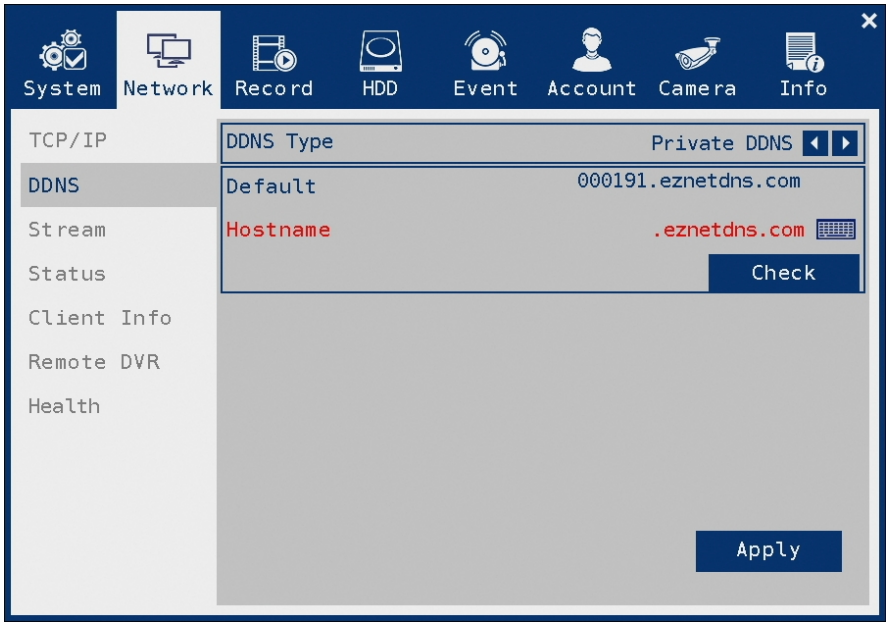

Figure 3.14. DDNS

3.2.2.1. DDNS Type

Select the DDNS type. Private DDNS, Dyndns DDNS is selectable.

3.2.2.1.1. Private DDNS

Use the private DDNS provided by the DVR.

3.2.2.1.1.1. Default

It shows the base address based on the MAC address when connecting to the DVR.

3.2.2.1.1.2. Hostname

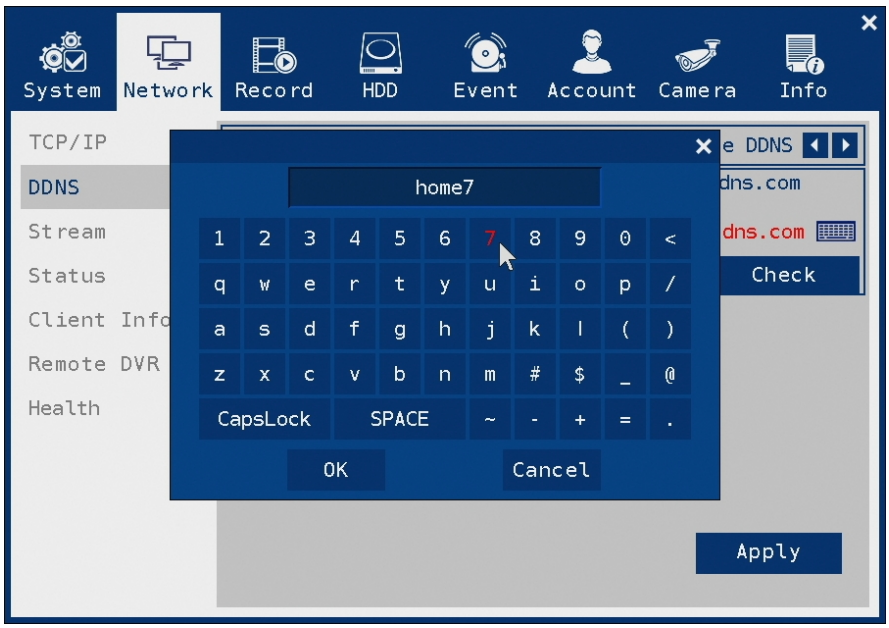

Figure 3.15. Hostname input window

Pressing the keyboard button opens the host name input window. Enter the desired name and press the OK button to save it.

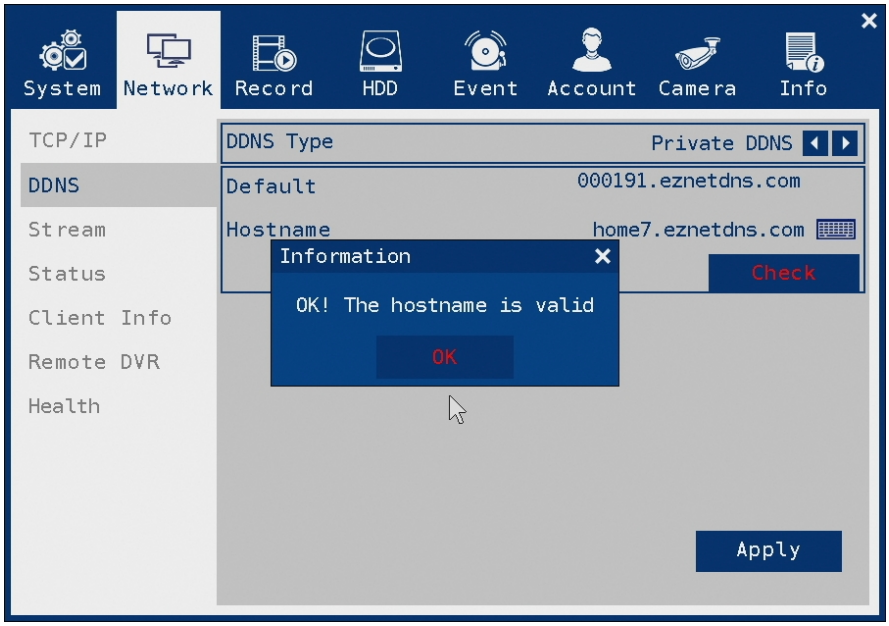

Figure 3.16. Hostname check

After entering the host name, press the check button to check availability from the DDNS server. If a valid hostname window appears, it can be used as a hostname. Press the Apply button at the bottom to complete the registration to the DDNS server and use it.

3.2.2.1.2. Dyndns DDNS

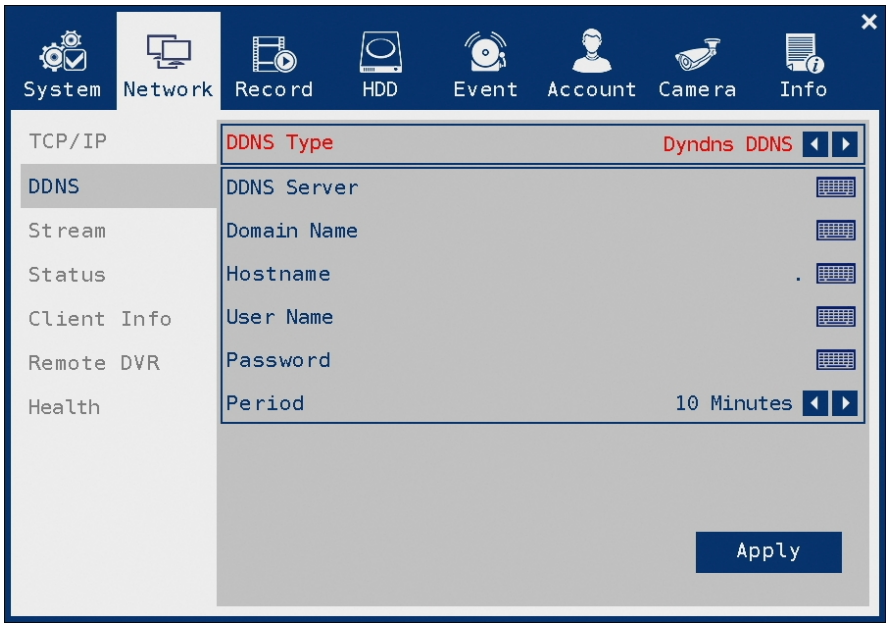

Figure 3.17. Dyndns DDNS

Users using the Dyndns service use Dyndns DDNS using the DVR's Dyndns setup menu.

- DDNS server : Enter members.dyndns.org.
- Domain Name : Enter the domain you selected to use for dyndns.com. ex) dyndns.org
- Hostname : Enter the host name you registered to use for dyndns.com. ex) test
- User Name : Enter the user account name of dyndns.com.
- Password : Enter the user password for dyndns.com.
- Period : Select the update period of DVR IP information. You can select 10 minutes, 30 minutes, 1 hour.

3.2.3. Stream

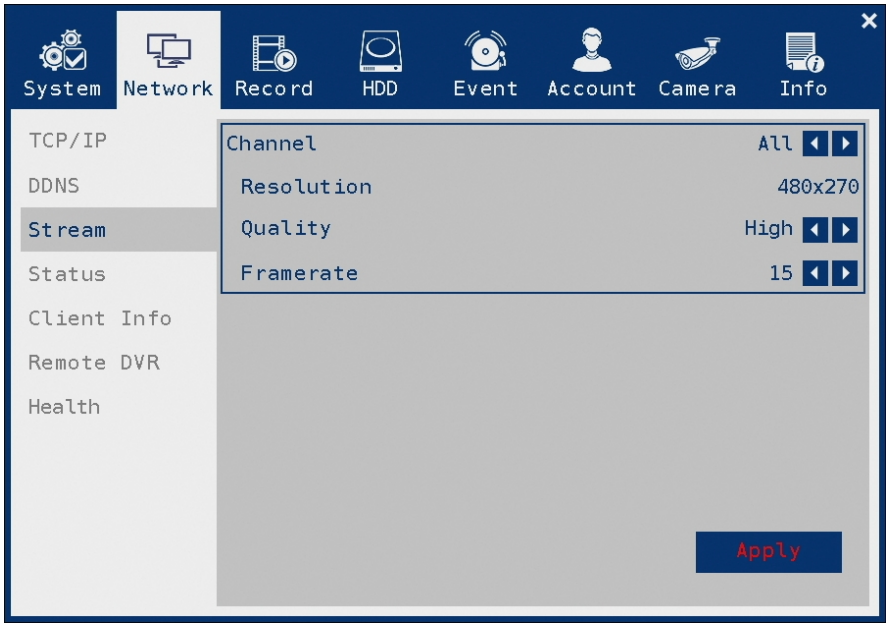

Figure 3.18. Stream

3.2.3.1. Channel

Network stream type is H.264. Individual channel setup or all channel setup is possible.

- Resolution : It is fixed at 480*270.
- Quality : Select from among 4 types : Low, Medium, High, Super.
- Frame rate : Up to 15fps per channel can be set.

3.2.4. Status

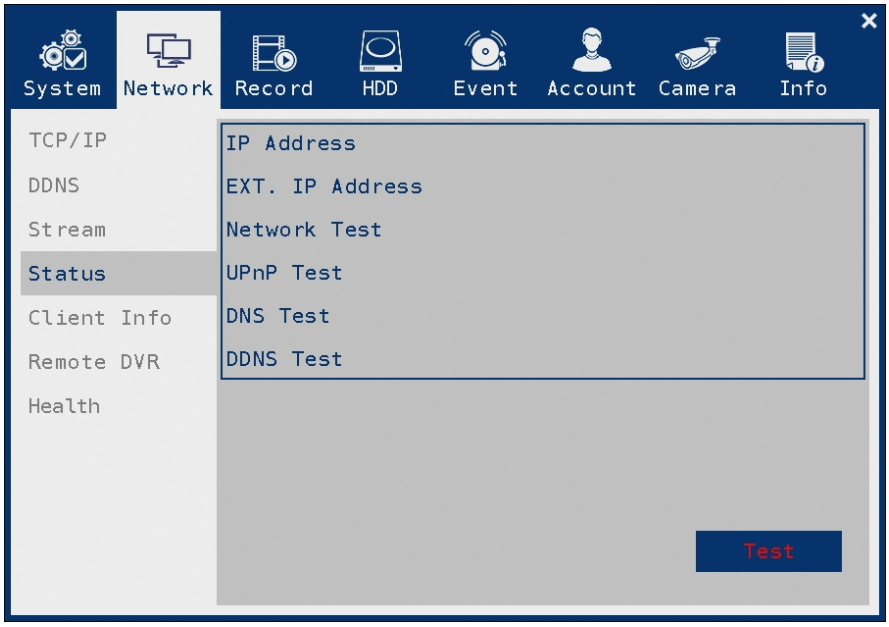

Figure 3.19. Status

After setting the network, user can check the current state of the network.

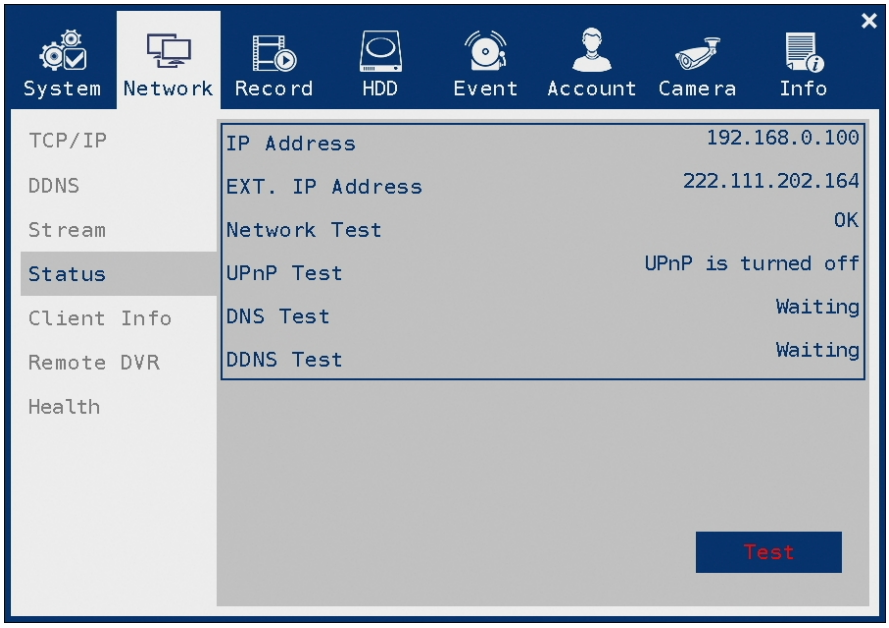

Figure 3.20. Status test

Presse the Test button in order to check the current status of the network.

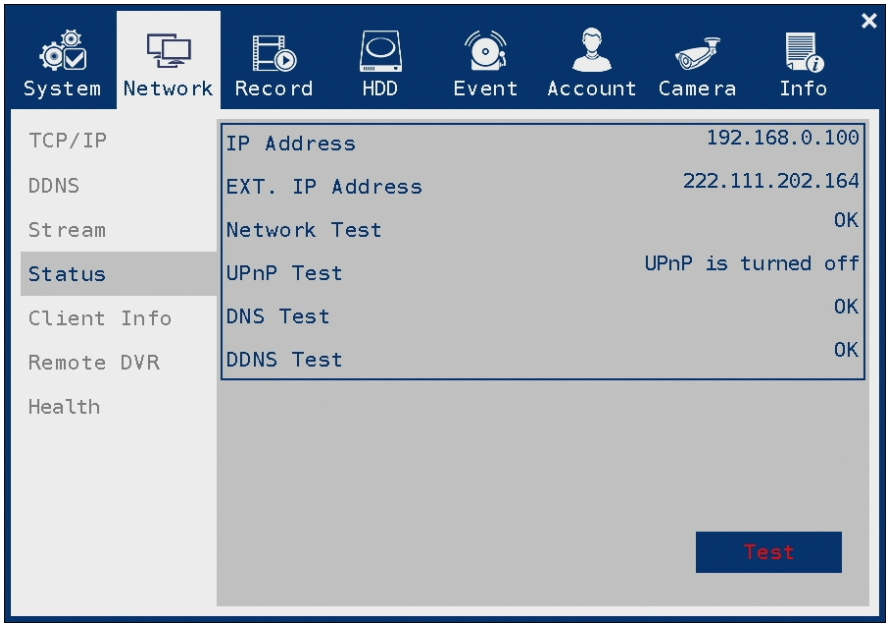

Figure 3.21. Status test result

- IP Address : Display the currently assigned IP number.
- EXT. IP Address : Display the currently assigned external public IP address number.
- Network Test : Display the results of connection test with the router.
- UPnP Test : Check the operation state of UPnP function.

- DNS Test : Check the state of the DNS server's operation.
- DDNS Test : Verify the information that is successfully registered on the DDNS.

3.2.5. Client Info

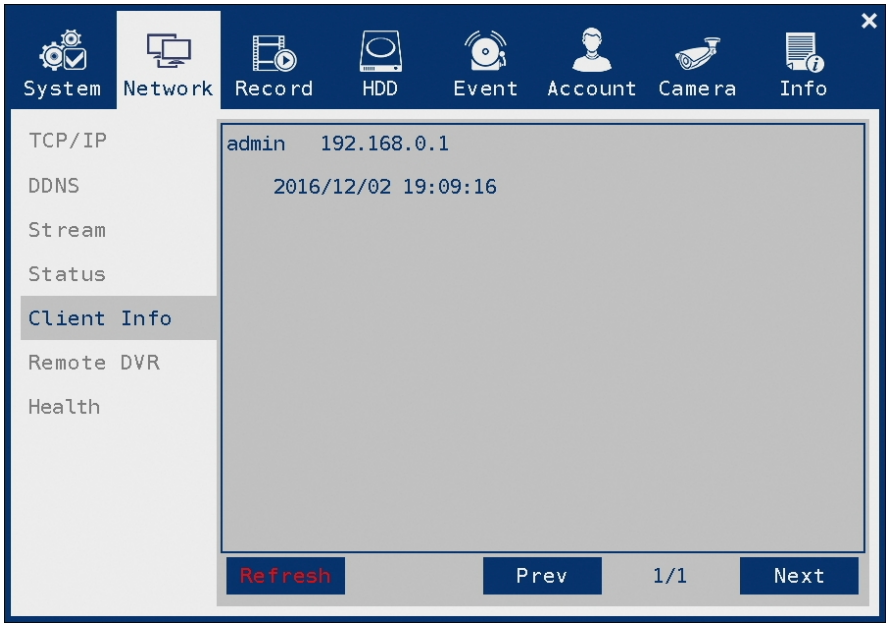

Figure 3.22. Client Info

Display the client information that has been connected to the DVR. Press the Refresh button to update the client information.

3.2.6. Remote DVR

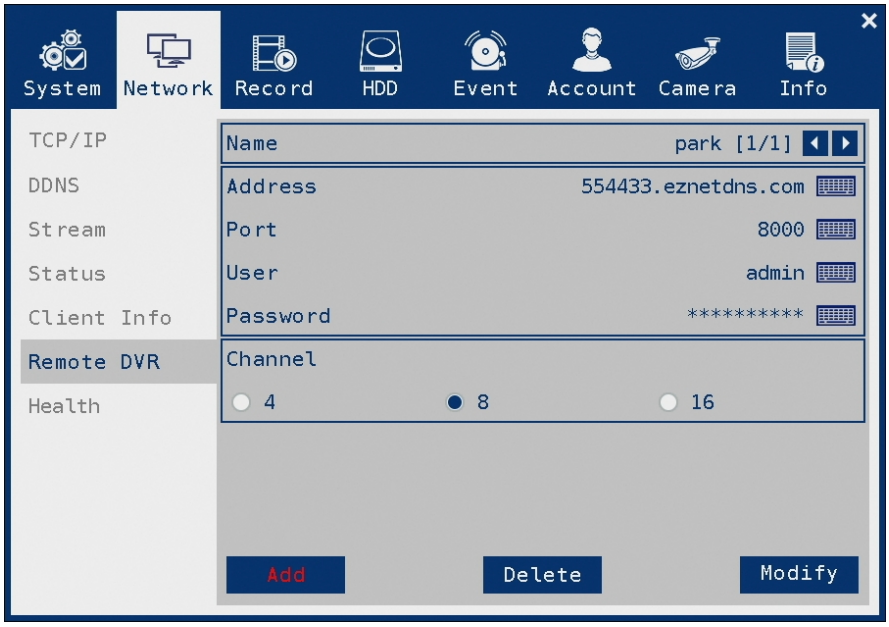

Figure 3.23. Remote DVR

Add, delete, modify the information of remote DVR to connect.



Figure 3.24. Input the information of remote DVR

Input the network information of remote DVR. Press the Add button to enter the information sequentially.

- Name : The name of the remote DVR
- Address : The IP address of the remote DVR
- Port : Port Number
- User : ID
- Password : Password



Figure 3.25. Remote DVR

On the mouse menu, click Remote DVR in order to connect the remote DVR that you set in the menu.

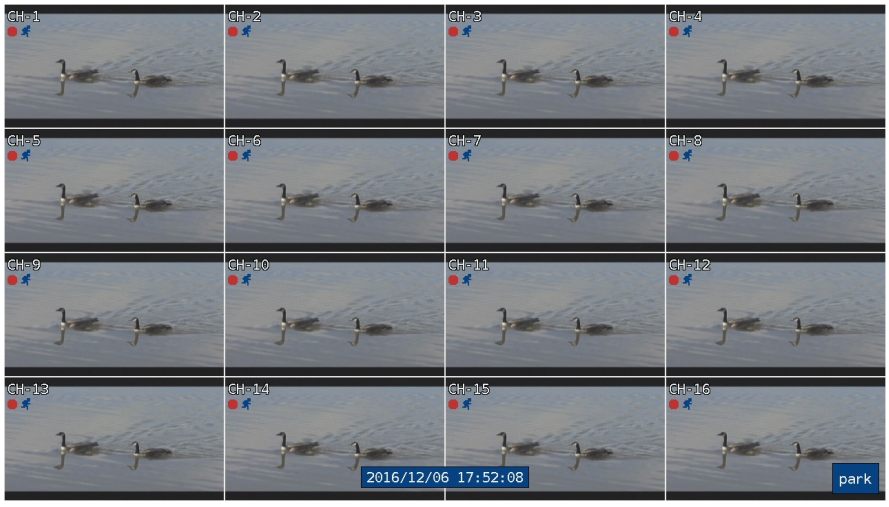

Figure 3.26. Live screen of remote DVR

Live screen of the remote DVR is displayed and the name of the remote DVR is displayed on the lower right corner.

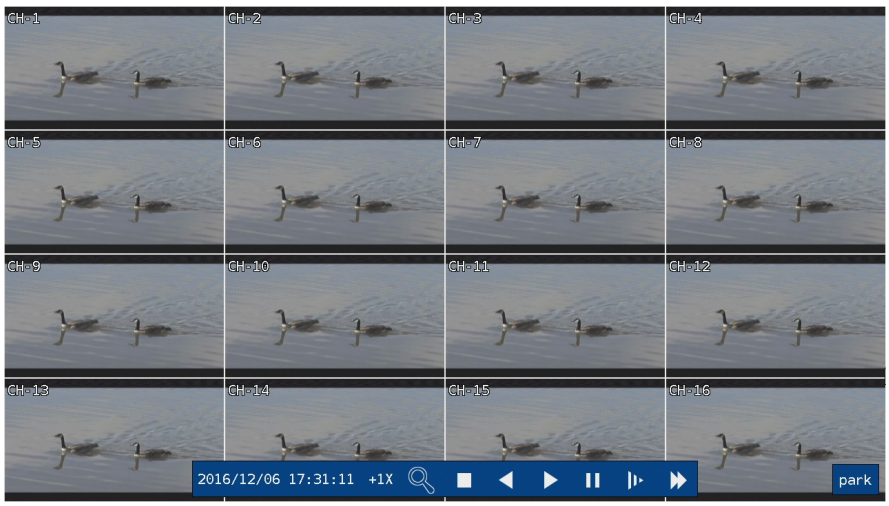

Figure 3.27. The playback screen of the remote DVR

The recorded data on the remote DVR can be retrieved and played back using the same user interface.

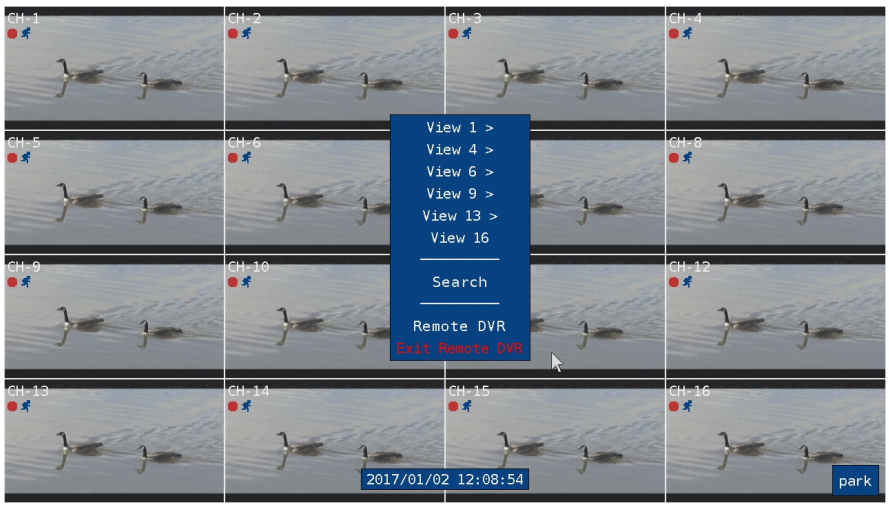

Figure 3.28. Disconnecting the remote DVR

On the mouse menu, click Exit Remote DVR in order to disconnect the remote DVR.

3.2.7. Health

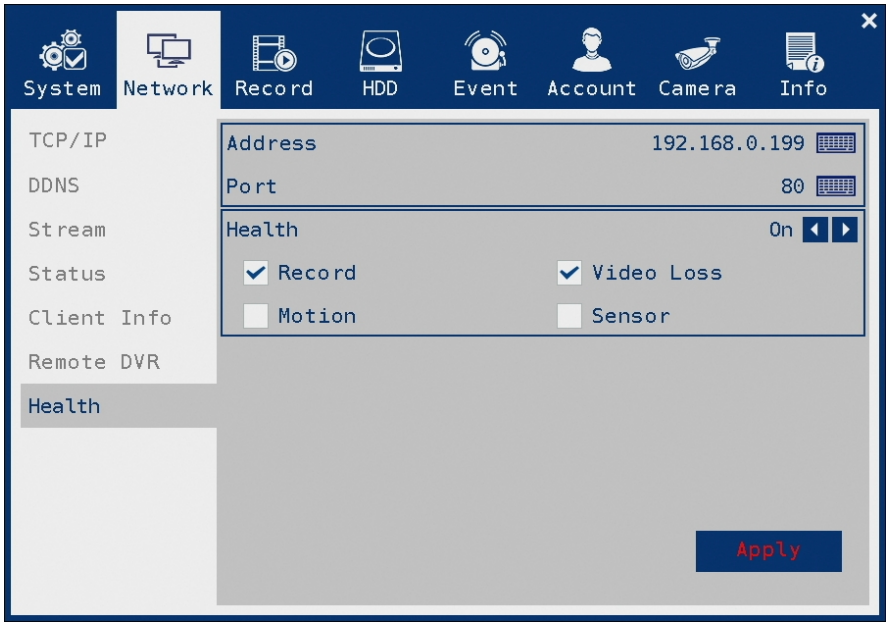

Figure 3.29. Health

- Address : Enter the address of the DHS (DVR Health Server) to receive the DVR status information. Enter the IP address or domain address.
- Port : Enter the port of the DHS.
- Health : Select whether or not to send information to DHS and what information to send. Record, Video loss, Motion, Sensor selection is possible.

3.3. Record

3.3.1. Channel

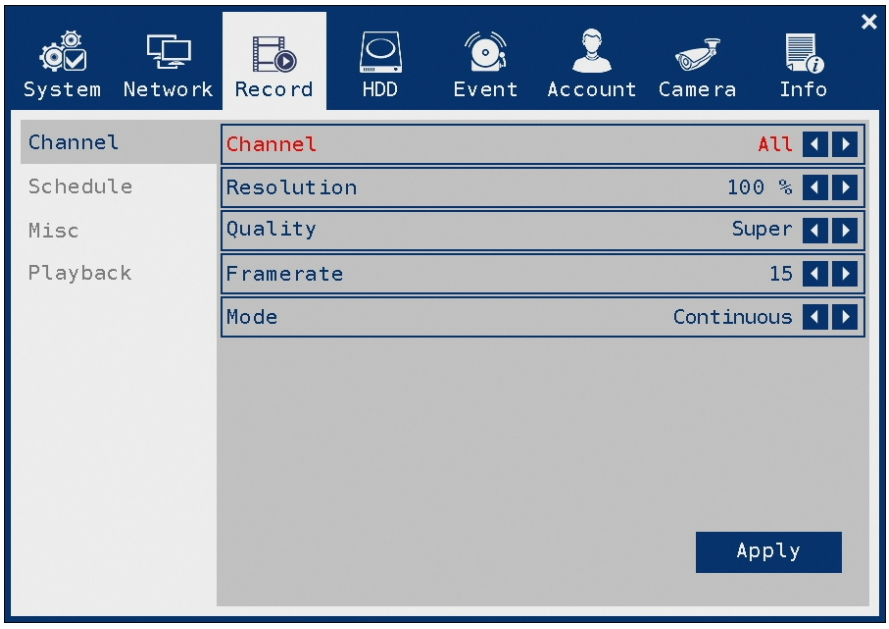

Figure 3.30. Channel

It is used to set resolution, quality, frame rate, record mode for all channel identically or each channel differently.

- Channel : possible to set ALL or indivisual channel. ALL selection is convenient when user set all channel identically.
- Resolution : If the channel mode is All, one of the three(100%, 50%, 25%) can be selected. This means that image will be recorded by the selected percentage resolution. On the individual channel mode, the selectable resolution will be changed depending on the input image resolution. If the input image is Full HD, 1920x1080, 1920x540, 960x540 can be selected, the input image is HD, 1280x720, 1280x360, 640x360 can be selected and the input image is 960H, 960x480, 960x240, 480x240 (NTSC) / 960x576, 960x288, 480x288 (PAL) can be selected.
- Quality : Select from among 4 types : Low, Medium, High, Super.
- Framerate : Realtime DVR can set up to 30fps (NTSC) / 25fps (PAL) regardless of resolution for each channel, Non-Realtime DVR can be set up to 15fps (NTSC) / 12fps (PAL) at the maximum resolution.
- Mode : Manual, Continuous, Motion, Sensor, Motion+Sensor, Continuous+Event, Schedule1 ~ Schedule4 mode can be selected.

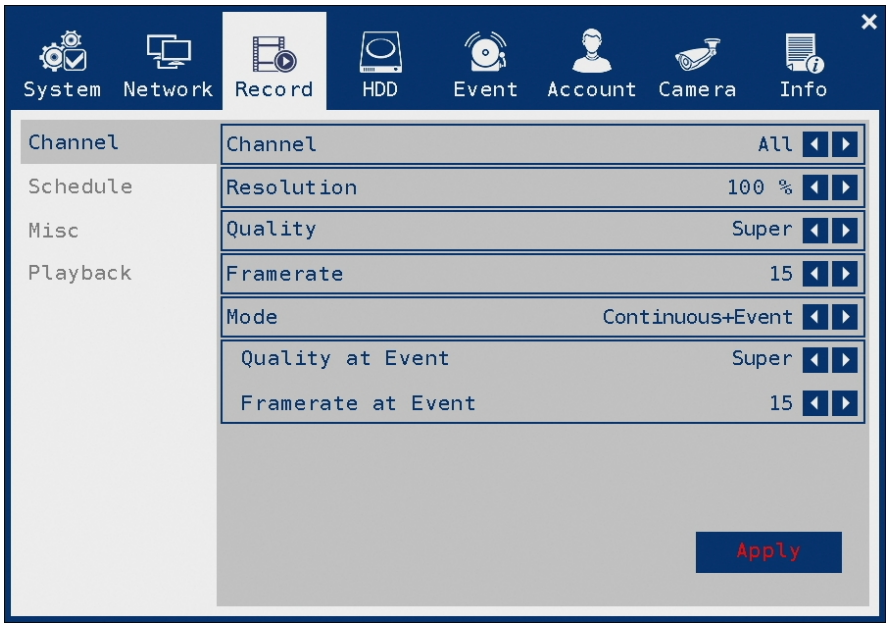

Figure 3.31. Continuous+Event mode

It is the screen when recording mode is continuous+event. The quality and frame rate can be set up differently between Continuous and Event mode.

3.3.2. Schedule

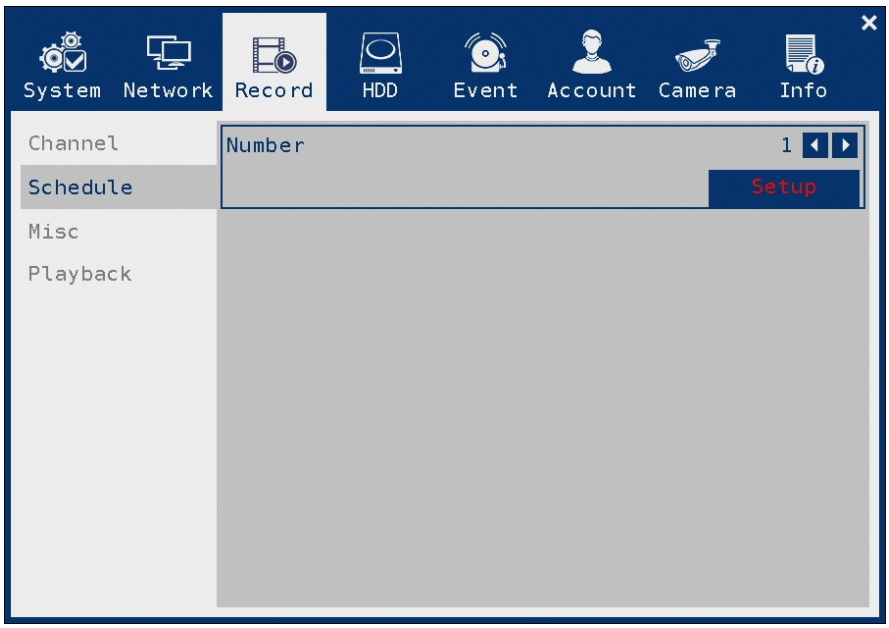

Figure 3.32. Schedule

Set The schedule. Up to 4 different schedules can be set.

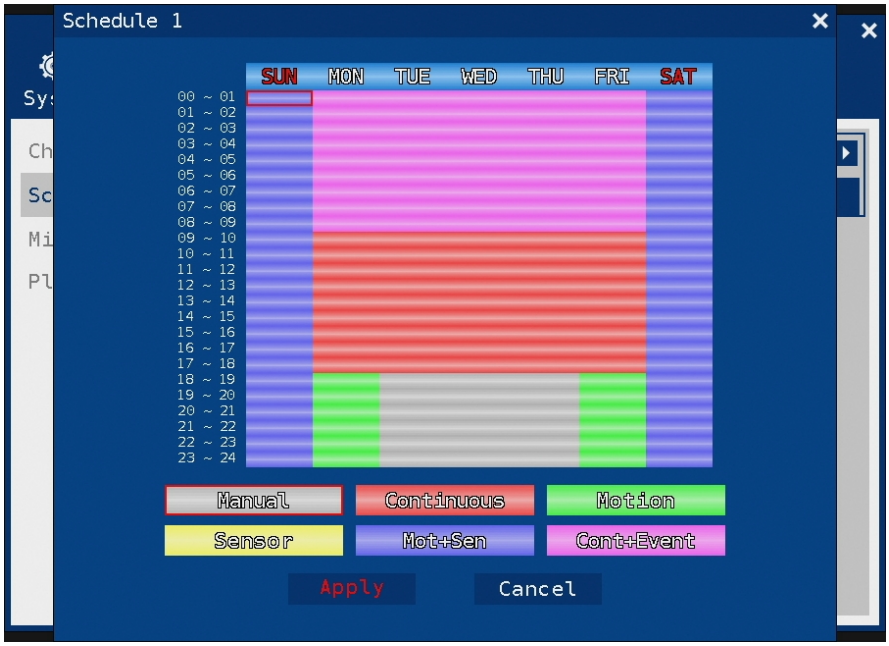

Figure 3.33. Schedule Setting window

Mode setting is possible in 1 hour unit. The configurable modes are Manual, Continuous, Motion, Sensor, Mot +Sen(Motion+Sensor) and Cont+Event(Continuous+Event). When you use a remote controller or the button in front panel, press the OK button to change the recording mode sequentially.

3.3.3. Misc

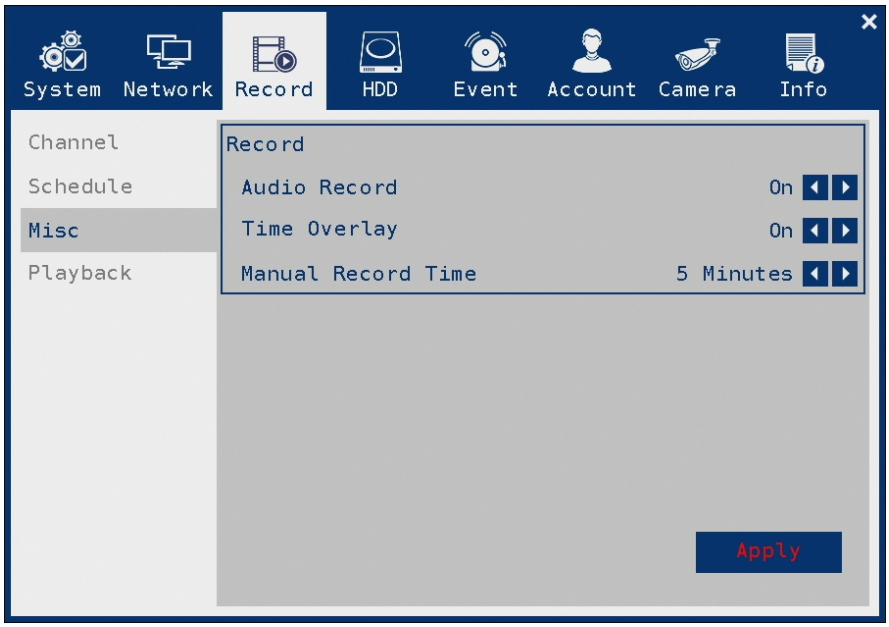

Figure 3.34. Misc

3.3.3.1. Record

- Audio Record : Select whether to record the audio.
- Time Overlay : Select whether to add the time information on the image.
- Manual Record Time : Select the recording duration after manual recording starts. You can select Continuous, 5 minutes, 10 minutes, and 30 minutes.

3.3.4. Playback

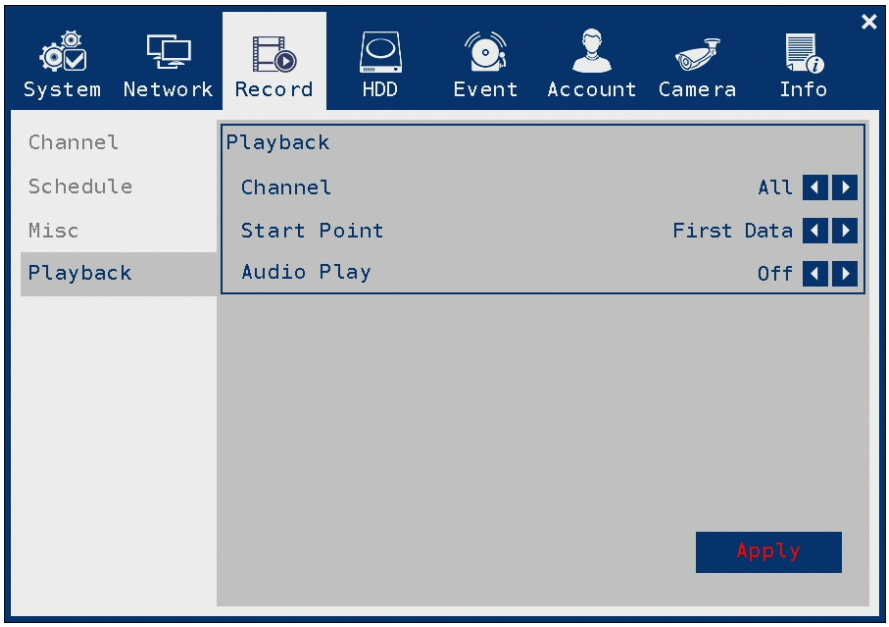

Figure 3.35. Playback

3.3.4.1. Playback

- Channel : Select the channel to playback. If ALL is selected, 16 channels will be playbacked simultaneously.
- Start Point : Choose the start point of the playback. First data, 2 minutes ago, 10 minutes ago, 1 hour ago, 6 hours ago, 1 day ago can be selected.
- Audio Play : Select whether to playback the audio.

3.4. HDD

3.4.1. Mode

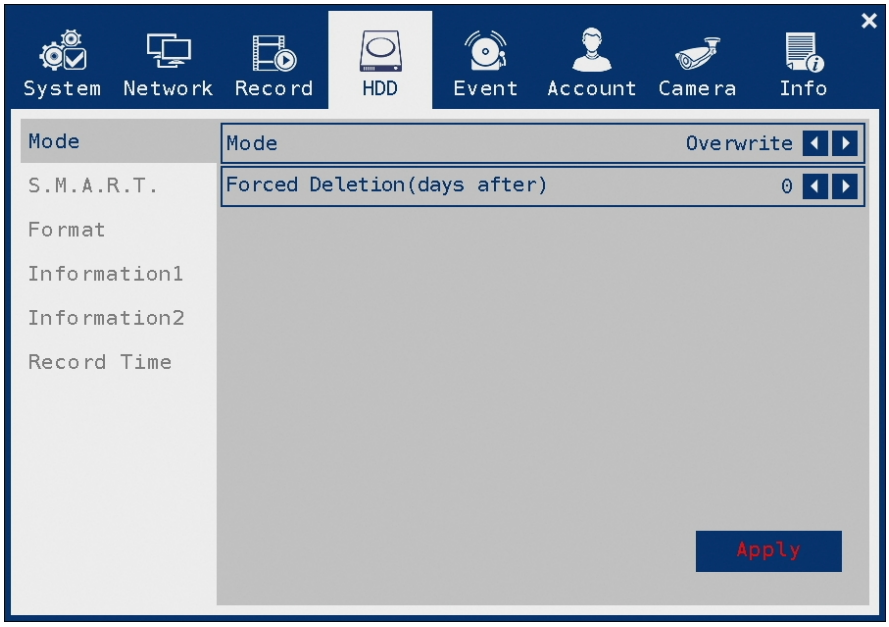

Figure 3.36. Mode

3.4.1.1. Mode

Select the method to save to hard disk. Overwrite, Once mode can be possible. In the Overwrite mode, If the hard disk is full, recording will proceed while erasing the oldest data. In the Once mode, When the hard disk is full, DVR stops recording.

3.4.1.2. Forced Deletion

It is a function to forcibly delete recording data. Based on the current time, the previous data before the selected date will be erased forcibly. It is meaningful only if the harddisk driver has enough capacity to store more data than the selected date. 0(Off), 1day ~ 99 days can be set.

3.4.2. S.M.A.R.T. function

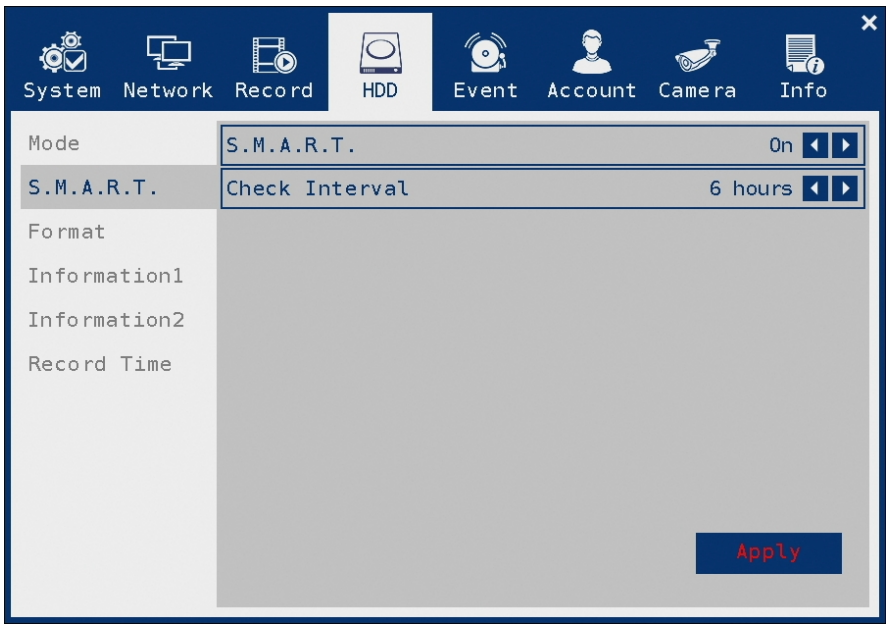

Figure 3.37. S.M.A.R.T. function

3.4.2.1. S.M.A.R.T.

Choose whether to check S.M.A.R.T. test. The test works only ON condition in the check interval. The test results are recorded in the System Log. There are 3 results which are PASSED, WARNING, ERROR. WARNING is occured when even one kind of abnormal test is checked, It indicates a potential problem that is likely to occur. ERROR means that there is possibility to occure serious problems within 24 hours, so back up important data and need to replace the hard disk.

3.4.2.2. Check Interval

Select the S.M.A.R.T. test period. 6hours, 12hours, 24hours can be set.

3.4.3. Format

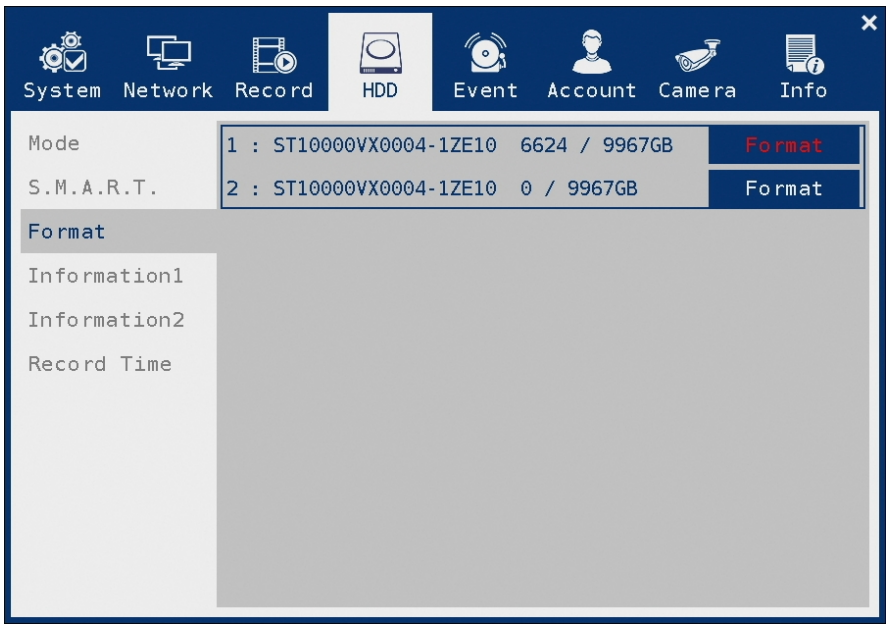

Figure 3.38. Format

Format the hard disk on a disk-by-disk basis. Recording data is erased completely so be sure to backup the data.

3.4.4. Information1

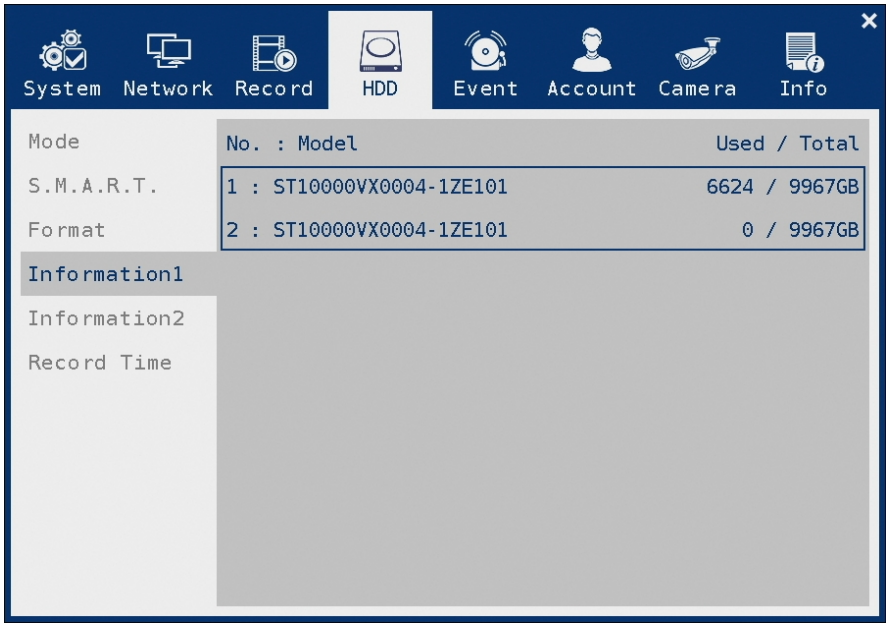

Figure 3.39. Information1

Display the information of the installed hard disk. It shows the model name and capacity used versus total capacity of the hard disk driver.

3.4.5. Information2

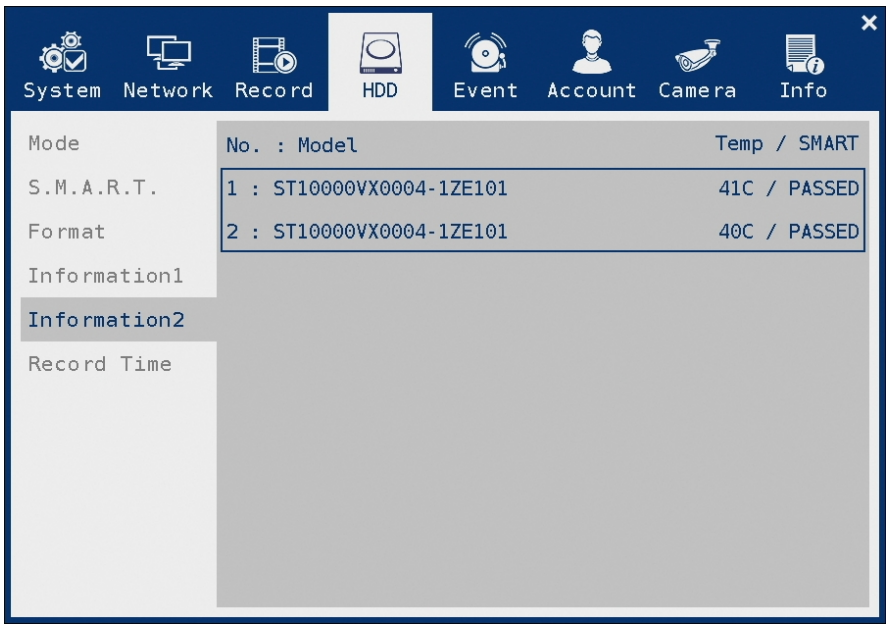

Figure 3.40. Information2

Display the temperature of the installed hard disk and the S.M.A.R.T. test results.

3.4.6. Record Time

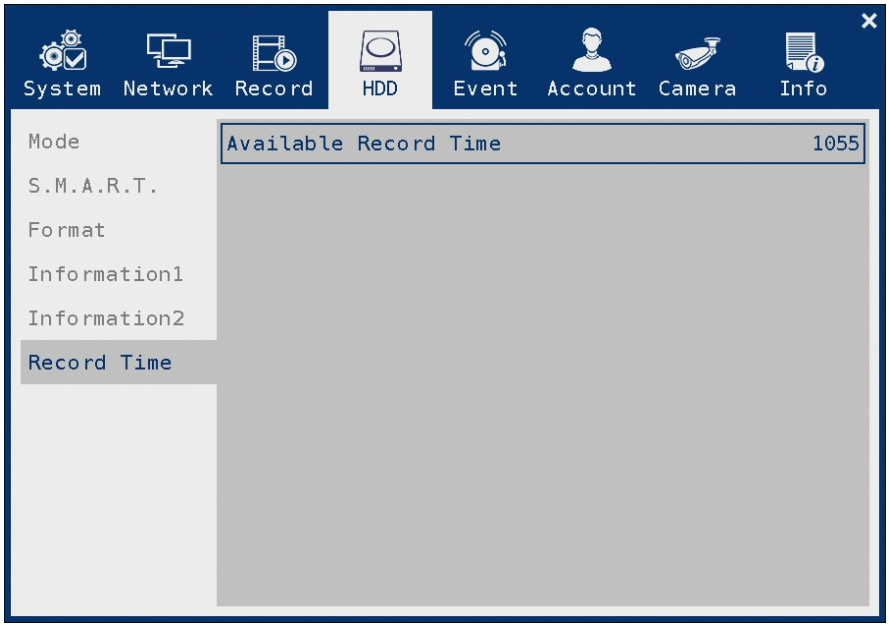

Figure 3.41. Record Time

The available record time will be displayed based on the current status. The available record time is automatically changed when the conditions are changed.

3.5. Event

3.5.1. Motion

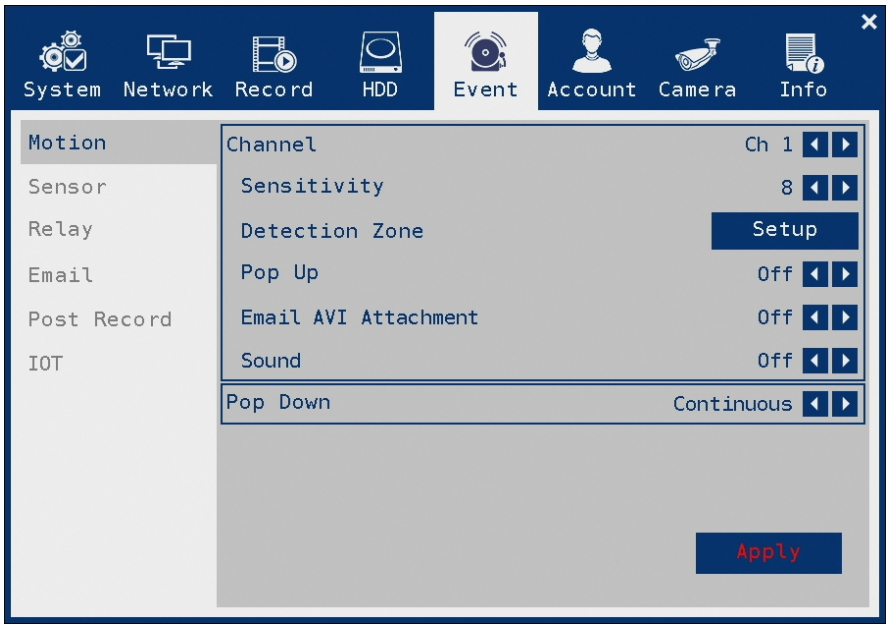

Figure 3.42. Motion

Motion detection setting. User can set the sensitivity, detection area, whether to pop up, the duration of the channel by channel.

3.5.1.1. Channel

Select the channel for which you want to make detailed settings.

3.5.1.1.1. Sensitivity

Set the motion detection sensitivity. From 0 to 15, default value is 8. 15 is the highest sensitivity.

3.5.1.1.2. Detection Zone

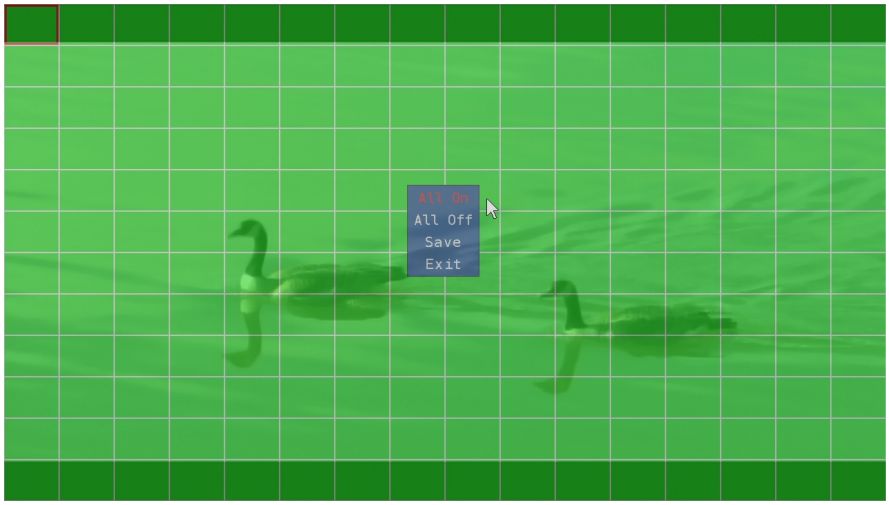

Figure 3.43. Detection Zone

Set up motion detection area. Area is consisted of 16x12 regions. When using the mouse, Hold down the left mouse button and drag to select the area. Hold down the right mouse button to release the area. Clicking the right mouse button or pressing the MENU button on the remote control or front keys, Motion Setting menu appears. All On, All Off, Save, Exit can be selected.

3.5.1.1.3. Pop Up

Set whether to pop up the linked channel when detecting motion.

3.5.1.1.4. Email AVI Attachment

Set whether to send the recorded data of the channel in the AVI format by e-mail when detecting motion. In the On state, transmits 10-second video in AVI format by e-mail about 3 seconds before the motion detected.

3.5.1.1.5. Sound

Whether to output a warning sound when detecting motion. The warning sound is output to the HD OUTPUT digital audio output and analog audio output port. Off, Sound 1, Sound 2, Sound 3 can be selected.

3.5.1.2. Pop Down

Set how long the popup channel is retained after motion detection is cleared in the selected area. Continuous, 5 secs, 10 secs, 30 secs can be selected.

3.5.2. Sensor

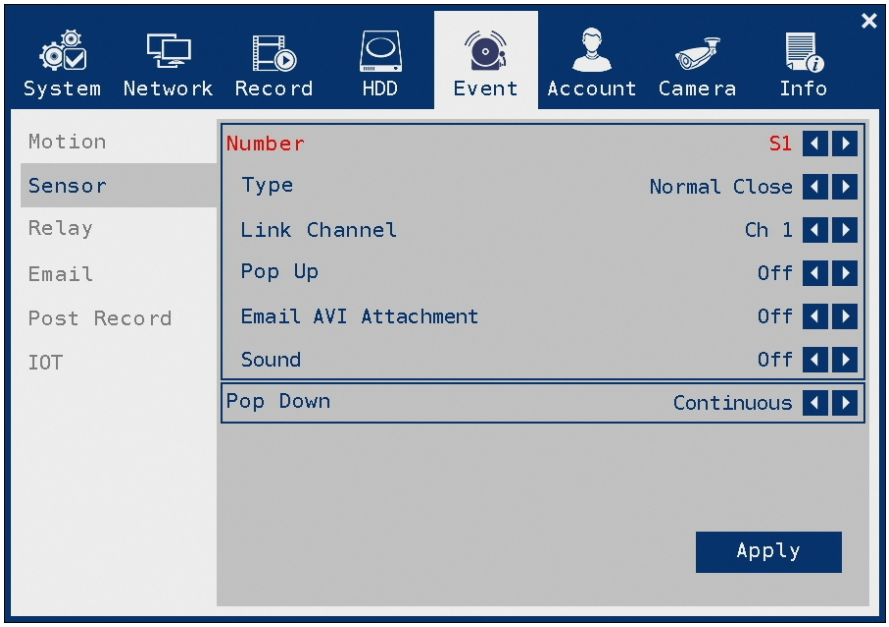

Figure 3.44. Sensor

Sensor setting. Action type, connection channels, whether to pop up the related channel on the sensor input condition, the dwelling time of the pop-up state can be set by each channel.

3.5.2.1. Number

Select the channel for which you want to make detailed settings.

3.5.2.1.1. Type

Depending on the sensor, user can select NO(Normal Open) or NC(Normal Close).

3.5.2.1.2. Link Channel

Select the channel to connect with the sensor. When the recording mode is the sensor related mode, the corresponding channel is recorded when the sensor operates.

3.5.2.1.3. Pop Up

Set whether to pop up the linked channel when the sensor is detected.

3.5.2.1.4. Email AVI Attachment

Set whether to send the recorded data of the channel in the AVI format by e-mail when detecting sensor. In the On state, transmits 10-second video in AVI format by e-mail about 3 seconds before the sensor occurred.

3.5.2.1.5. Sound

Whether to output a warning sound when detecting sensor. The warning sound is output to the HD OUTPUT digital audio output and analog audio output port. Off, Sound 1, Sound 2, Sound 3 can be selected.

3.5.2.2. Pop Down

Set how long the popped channel will remain after the sensor is deactivated. Continuous, 5 secs, 10 secs, 30 secs can be selected.

3.5.3. Relay

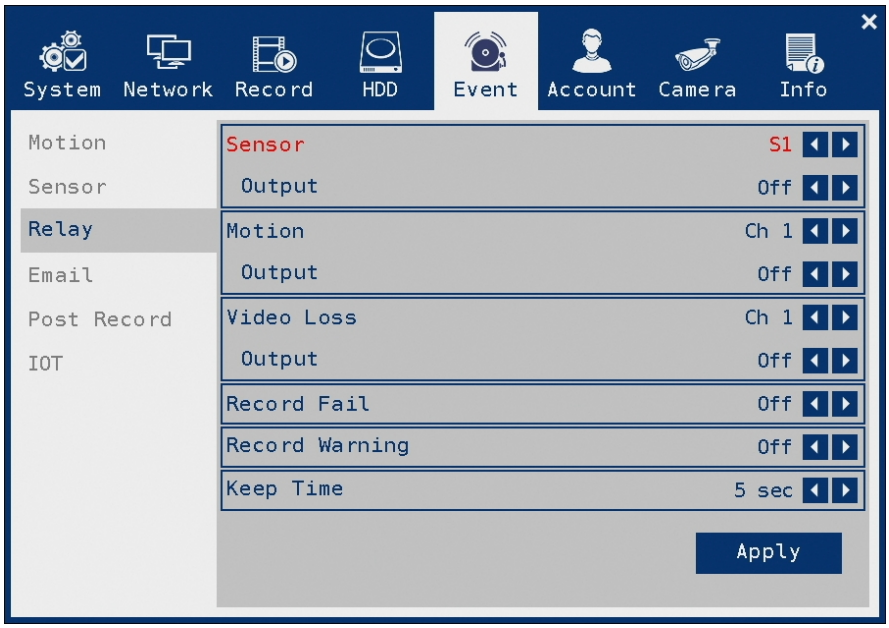

Figure 3.45. Relay

Set the operating condition of the relay.

3.5.3.1. Sensor

Whether to output the relay when the sensor is detected.

3.5.3.2. Motion

Whether to output the relay when the motion is detected.

3.5.3.3. Video Loss

Whether to output the relay when video loss occurs.

3.5.3.4. Record Fail

Whether to output the relay when the record fail is occured.

3.5.3.5. Record Warning

Whether to output the relay when the record warning is occured.

3.5.3.6. Keep Time

Set the relay hold time. None, 5 secs, 10 secs, 30 secs can be selected.

3.5.4. Email

The e-mail will be sent when a event occurs.

3.5.4.1. Address

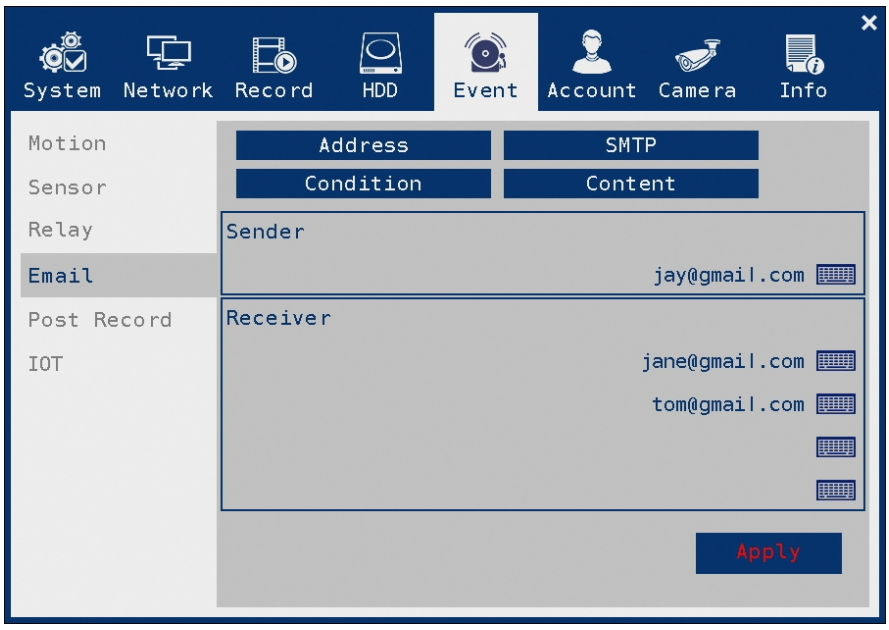

Figure 3.46. Address

- Sender : Enter the e-mail address of the sender. The e-mail address must be the registered address of the SMTP server.
- Receiver : Enter the e-mail address of the recipient. Up to four can be set.

3.5.4.2. SMTP

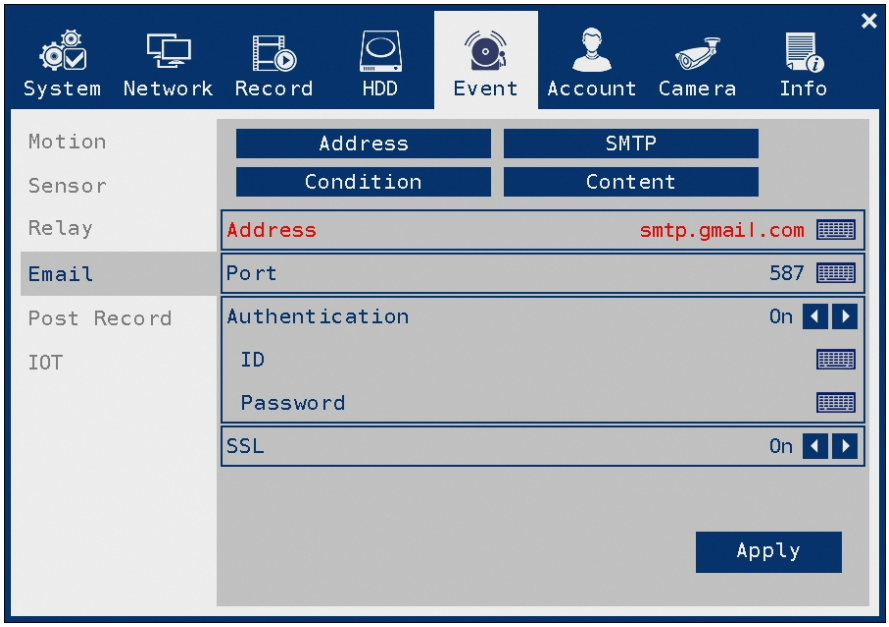

Figure 3.47. SMTP

Enter the related SMTP information. It should be confimed from the SMTP service provider that you want to use.

- Address : Enter the address of the SMTP server to use. Default value is the Google's SMTP server.
- Port : Enter the SMTP port number. Default value is the Google's SMTP port number.
- Authentication : Depending on the SMTP server, it may require authentication. Select ON if authentication needs.
- ID : Enter ID to use.
- Password : Enter Password to use.
- SSL : The default is ON.

3.5.4.3. Condition

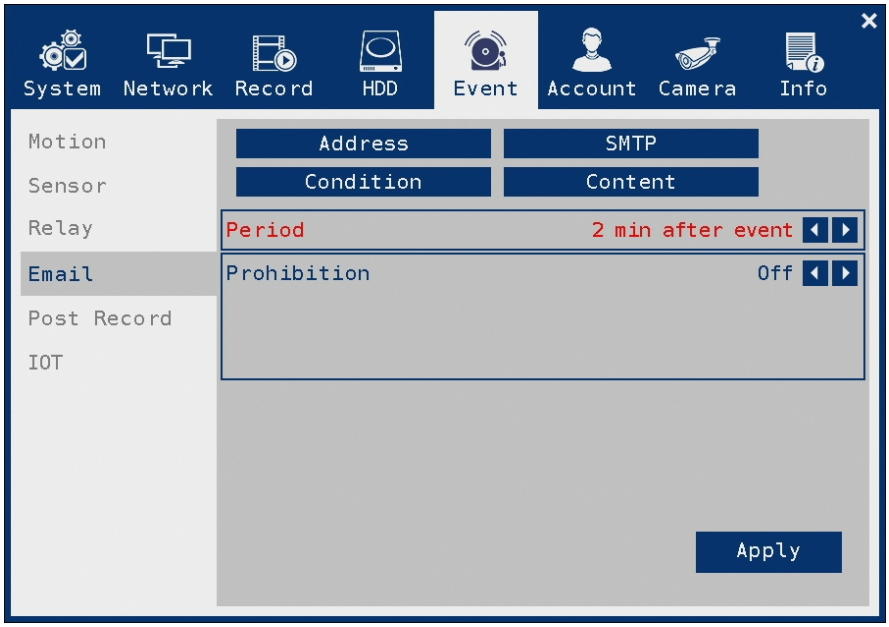

Figure 3.48. Condition

Set the sending conditions of the email.

- Period : Set the sending period interval of the email. NO, 30min, 1hour, 2hours, 5hours, 12hours, 24hours, 2 min after event can be selected.
- Prohibition : Set the time not to send the e-mail. From Start to End time, DVR doesn't send the mail. Time format is applied to 24 hour time format.

3.5.4.4. Contents

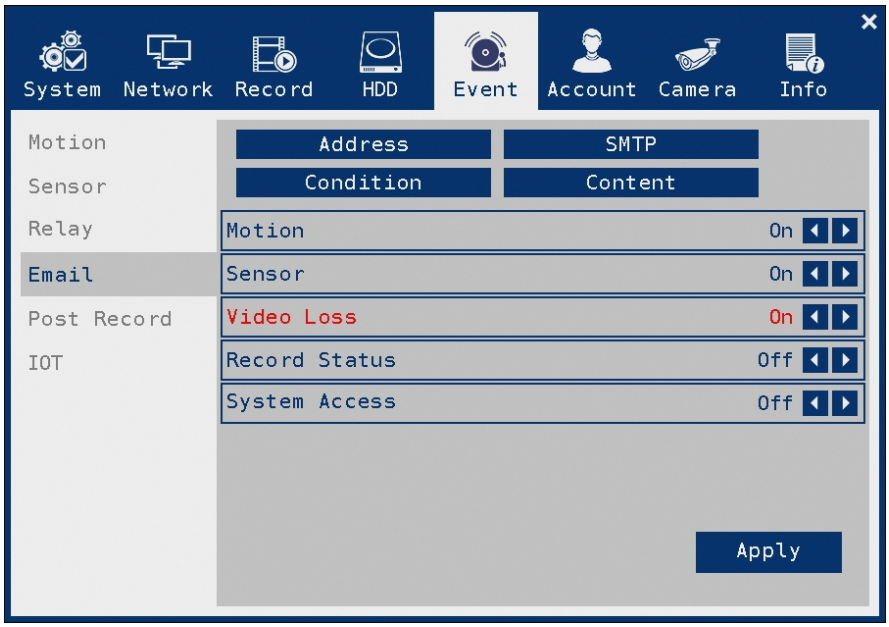

Figure 3.49. Contents

Select the email content.

- Motion : Motion detection information is included in the email content.
- Sensor : Sensor operation information is included in the e-mail information.
- Video Loss : Video loss information is included in the email content.
- Record Status : Recording status is included in the email content .
- System Access : System log information is included in the email content.

3.5.5. Post Record

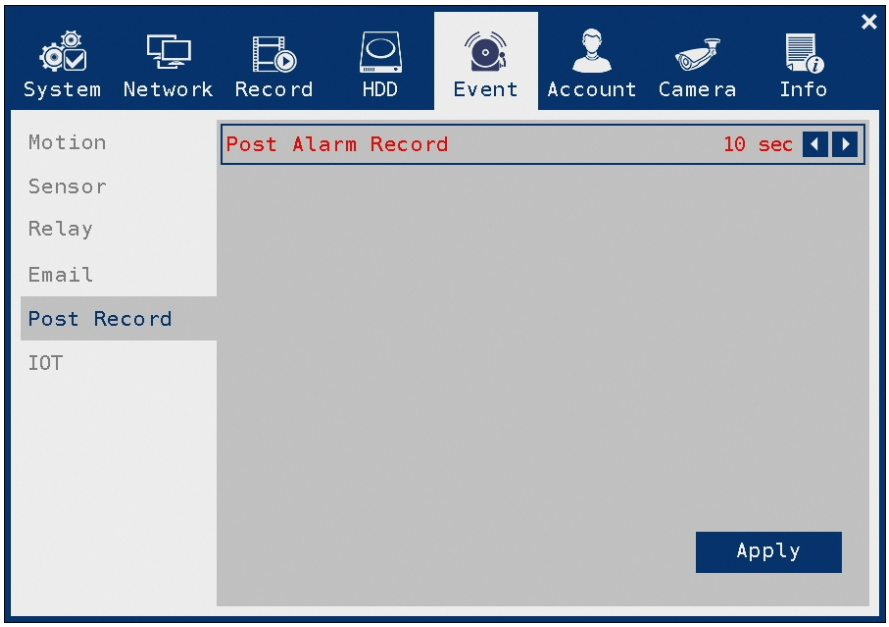

Figure 3.50. Post Record

Set the duration time after the termination of the event. NONE, 10s, 20s, 30s, 40s, 50s, 60s can be selected.

3.5.6. IOT

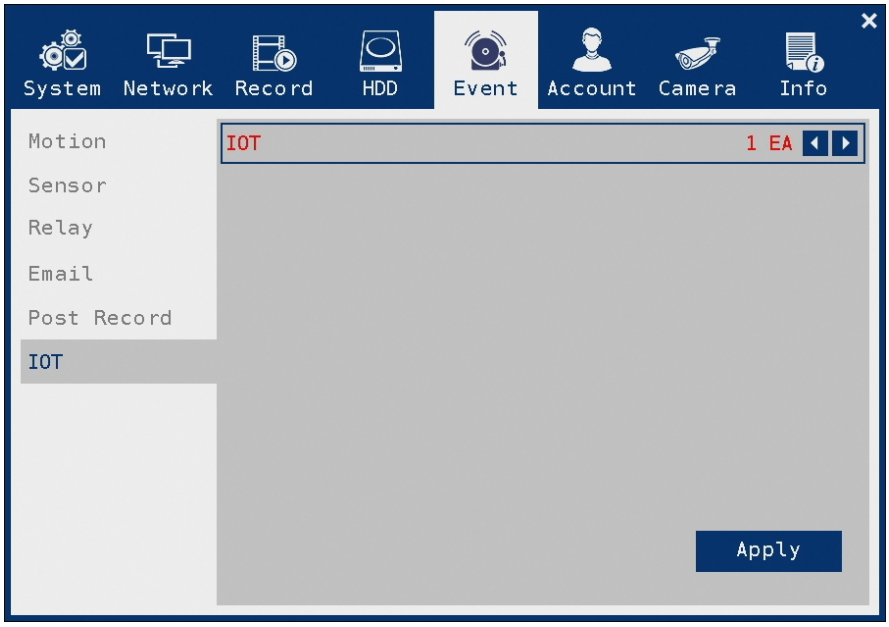

Figure 3.51. IOT

IOT is an I / O expansion device that provides 4 sensor inputs and 4 relay outputs. Up to 4 IOTs can be connected to the RS-485 port to control 20 sensor inputs and 17 relay outputs.

3.6. Account

Motion detection setting. User can set the sensitivity, detection area, whether to pop up, the duration of the channel by channel.

3.6.1. Admin

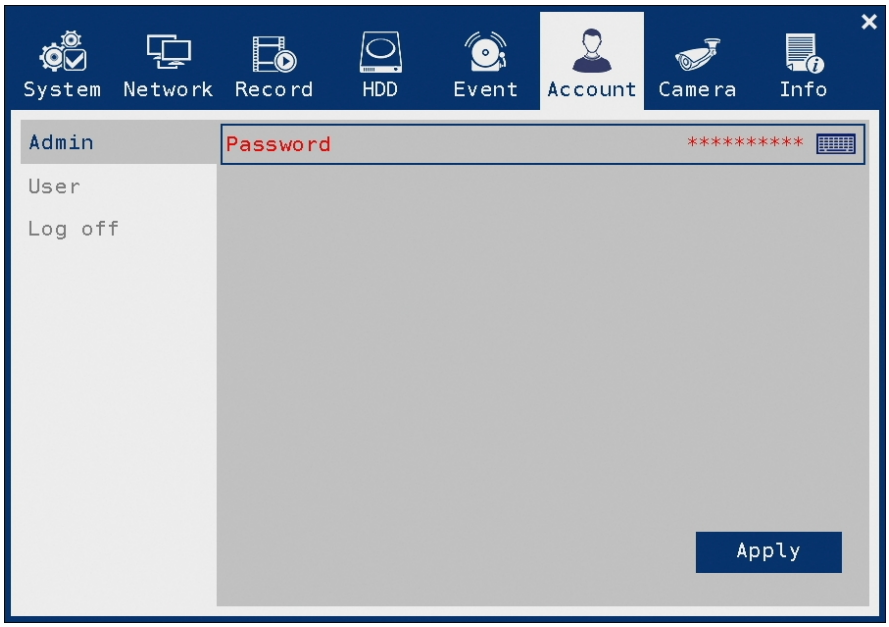

Figure 3.52. Admin

Set the admin password. Default value is '1234'.

3.6.2. User

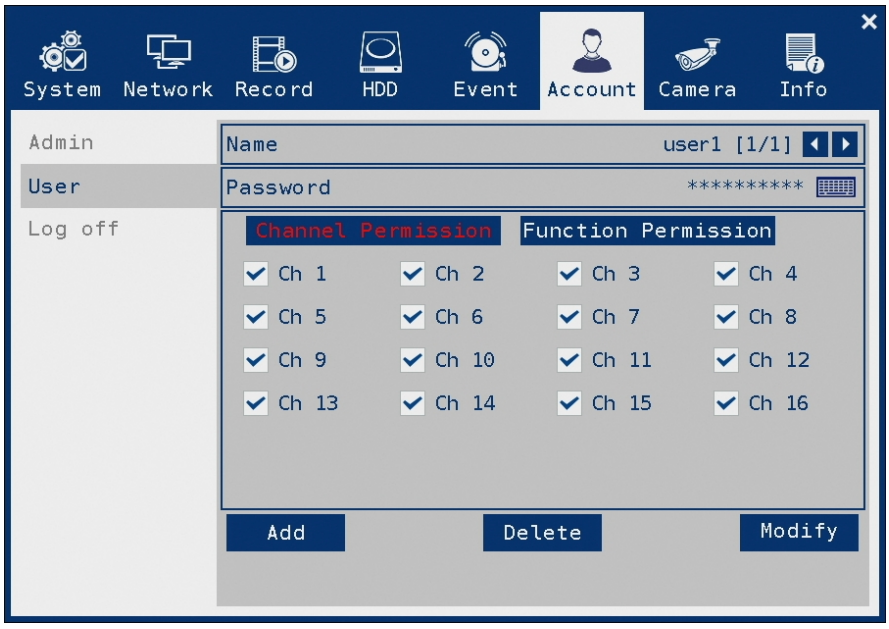

Figure 3.53. User

Manage the acoounts of users and feature set for each account. User's account can be up to 100. Using the buttons at the bottom of the menu, users can add, delete, and modify.

3.6.2.1. Name

Set the name of the user account.

3.6.2.2. Password

Set a password for a user account.

3.6.2.3. Channel permission

Set up acceptable channels for each account.

3.6.2.4. Function permission

Set the operational functions for each account. PTZ control, playback, backup, network monitoring, network connections, network access time limit functions can be selected.

3.6.3. Log off

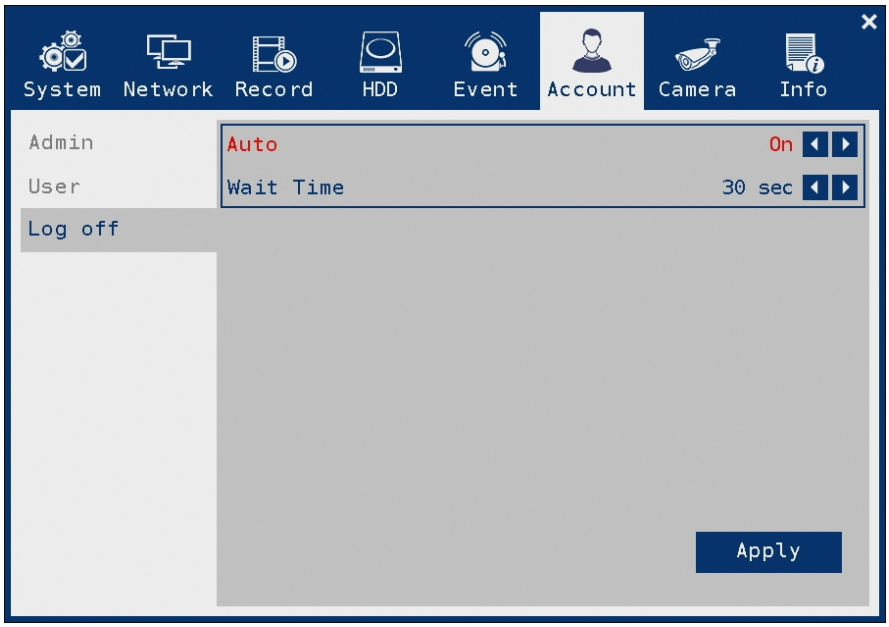

Figure 3.54. Log off

3.6.3.1. Auto

Set whether to use an automatic log off.

3.6.3.2. Wait Time

Set the wait time of an automatic log off. 30sec, 1min, 3min, 5min, 10min can be selected.

3.7. Camera

3.7.1. Name

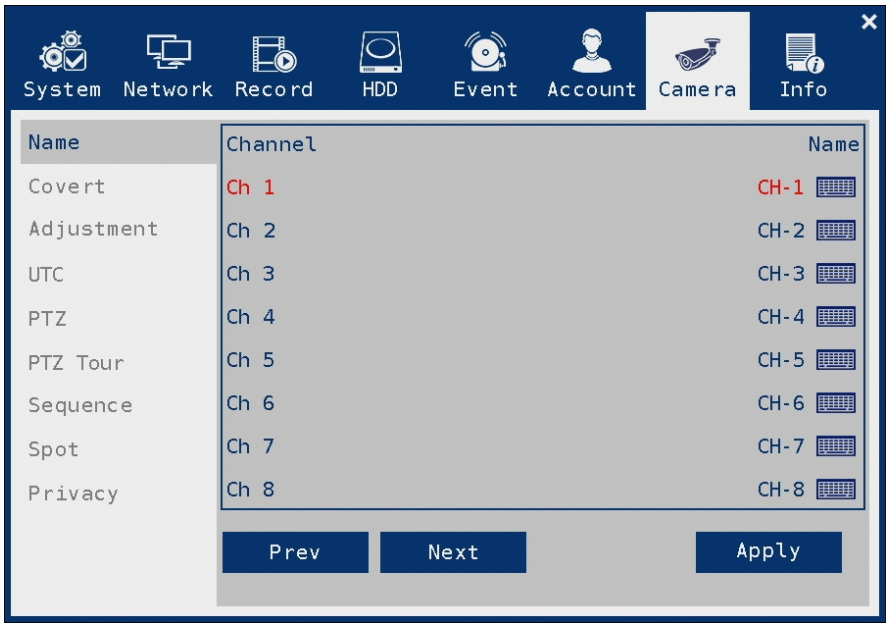

Figure 3.55. Name

Enter the name of the channel.

3.7.2. Covert

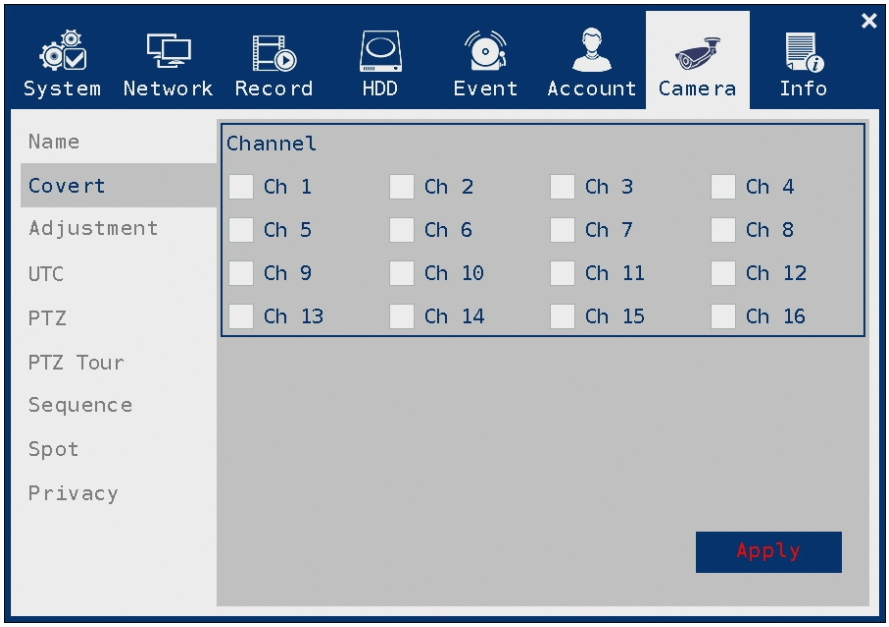

Figure 3.56. Covert

Covert a channel. The selected channel is not displayed on the screen.

3.7.3. Adjustment

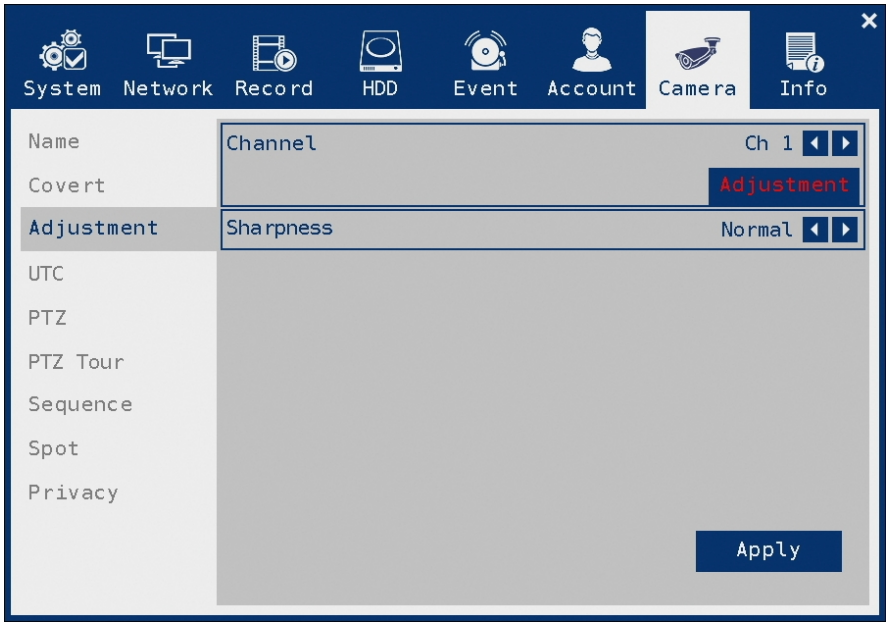

Figure 3.57. Adjustment

- Channel : Adjust display parameters per channel. Contrast, Brightness, Hue, Horizental sharpness, Vertical sharpness can be adjusted.
- Sharpness : Adjust sharpness per channel. Soft, Normal, Hard can be selected.

3.7.4. UTC

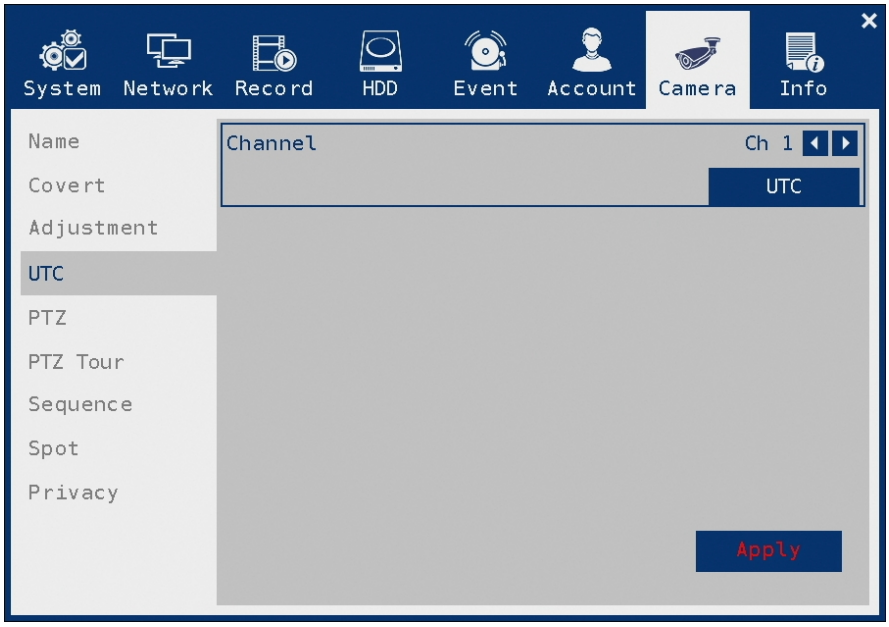

Figure 3.58. UTC

UTC Camera control menu. When a camera supporting UTC is connected, menu operation of UTC camera is possible.

3.7.5. PTZ

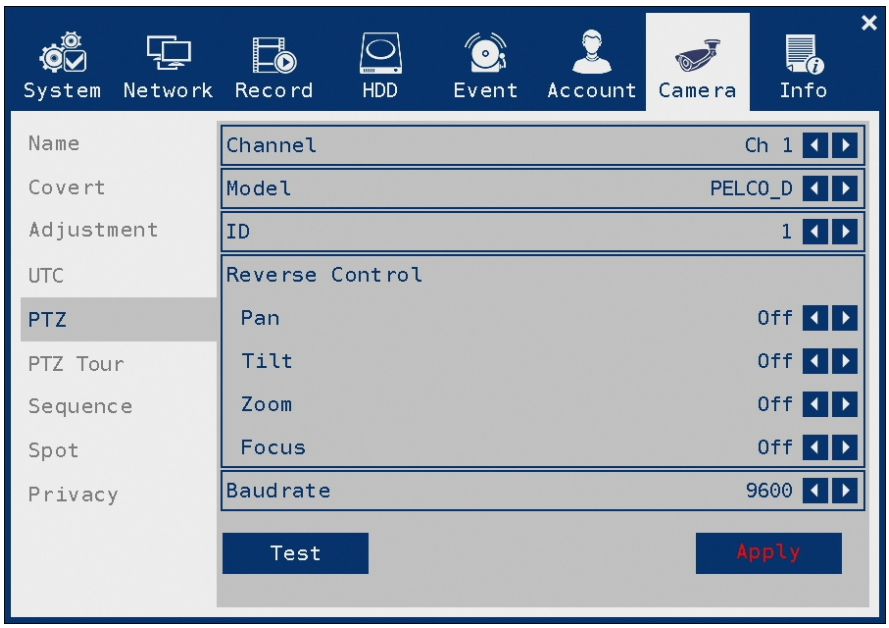

Figure 3.59. PTZ

It is possible to set the model, ID, reverse control, baudrate, and test operation by channel. After setting the detailed items, user can test whether the current settings are applied before storing the settings.

3.7.5.1. Channel

Select the channel for PTZ setting.

3.7.5.2. Model

Select the PTZ model. PELCO_D, UTC can be selected.

3.7.5.3. ID

Sets the ID of the PTZ device.

3.7.5.4. Reverse Control

After installing the equipment, the PTZ equipment moves in the opposite direction. In that situation user can change the operating direction without reinstalling. User just turns on the reverse control function.

3.7.5.5. Baudrate

Set the baud rate. 1200, 2400, 4800 , 9600, 19200, 38400, 57600, 115200 is possible.

3.7.6. PTZ Tour

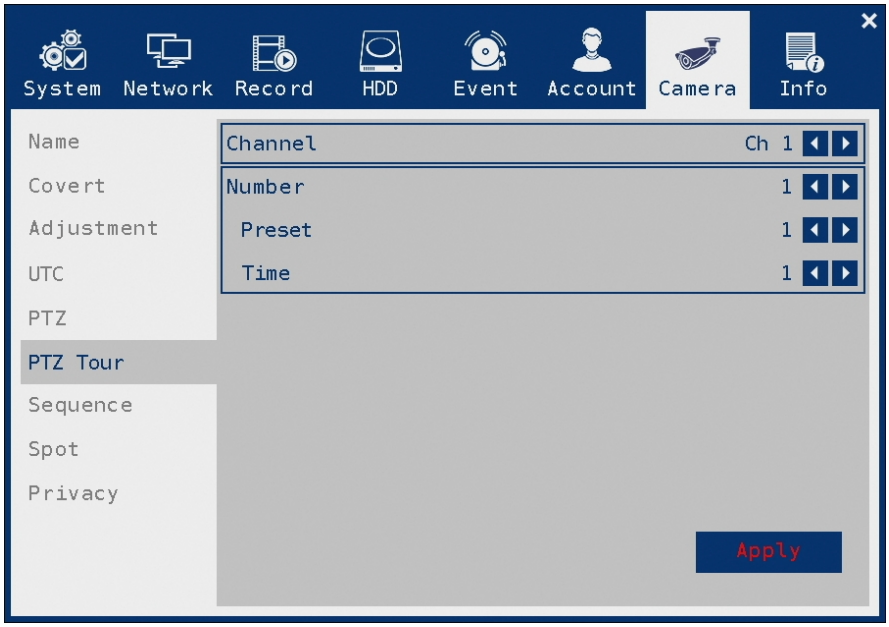

Figure 3.60. PTZ Tour

Set PTZ Tour for each channel.

3.7.6.1. Channel

Select channel to set PTZ Tour function.

3.7.6.2. Number

After selecting PTZ Tour number, select PTZ Tour scenario by selecting preset and retention time for corresponding number.

3.7.7. Sequence

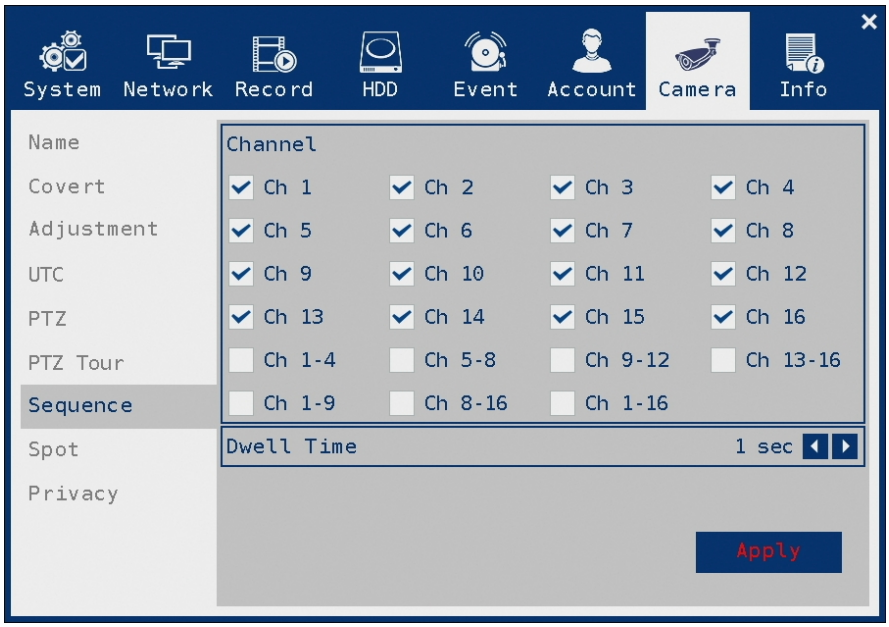

Figure 3.61. Sequence

Automatic screen switch setting.

3.7.7.1. Channel

Single channel (Ch1 ~ Ch16), 4-split screen (Ch1-4, Ch5-8, Ch9-12, Ch13-16), 9-split screen (Ch1-9, Ch8-16), 16 split screen (Ch1-16) can be selected for sequential switching.

3.7.7.2. Wait Time

Set the time interval of the sequence. 1sec, 2secs, 4secs, 5secs, 8secs, 10secs, 15secs, 30secs can be selected.

3.7.8. Spot

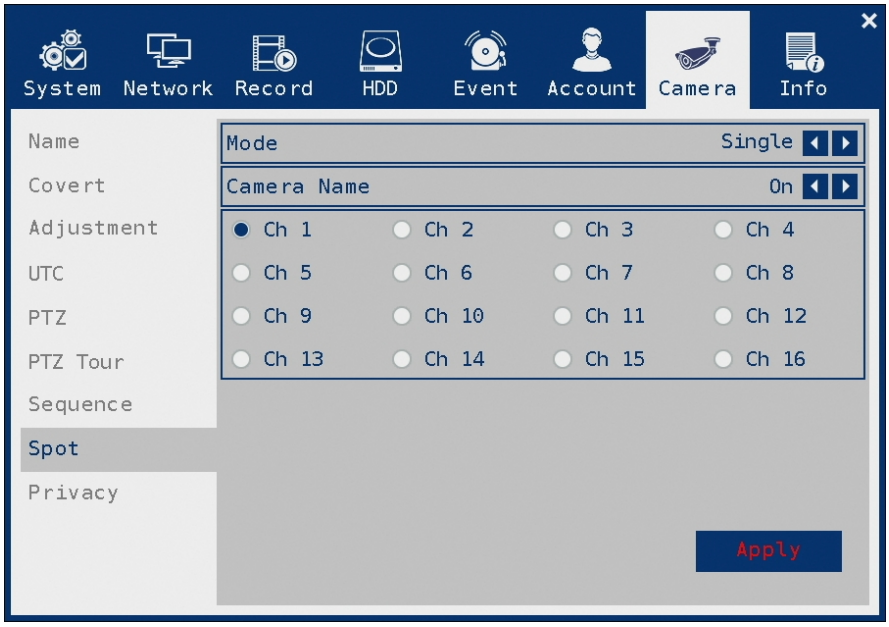

Figure 3.62. Spot

SPOT output setting. Off, Single, Sequence, Main can be selected.

3.7.9. Privacy

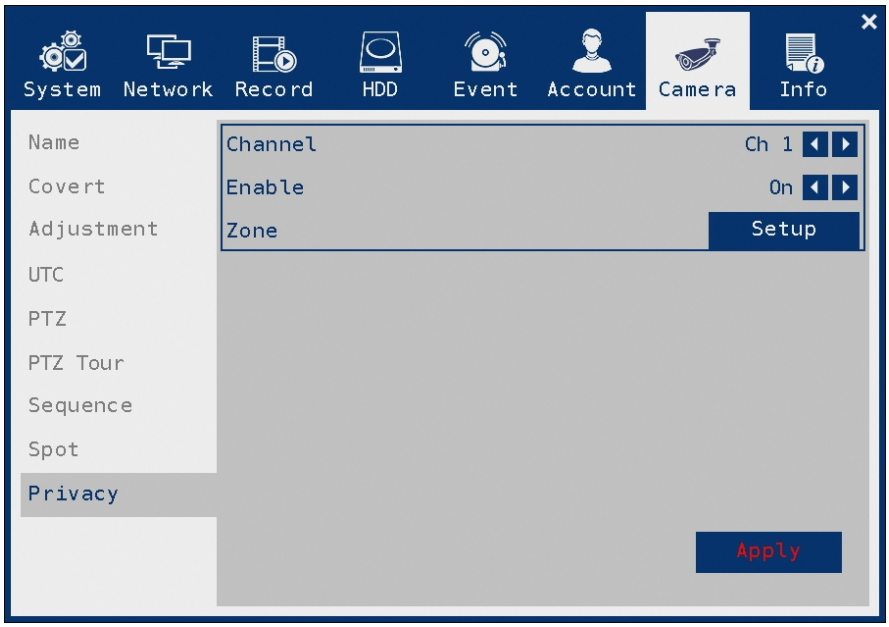

Figure 3.63. Privacy

Privacy settings. Set whether to use privacy protection function and set privacy protection zones for each channel.

3.7.9.1. Channel

Select the channel for which you want to make detailed settings.

3.7.9.1.1. Enable

Set whether to use the privacy protection function.

3.7.9.1.2. Zone

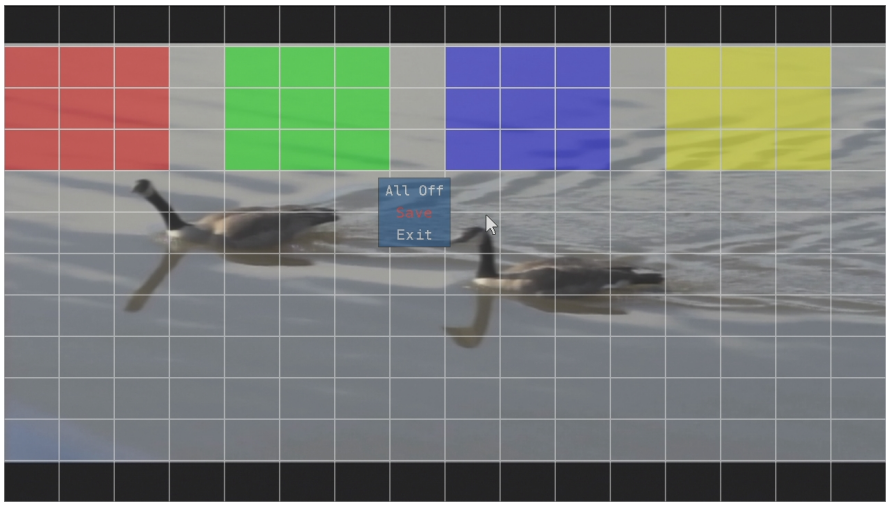

Figure 3.64. Zone

Set privacy zone. Area is consisted of 16x12 regions. When using the mouse, Hold down the left mouse button and drag to select the area. Up to 4 zones can be selected per channel. Pressing the right button of the mouse or pressing the MENU button on the remote control or the key displays a popup menu. All Off, Save, Exit can be selected.

3.8. Information

3.8.1. Event Log

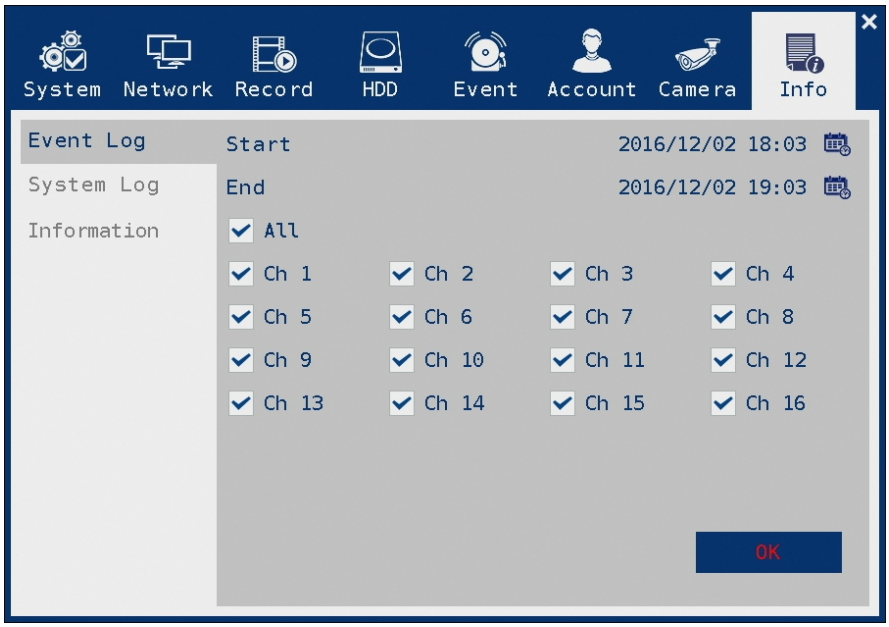

Figure 3.65. Event Log

Displays the event-related log. You can select time and channel for event log search.

3.8.2. System Log

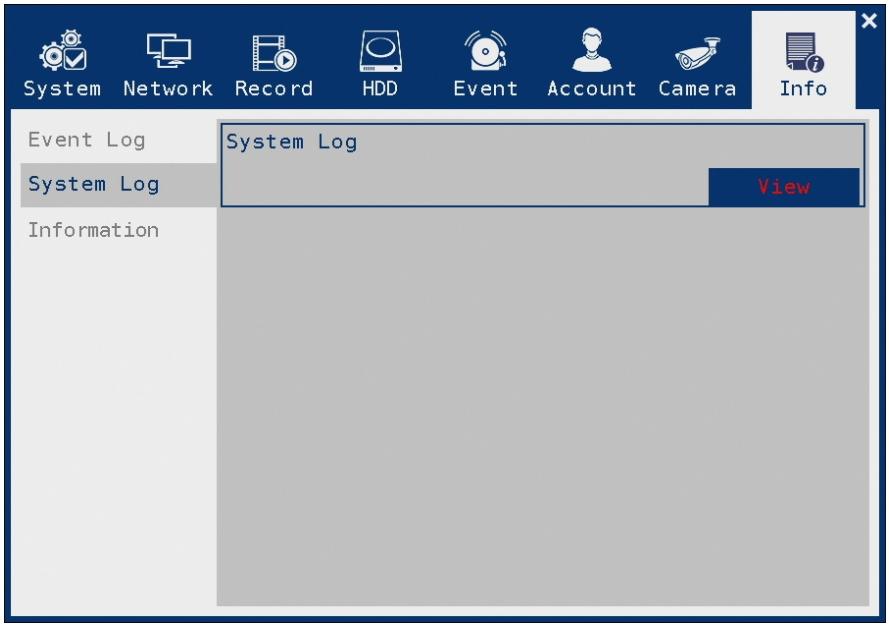

Figure 3.66. System Log

Load the system log stored in the DVR.

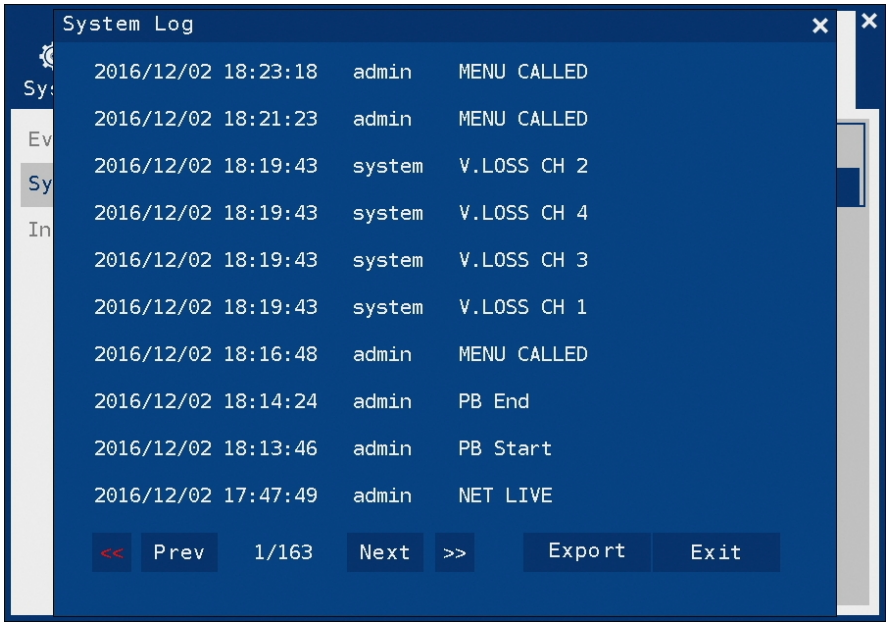

Figure 3.67. System Log List

Displays the system log sequentially from the most recent one. Press the Export button to export the system log information to a USB memory device. The file format is .txt file.

3.8.3. Information

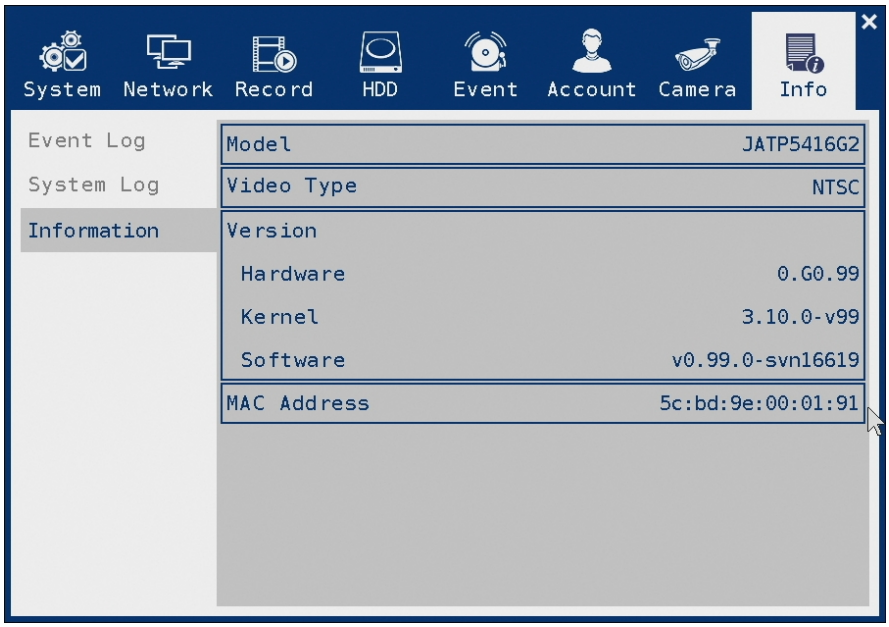

Figure 3.68. Information

Model name, Video type, Version (Hardware, Kernel, Software) information, MAC Address is displayed.

Chapter 4. CMS

4.1. Summary

CMS(Central Management Software) is the program that manages efficiently Multiple DVR through the network. Real-time video monitoring, retrieval and backup of recorded data, configuration functions are provided. Up to 256 channels of video can be monitored simultaneously.

4.2. System requirements

Item	Windows PC	Mac Book
CPU	Intel Pentium 4 / 3.0GHz	Intel Core 2 Duo / 2.2GHz
Main Memory	1GB	2GB
Video Memory	128MB	256MB
Display Resolution	1280 x 1024 (with 32bit color) or higher	1280 x 800 (with 32bit color) or higher
Hard disk	120GB or higher	120GB or higher
OS	Windows XP SP3 or higher	Mac OS X 10.6 or higher
DirectX Version	9.0 or higher	9.0 or higher

Table 4.1. System requirements

4.3. Installing the program

Double click the CMS_VerX.X.X_Setup.exe file in the provided CD or downloaded. CMS icon will be created on your desktop.

4.4. Program

4.4.1. Screen configuration

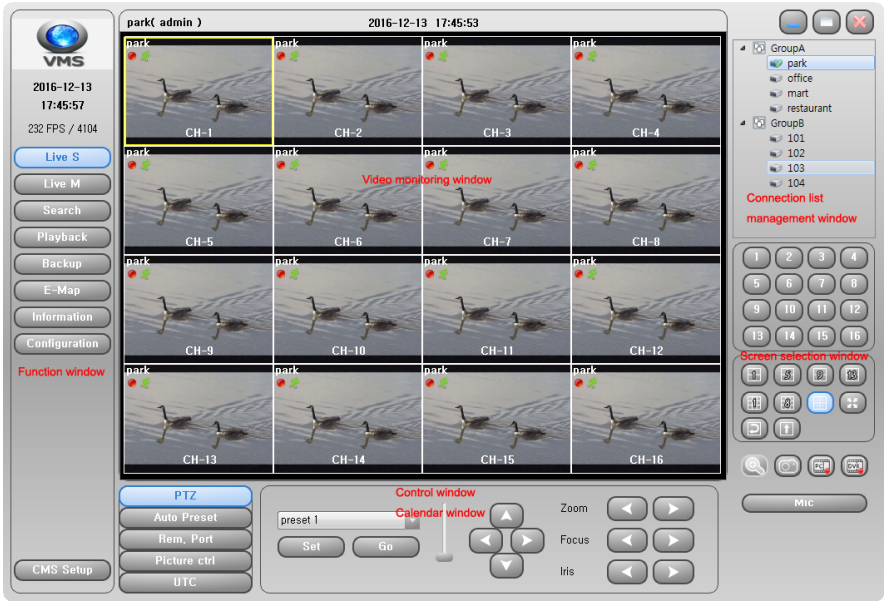

Figure 4.1. Screen configuration

- Function window : LiveS, LiveM, Search, Playback, Backup, E-Map, Information, DVR Configuration, CMS Setup can be selected.

- Video monitoring window : DVR's video shows.
- Connection list management window : Manage the group and DVR using add, modify, and delete function.
- Screen selection window : Select a channel to show on the monitoring window or screen.
- Contol window or calendar window : In LiveS and LiveM mode, PTZ, Preset, remote port control, Video adjustments, UTC conrtoll can be managed. In playback and backup mode, the calendar is displayed.

4.4.2. LiveS

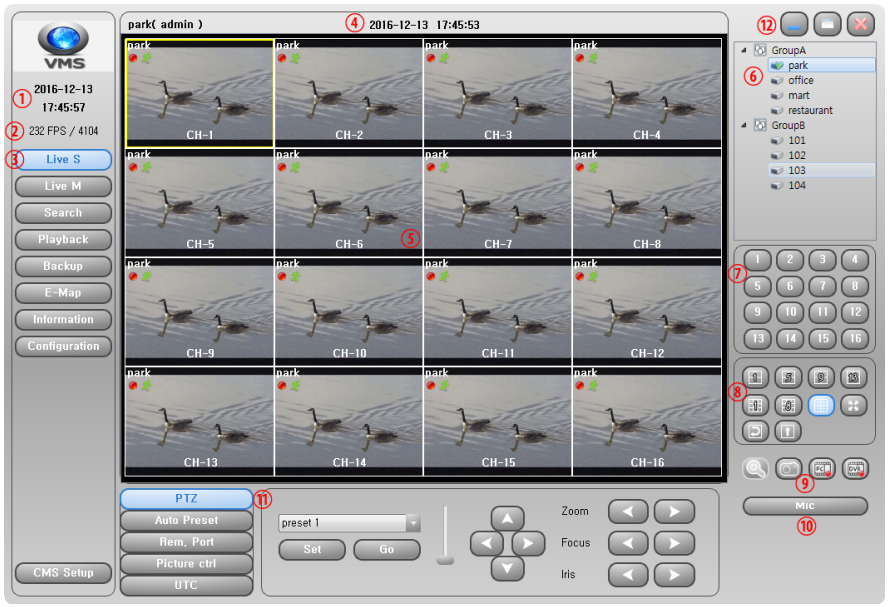

Figure 4.2. LiveS screen description

This mode is for controlling one DVR.

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Number of transmission frames	Displays the total number of frames per second transmitted to the network.
3	Function selection	When Live S function is selected, the button is displayed in sky blue.
4	DVR name, account, time	Displays the name of current connected DVR, user account and DVR time.
5	Video monitoring window	Displays the video of the currently connected DVR.
6	List management window	Add, modify, delete DVR list. When you click the right mouse button, pop up a window displaying Disconnect, Add group, Modify group, Delete group, Add DVR, Modify DVR, Delete DVR.
7	Channel selection button	When you select a channel, the selected channel is displayed on the screen as a FULL screen.
8	Screen configuration	Displaying mode that is 4-split(1-4, 5-8, 9-12, 13-16), 9-split(1 ~ 9, 8 ~ 16), 16-split , FULL Screen(video only), Sequence, Pop-up can be selected.
9	Function	Zoom, Capture, Live video PC recording, remote DVR recording control button.
10	MIC button	When you press the MIC button, the button changes to sky blue, indicating that audio transmission is possible, and the connected

Number	Name	Function
		micro input audio is transmitted to the DVR. When you press the MIC button again, the button changes to gray and the audio transmission function is turned off. To transmit audio by pressing the MIC button again, the button can be turned ON for at least 7 seconds after the button is turned OFF. In order to transfer audio, the port for audio transmission must be opened in the router. If the TCP/IP setting in the network menu of the DVR is Auto UPnP, the DVR will automatically open the port of the router for audio (default port + 100), but In the other network configuration, when UPnP item is off, user can send audio from CMS or Mobile application to DVR by port forwarding the default port +100 port number from the menu of the router. For example, if the network configuration port is 8000, then the audio port is 8000 + 100, which is 8100. 8000 and 8100 ports must be forwarded from the router to enable video monitoring and two-way audio transmission.
11	Control button	PTZ Control, Auto Preset, remote port, video control buttons. On PTZ control mode, Preset set and run, Pan/Tilt control(4step speed control), Zoom, Focus, Iris can be controlled. On Auto Preset mode, After selecting the start preset, stop preset and the time intervals, it moves between presets during designated interval. The relay of the DVR can be controlled automatically(time selectable) or manually. The video adjustment function can adjust contrast, brightness and sharpness. UTC controls the UTC camera menu connected to the DVR.
12	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.2. LiveS screen description

4.4.3. LiveM



Figure 4.3. LiveM screen description

Multiple DVR control mode. Up to 256 channels can be managed as 4 pages of 64 channels each.

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Number of transmission frames	Displays the total number of frames transmitted per second to the network.
3	Function selection	When Live M function is selected, the button is displayed in sky blue.
4	DVR name, account	Displays the name of the currently connected DVR and user account.
5	Video monitoring window	Displays the video of the currently connected DVR.
6	List management window	Add, modify, delete DVR list. When you click the right mouse button, pop up a window displaying Disconnect, Add group, Modify group, Delete group, Add DVR, Modify DVR, Delete DVR.
7	Screen configuration	2x2, 3x3, 4x4, 5x5, 6x6, 7x7, 8x8, FULL Screen(video only), move previous page, move next page button can be selected.
8	Function	Zoom, Capture, Live video PC recording, remote DVR recording control button.
9	Control button	PTZ Control, Auto Preset, remote port, video control buttons. On PTZ control mode, Preset set and run, Pan/Tilt control(4step speed control), Zoom, Focus, Iris can be controlled. Auto Preset moves selected presets sequentially at set time intervals. The relay of the DVR can be controlled automatically(time selectable) or manually. The video adjustment function can adjust contrast, brightness and sharpness. UTC controls the UTC camera menu connected to the DVR.
10	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.3. LiveM screen description

4.4.4. Search

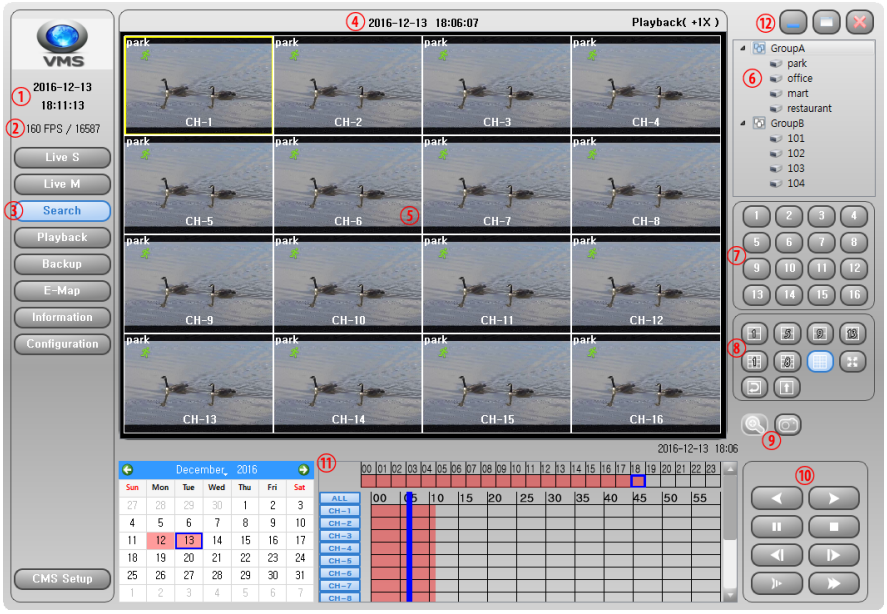

Figure 4.4. Search screen description

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Number of transmission frames	Displays the total number of frames transmitted per second to the network.
3	Function selection	When the search function is selected, the button is displayed in sky blue.
4	DVR name, accout, time, speed of playback	Displays the name of the currently connected DVR, user account, time, and speed.
5	Video monitoring window	Displays the playback video of the currently connected DVR.
6	List management window	Add, modify, delete DVR list. When you click the right mouse button, pop up a window displaying Disconnect, Add group, Modify group, Delete group, Add DVR, Modify DVR, Delete DVR.
7	Channel selection button	When you select a channel, the selected channel is displayed on the screen as a FULL screen.
8	Screen configuration	Displaying mode that is 4-split(1-4, 5-8, 9-12, 13-16), 9-split(1 ~ 9, 8 ~ 16), 16-split , FULL Screen(video only), Sequence, Pop-up can be selected.
9	Function	Zoom, and capture control buttons.
10	Playback related button	Reverse playback, playback, pause, stop, frame backward, frame forward, slow playback, and fast playback button.
11	Calendar	Recording data is displayed on the calendar. Up to 16 channels of recorded data can be checked at once using the scroll bar. Recording data is displayed in a different color. Red(Manual or Continuous record), Green(Motion record), Orange(Sensor record). All channels or specific channel can be selected using ALL button, CH-1 ~ CH-16 button. The selected channel will be played back.
12	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.4. Search screen description

4.4.5. Playback

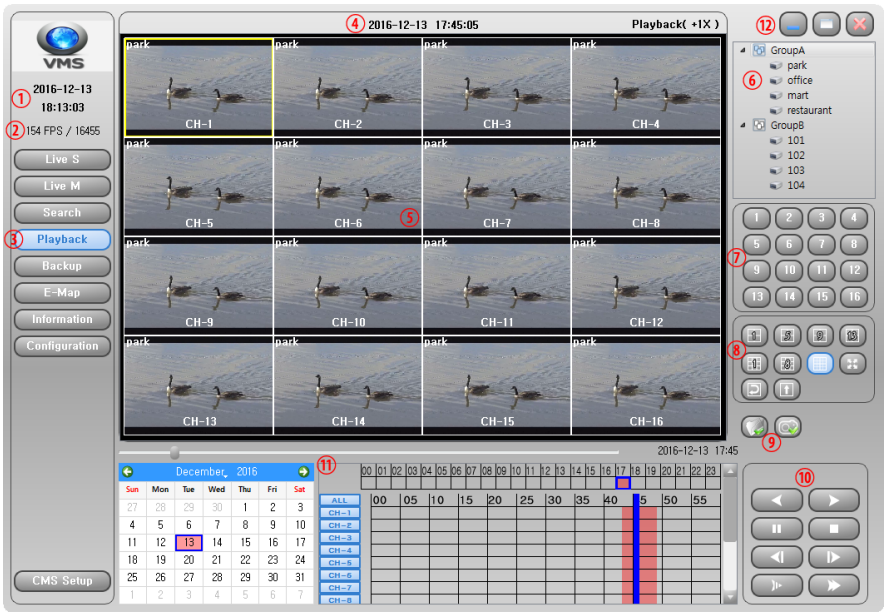

Figure 4.5. Playback screen description

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Number of transmission frames	Displays the total number of frames transmitted per second to the network.
3	Function selection	When the playback function is selected, the button is displayed in sky blue.
4	DVR name, accout, time, speed of playback	Displays the name of the currently connected DVR, user account, time, and speed.
5	Video monitoring window	Displays the playback video of the currently connected DVR.
6	List management window	Add, modify, delete DVR list. When you click the right mouse button, pop up a window displaying Disconnect, Add group, Modify group, Delete group, Add DVR, Modify DVR, Delete DVR.
7	Channel selection button	When you select a channel, the selected channel is displayed on the screen as a FULL screen.
8	Screen configuration	Displaying mode that is 4-split(1-4, 5-8, 9-12, 13-16), 9-split(1 ~ 9, 8 ~ 16), 16-split , FULL Screen(video only), Sequence, Pop-up can be selected.
9	Folder open and capture button	It is folder open button to playback the stored video on PC. The Capture button is a button for capturing images during playback.
10	Playback related button	Reverse playback, playback, pause, stop, frame backward, frame forward, slow playback, and fast playback button.
11	Calendar	Recording data is displayed on the calendar. Up to 16 channels of recorded data can be checked at once using the scroll bar. Recording data is displayed in a different color. Red(Manual or Continuous record), Green(Motion record), Orange(Sensor record). All channels or specific channel can be selected using ALL button, CH-1 ~ CH-16 button. The selected channel will be played back.

Number	Name	Function
12	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.5. Playback screen description

4.4.6. Backup

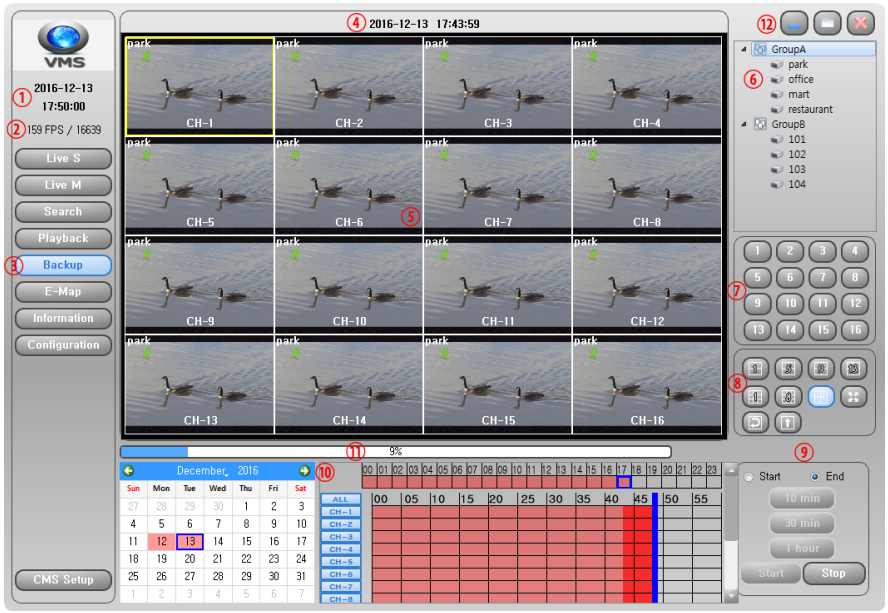

Figure 4.6. Back screen description

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Number of transmission frames	Displays the total number of frames transmitted per second to the network.
3	Function selection	When the backup function is selected, the button is displayed in light blue.
4	DVR name, account	Displays the name of the currently connected DVR and user account.
5	Video monitoring window	Displays the playback video of the currently connected DVR.
6	List management window	Add, modify, delete DVR list. When you click the right mouse button, pop up a window displaying Disconnect, Add group, Modify group, Delete group, Add DVR, Modify DVR, Delete DVR.
7	Channel selection button	When you select a channel, the selected channel is displayed on the screen as a FULL screen.
8	Screen configuration	Displaying mode that is 4-split(1-4, 5-8, 9-12, 13-16), 9-split(1 ~ 9, 8 ~ 16), 16-split , FULL Screen(video only), Sequence, Pop-up can be selected.
9	Backup related button	When you click the mouse left or right button on the calendar, a blue bar will be displayed. In the state, select start or end radio button and select a time button(10 minutes, 30minutes, 1 hour). Then amount

Number	Name	Function
		of time selected data is displayed in dark red. If start radio button is checked, the blue bar is a starting point. If end radio button is checked, the blue bar is a ending point. Press the Start button to backup. Press the Stop button to stop the backup.
10	Calendar	Recording data is displayed on the calendar. Up to 16 channels of recorded data can be checked at once using the scroll bar. Recording data is displayed in a different color. Red(Manual or Continuous record), Green(Motion record), Orange(Sensor record). All channels or specific channel can be selected using ALL button, CH-1 ~ CH-16 button. The selected channel will be played back.
11	Backup progress bar	Displays the progress of the backup.
12	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.6. Back screen description

4.4.7. E-Map

4.4.7.1. View

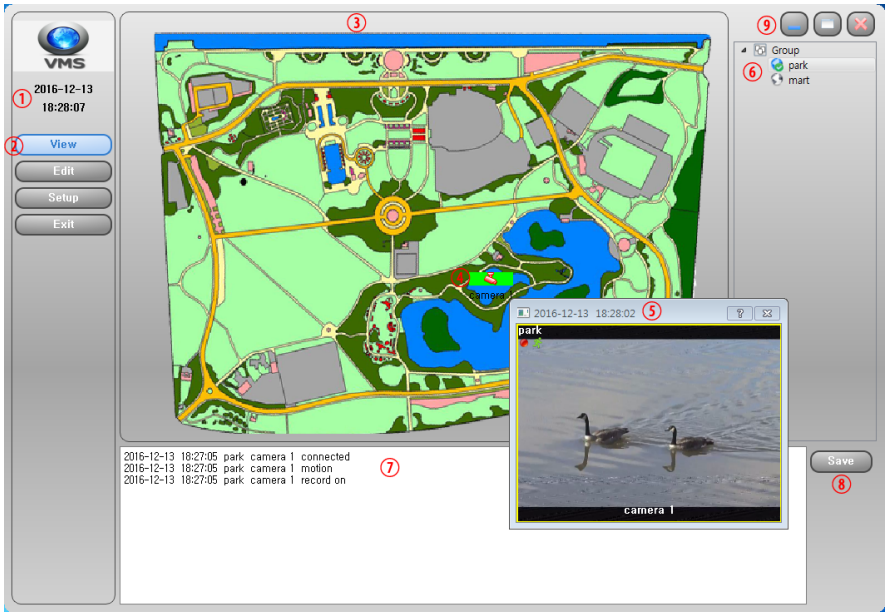

Figure 4.7. View screen description

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Function selection	View, Modify, Setup, Exit function button. When the function is selected, the button is displayed in sky blue. View mode is E-Map view, Modify mode is map and camera modification, Setting mode is Pop-up, Pop-down time setting, Image size is selectable.
3	E-Map display window	Displays map and video.
4	Camera icon	Displays the location of the camera in the map.

Number	Name	Function
5	Video monitoring window	Displays the camera image.
6	List of map management window	Add, modify and delete the list of Map.
7	Camera log display window	Displays information about the camera displayed on the map.
8	Log save button	Save the log information about the camera on the map.
9	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.7. View screen description

4.4.7.2. Edit

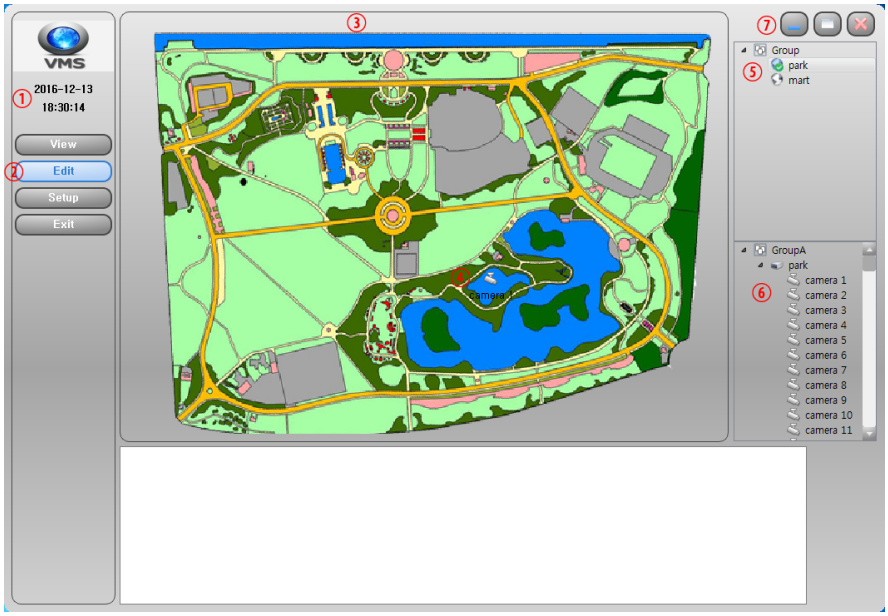

Figure 4.8. Edit screen description

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Function selection	View, Modify, Setup, Exit function button. When the function is selected, the button is displayed in sky blue. Edit mode allows you to set map images, select cameras, and move.
3	E-Map display window	Displays the selected map image.
4	Camera icon	Displays the location of the camera in the map.
5	List of map management window	Add, modify and delete the list of Map. Click the right mouse button in the list area to display the EMap Add, EMap Edit, and EMap Delete menus. In the Add EMap menu, enter the group name, EMap name, and image path, and press the OK button to add it to the list. Map images are available for bmp, jpg, png files.
6	Camera list display window	Left-click the camera on the camera list display window and drag it to the desired position in the map.

Number	Name	Function
7	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.8. Edit screen description

4.4.7.3. E-Map Setup

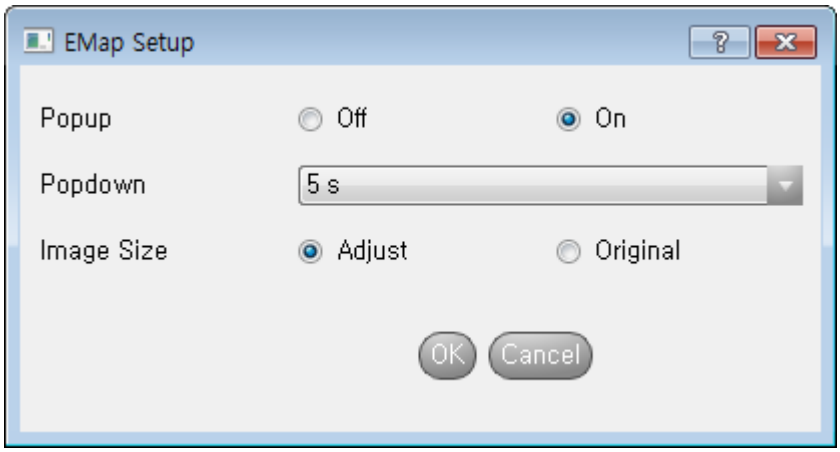

Figure 4.9. E-Map Setup

- Popup : Select whether to pop up when an event occurs.
- Pop-down: Choose how soon to pop-down when an event occurs.
- Image Size: Select the image size displayed on the E-Map. Adjust (size adjusted to the screen), Original (Original size) is selectable.

4.4.8. Information

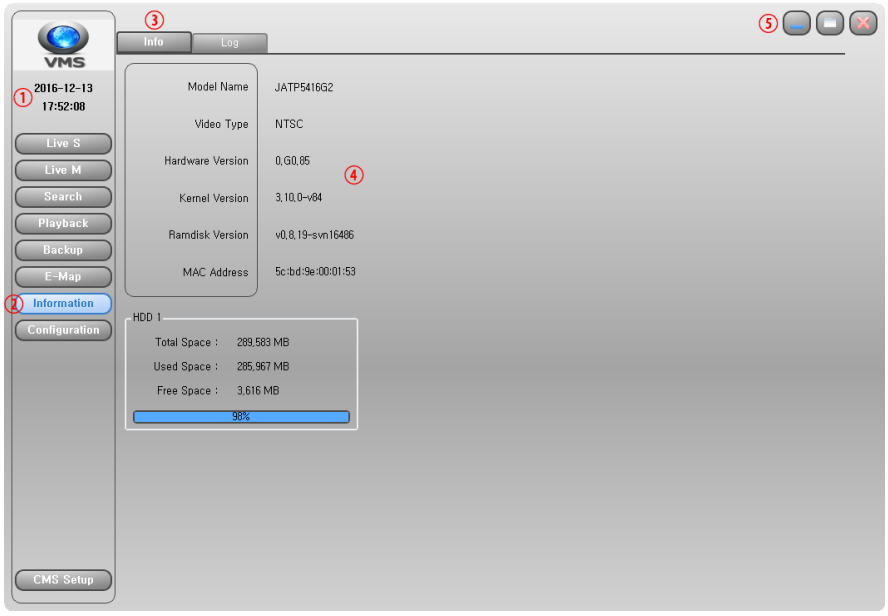

Figure 4.10. Information

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Function selection	When the information function is selected, the button is displayed in light blue.
3	Group selection window	Group selection window for confirming information of DVR. Info, Log group can be selectable.
4	Information display window	Display the information and system log of DVR. The information shows the model name, video type, version information, MAC address, HDD number and usage. The log displays the system log of the DVR.
5	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.9. Information screen description

4.4.9. DVR Configuration

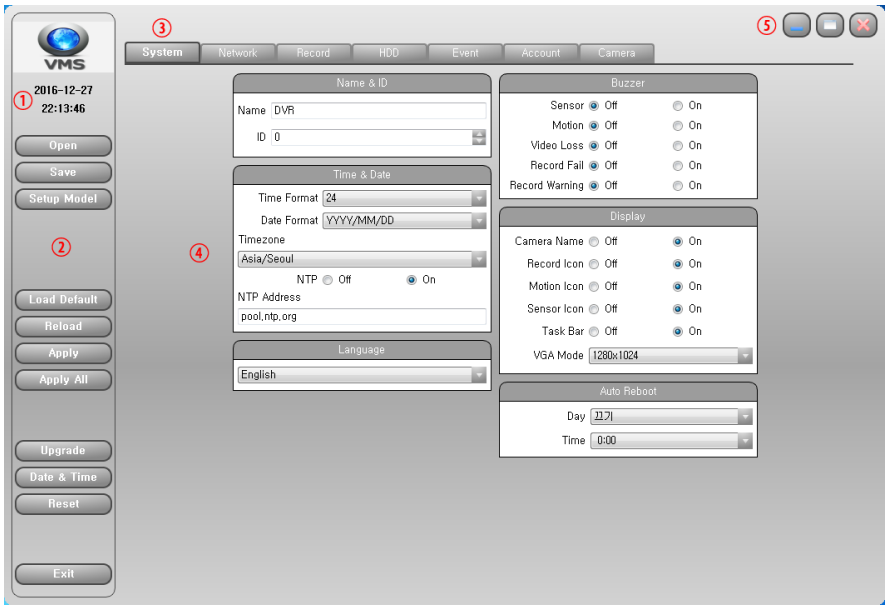

Figure 4.11. DVR Configuration screen description

Number	Name	Function
1	Computer's time	Displays the time on your computer.
2	Function selection	Open(Open setup parameters), Save(Save setup parameters), Setup Model(Select NTSC/PAL), Load Default(Load default parameters), Reload(Reload DVR parameters), Send(Send to DVR current selected tap parameters), Send All(Send to DVR whole parameters), Upgrade(Upgrade Kernel or Application program), Date&Time(Change Date&Time), Reset, Exit(Exit Configuration)
3	Group selection window	Group selection window for configuraton. System, Network, Record, HDD, Event, Account, Camera can be selectable.
4	Configuration display window	Display the setting value for each menu group of DVR.

Number	Name	Function
5	Program window control button	Program window minimize, maximize and close buttons. In particular, the Maximize button maximizes the image by not only maximizing the image but also all of the function buttons, so that the user can use all the functions in the maximized state.

Table 4.10. DVR Configuration screen description

4.4.10. CMS configuration

Make CMS program-related settings on the computer.

4.4.10.1. Display Setup

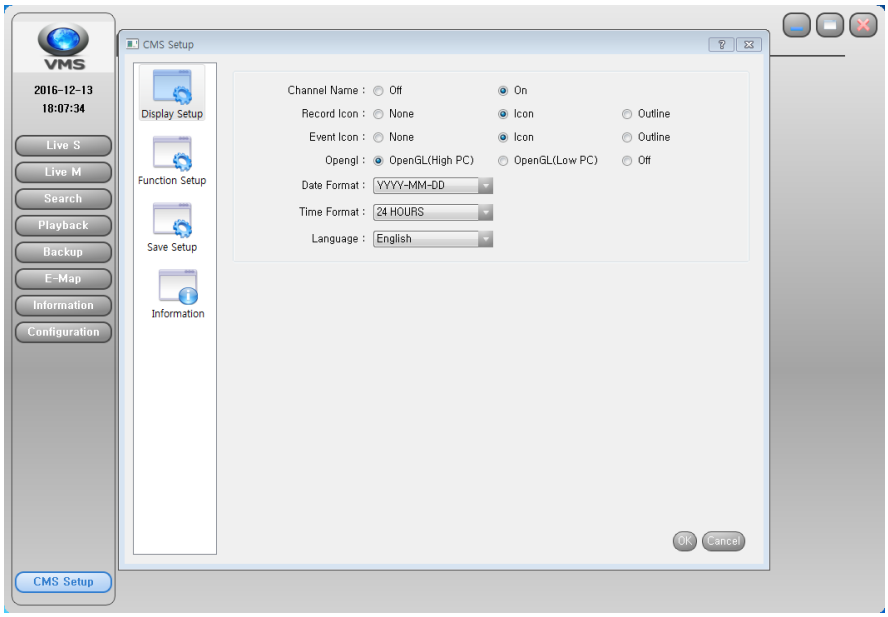

Figure 4.12. Display Setup description

- Channel Name : Select whether to display the channel name.
- Recording icon : Select how to display the recording icon. Icon, and outline can be selected. When the outline is selected, the channel being recorded is displayed with a red outline.
- Event icon : Select how to display the event icon. None, Icon, and outline can be selected. When the outline is selected, the motion occurrence channel displays a green outline and the sensor occurrence channel displays an orange outline.
- OpenGL : Select whether to enable the OpenGL function of the PC graphics card. Depending on your choice, the quality and performance of the CMS program may vary, so choose the appropriate setting for your situation. OpenGL (High PC), OpenGL (Low PC), Off can be selected. Select Off for PCs that do not support OpenGL.
- Date Format : Select the date format. YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY can be selected.
- Time Format : Select the time format. 24HOURS / 12HOURS can be selected.
- Language : Select the language you want the CMS to use.

4.4.10.2. Function Setup

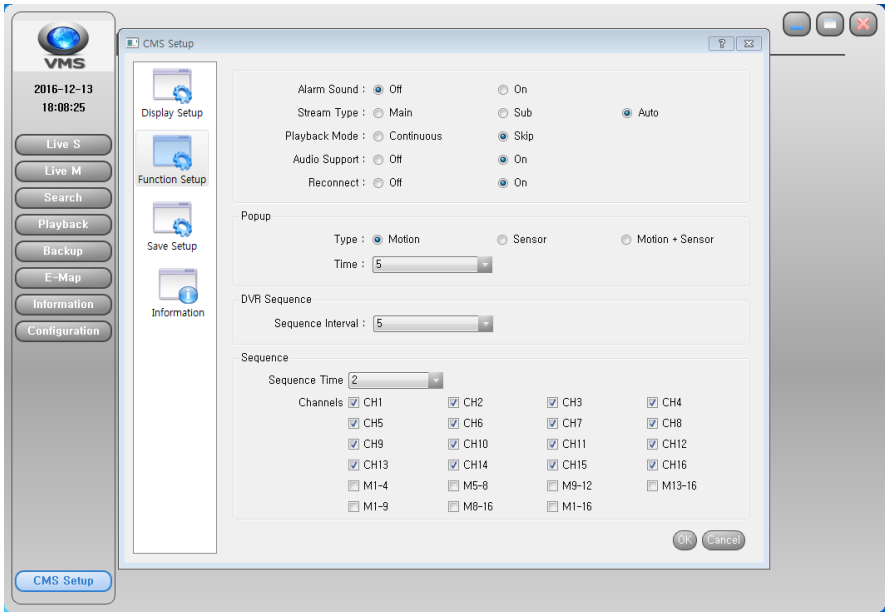

Figure 4.13. Functiohn Setup description

- Alarm sound : Select whether to turn on / off the sound of the alarm.
- Stream Type : Select the type of network transmission stream. Main, Sub, Auto can be selected.
- Playback Mode : Select the Playback mode. Continuous mode, Skip mode can be selected. Continuous mode is to playback all video without frame skipping, Skip mode skips video frames to fit the specified playback speed.
- Audio Support : Select whether to connect the audio to the audio output of the computer. If Off is selected, the audio is not outputed to the computer's audio port.
- Reconnection : If network connection is failed, select whether to automatically reconnect.
- Pop-up : Select pop-up type and hold time. The popup is maintained for the set time when the selected event occurs. It is displayed in split mode which shows all the channels that occur when multiple channels of events occur at the same time. 5, 10, 20, 30, 60 seconds can be selected.
- DVR sequence : Select the time for DVR switching in the same group in liveS mode. 5, 10, 20, 30, 60 seconds can be selected. Clicking Start DVR Sequence from the pop-up menu that appears when you right-click the group name in the list management window will switch the DVR to the set time interval. If you right-click again on the group name, the DVR Stop DVR Sequence item appears in the pop-up menu.
- Sequence : In Live S mode, select the screen switching channel and time to apply when the sequence button is pressed. 2, 4, 5, 8, 10, 15, 30 seconds can be selected.

4.4.10.3. Save Setup

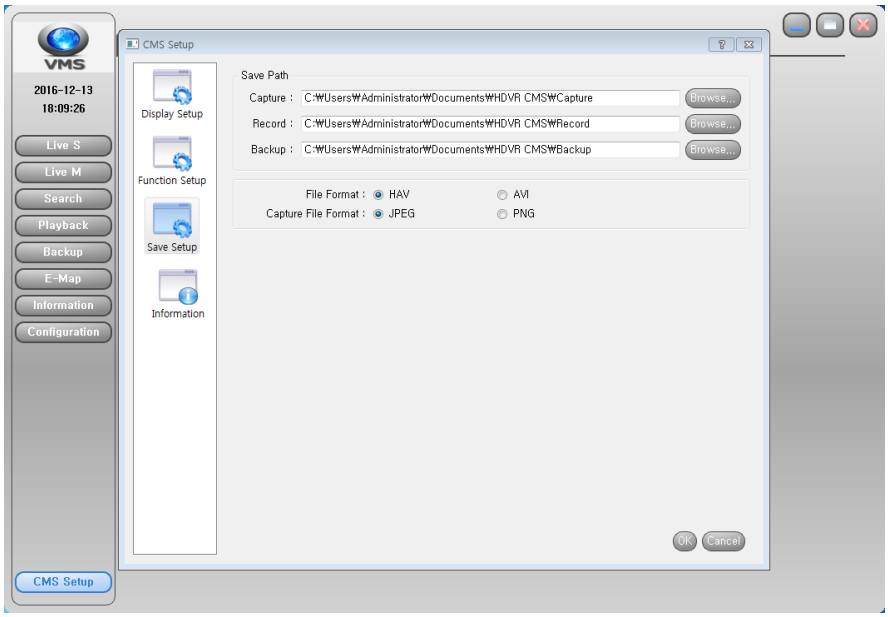

Figure 4.14. Save Setup description

- Save Path : Set the storage path for capturing still images, recording, and backup of CMS program.
- File format : Select the file format for recording and backup. HAV, AVI can be selected.
- Capture File Format : Select the file format in image capture. JPEG, PNG can be selected.

4.4.10.4. Information Setup

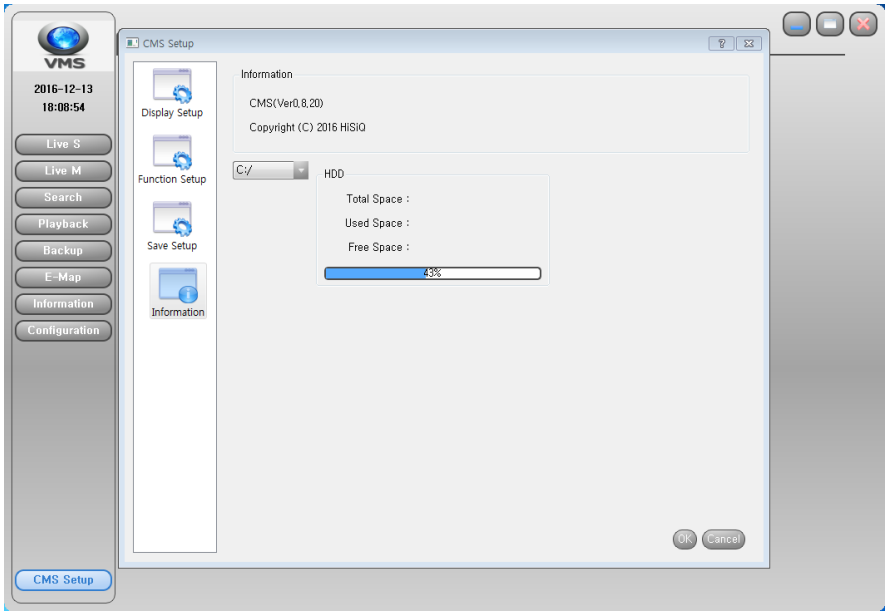

Figure 4.15. Information Setup description

- Information: Displays the version information of the CMS program.
- HDD: Displays the storage device information of the computer.

Chapter 5. Mobile

5.1. Summary

It supports real-time video monitoring using smart phone, search function of saved image, push alarm function, bidirectional audio function. Supports iPhone, iPAD, Android smartphone.

5.2. Installing the program

5.2.1. Adroid phone

Install the app using the Android Market.

5.2.2. iPhone

Install the app from the Apple App Store.

5.3. Program

5.3.1. Running app

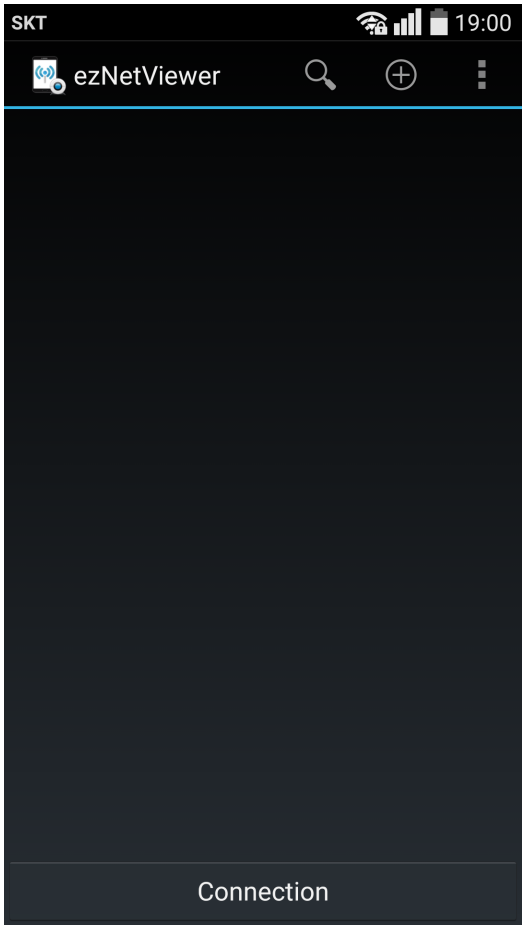

Figure 5.1. Screen of running app

If you run the application, the above screen will be displayed.

5.3.2. DVR List Management menu

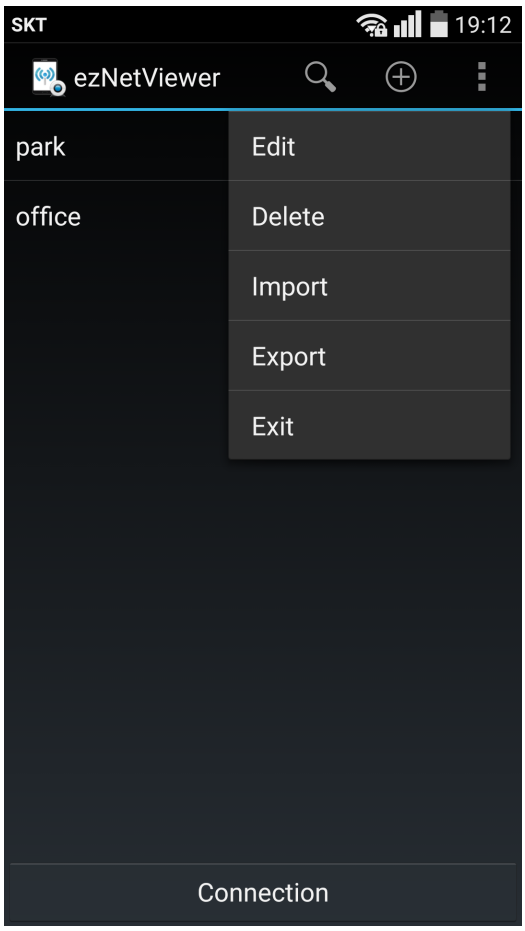

Figure 5.2. DVR List Management menu

DVR list management menu. Search, Add, Edit, Delete, Import, Export, and Exit menu items.

5.3.2.1. Add

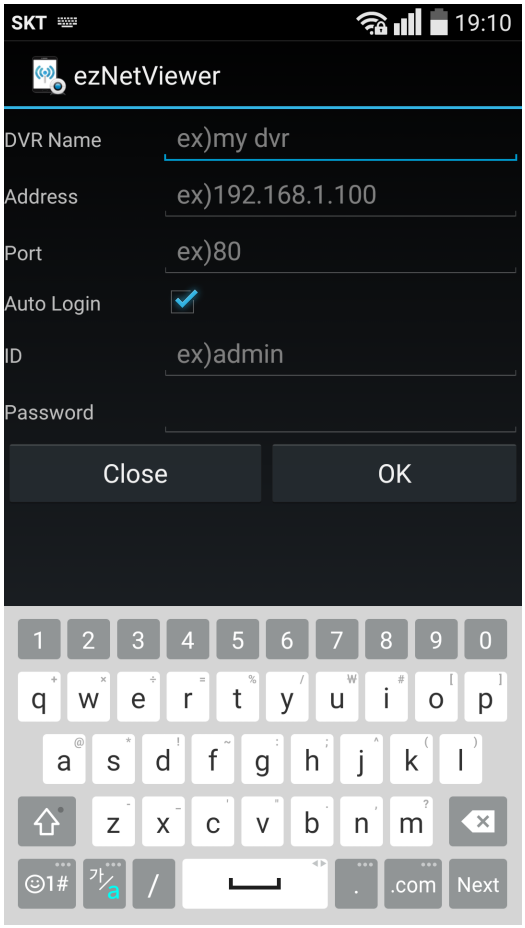

Figure 5.3. Add DVR list

You can input the DVR information by clicking the + shape button, and then click the OK button to add it to the list.

5.3.2.2. Edit

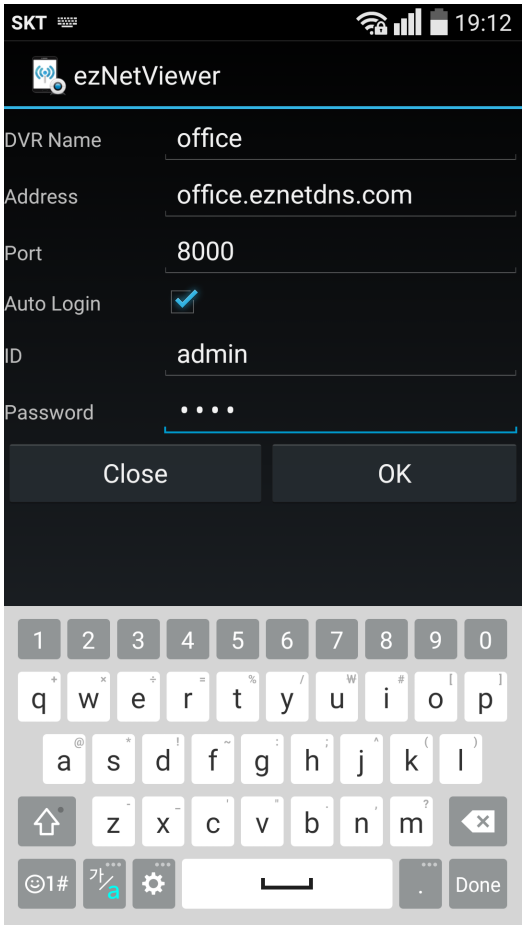

Figure 5.4. Edit DVR list

You can edit the selected DVR information by pressing the edit button.

5.3.2.3. Delete

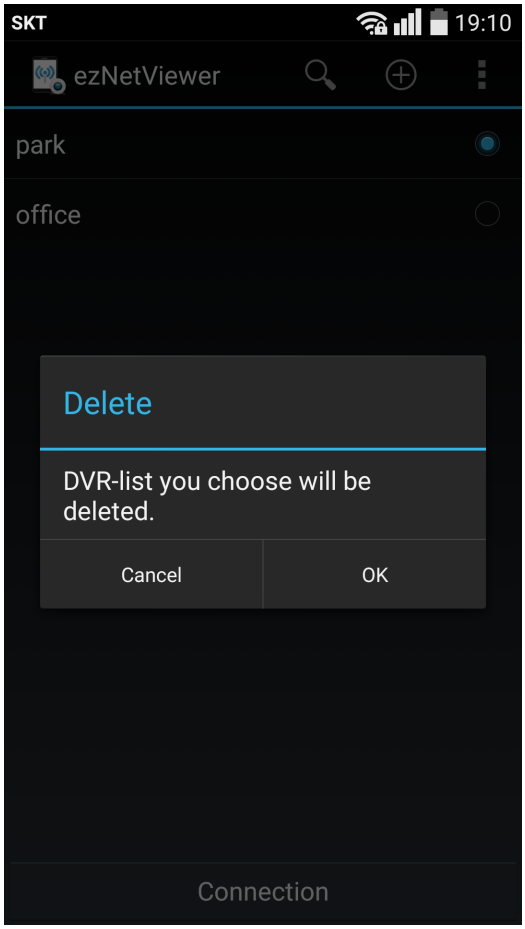

Figure 5.5. Delete DVR list

You can delete the selected DVR information from the list by pressing the delete button that is displayed by pressing the Additional Menu View button.

5.3.3. Connection

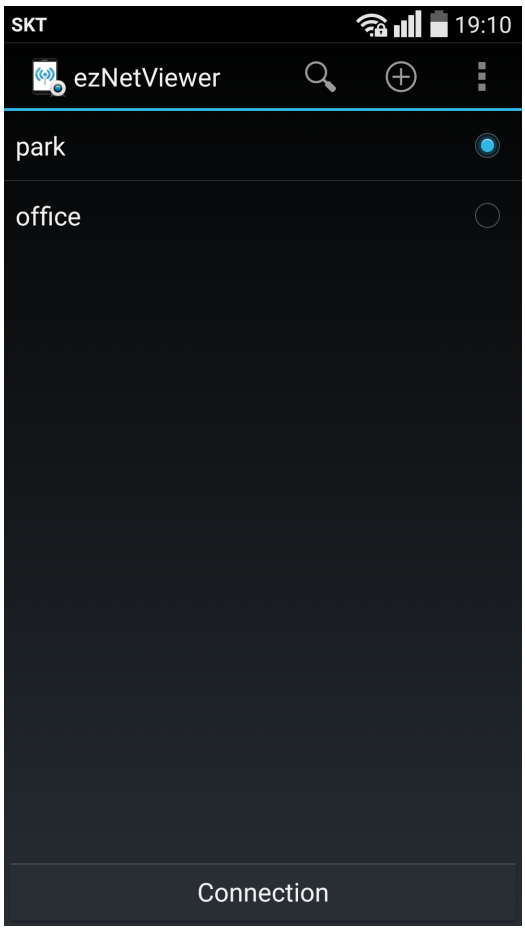

Figure 5.6. Connection

Select the DVR you want to connect from the list and press the Connection button to connect to DVR.

5.3.4. Screen configuration

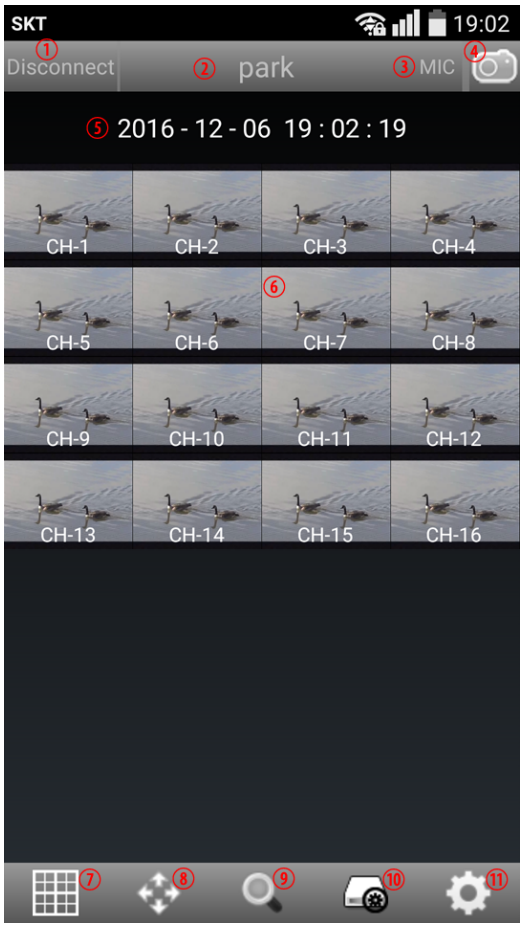

Figure 5.7. Screen configuration

DVR Connection screen.

Number	Name	Function
1	Disconnect	Disconnection button.
2	DVR name	Display the name of the connected DVR.
3	MIC	Audio transmission function on/off button. It operates in toggle mode. If the text is red, the audio transmission function is on mode.
4	Capture	Image capture button
5	DVR time	Displays the time of the currently connected DVR.
6	Video monitoring window	Displays the video of the currently connected DVR.
7	Screen mode selection menu	Select the split screen to be displayed on the video display window.
8	PTZ control	PTZ control menu button. It operates when it is in single screen mode.
9	Search button	Button for searching video recorded on DVR
10	Relay control button	DVR relay control button
11	Confuguration button	This is the application setting button.

Table 5.1. Screen configuration

5.3.5. Screen mode selection menu

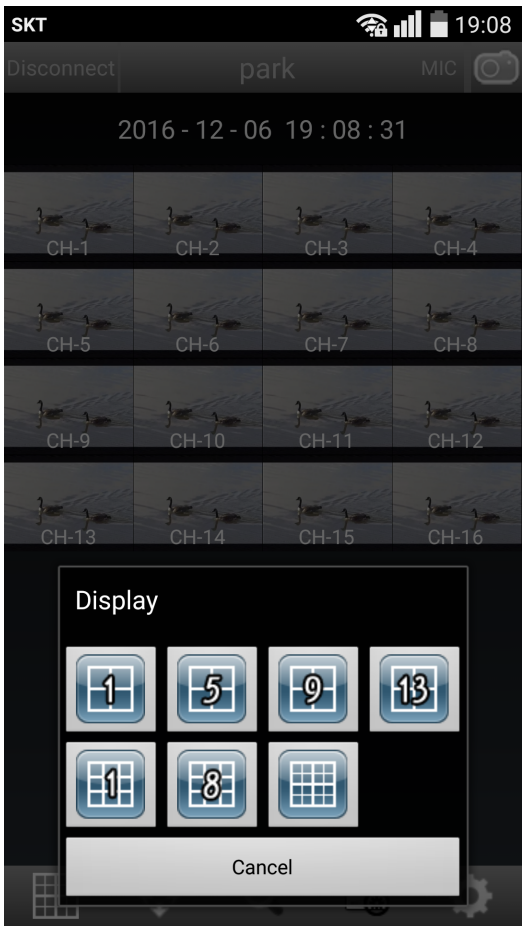

Figure 5.8. Screen mode selection menu

Select screen mode. 4-split, 9-split, 16-split can be selected.

5.3.6. PTZ control

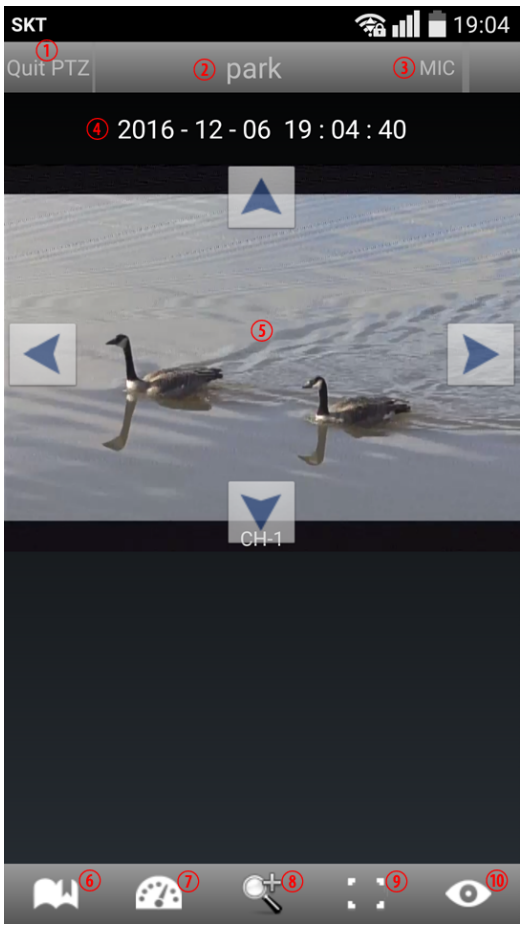

Figure 5.9. PTZ control screen description

Number	Name	Function
1	Quit PTZ	Exit PTZ control mode button.
2	DVR name	Display the name of the connected DVR.
3	MIC	Audio transmission function on/off button. It operates in toggle mode. If the text is red, the audio transmission function is on mode.
4	DVR time	Displays the time of the currently connected DVR.
5	Video monitoring window	Displays the video of the currently connected DVR.
6	Preset	Preset setting related buttons. Set, Run, Delete can be selected.
7	Speed selection	Pan/Tilt speed control button. You can choose from four levels: Slow, Middle, High, Very High.
8	Zoom	Zoom control button
9	Focus	Focus control button
10	Iris	Iris control button

Table 5.2. PTZ control screen configuration

5.3.7. Search menu

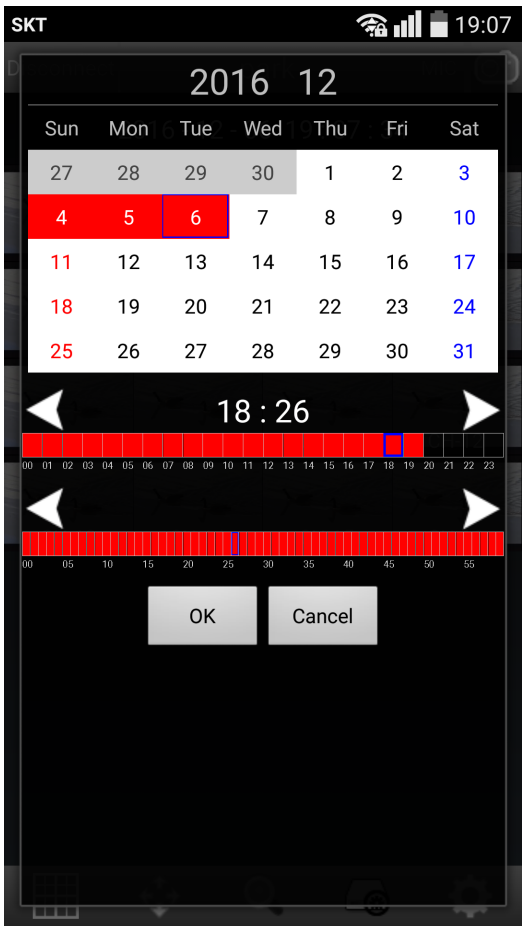

Figure 5.10. Search menu

A calendar-type search interface is provided to improve user convenience. Press the OK button after selecting the time to search, the playback screen will be displayed.

5.3.8. Playback screen

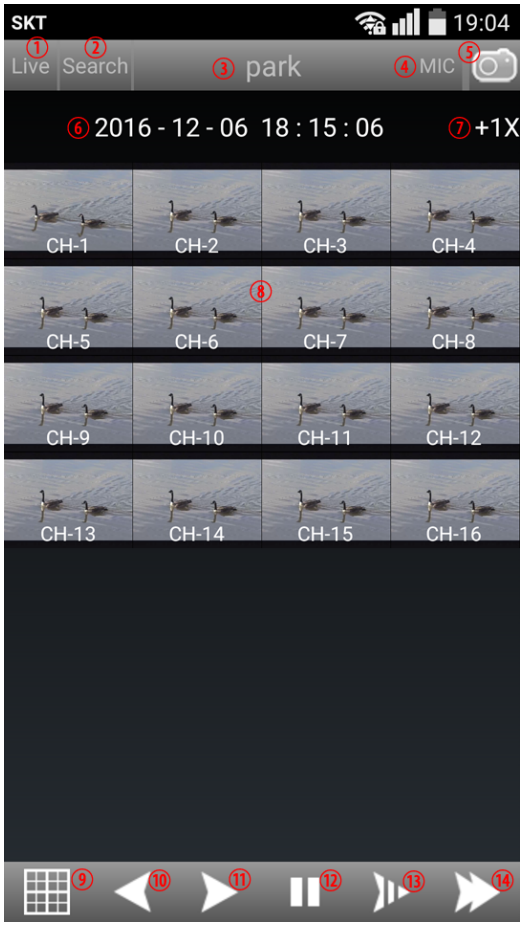

Figure 5.11. Playback screen description

Number	Name	Function
1	Live	Live mode switching button.
2	Search	Search mode switching button.
3	DVR name	Display the name of the connected DVR.
4	MIC	Audio transmission function on/off button. It operates in toggle mode. If the text is red, the audio transmission function is on mode.
5	Capture	Image capture button
6	DVR time	Displays the time of the currently connected DVR.
7	Display speed of playback	Display playback speed.
8	Video monitoring window	Display playback image.
9	Screen mode selection menu	Select the split screen to be displayed on the video display window.
10	Reverse Playback	Reverse playback button.
11	Playback	Playback button
12	Pause	Pause button
13	Slow playback	Slow playback button. x1/4, x1/2 can be selected.

Number	Name	Function
14	Fast playback	Fast playback button. x2 ~ x256 can be selected.

Table 5.3. Playback screen configuration

5.3.9. Relay Control

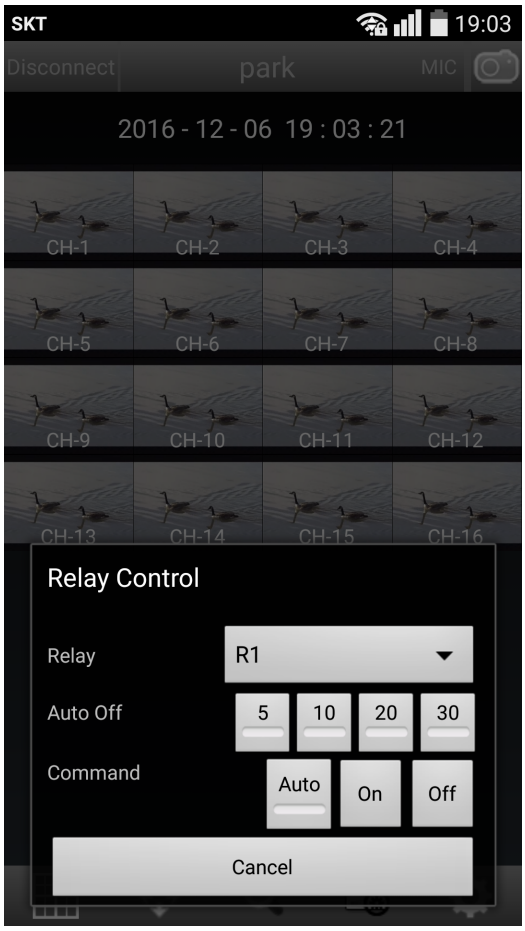

Figure 5.12. Relay Control

DVR relay control window. Auto(Auto OFF after ON for selected seconds), On, Off can be cotrolled. The automatic control method is to select a relay in Relay item, select Auto Off time, press Auto button on Command, relay turns on for selected time, then it will turn off automatically. The On or Off button turns on or off the selected relay regardless of the Auto off time selection.

5.3.10. Setup

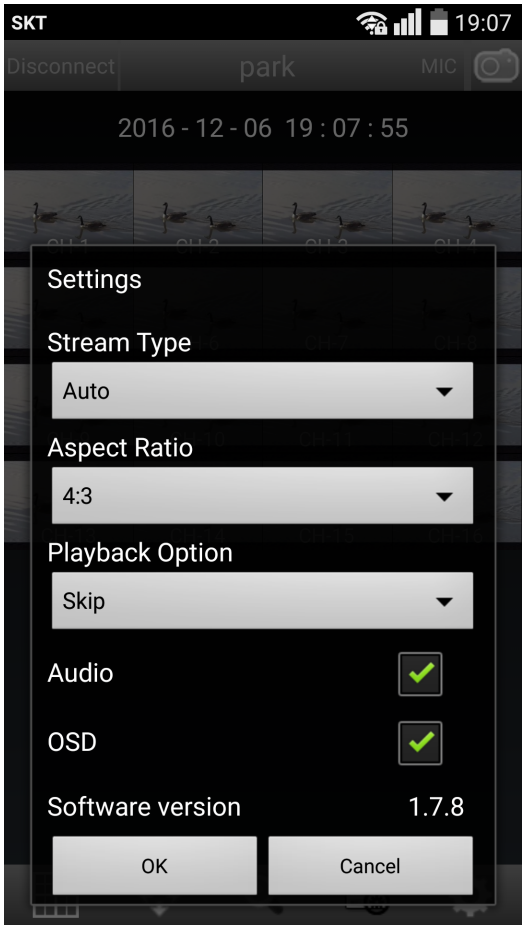

Figure 5.13. Setup

Preferences menu for application. Network stream types(Main, Sub, Auto), Aspect Ratio(Full, 4:3), Playback Option(Skip, Non Skip), Audio ON/OFF, OSD visibility can be selected. Shows the software version information.

5.3.11. Landscape view

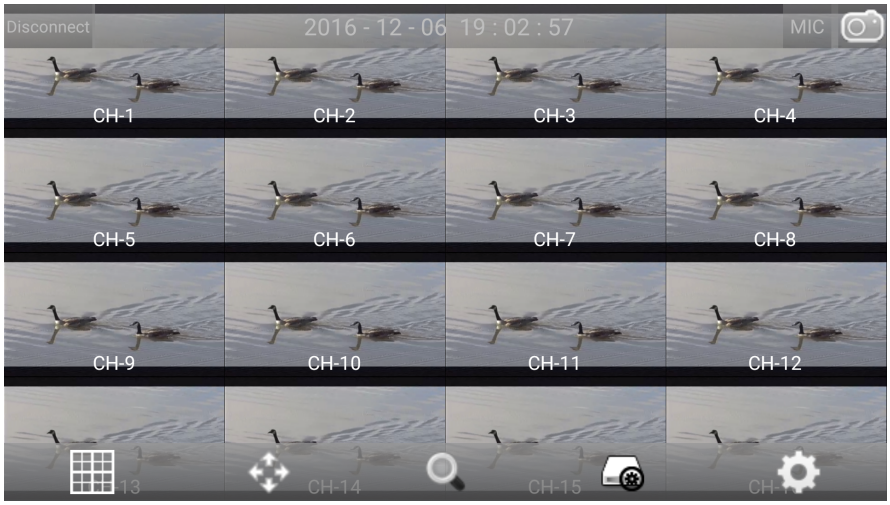

Figure 5.14. Landscape view

In landscape view, the phone status bar and bottom menu are not displayed by default and are displayed when the screen is touched to use the screen as wide as possible.

Appendix A. Emergency recovery

A.1. Summary

When you insert a specific file into the USB memory and turn on the DVR, it copies the file of the USB memory while booting, replaces the damaged file and boots. It is used when the DVR does not operate due to damage of important files due to power failure during program upgrade.

A.2. Preparation

- Download three files(boot loader, kernel, application) from the homepage. The name of downloaded files should be changed as shown below.
- Boot loader : kttp5xXXmboot_restore.bin (XX : 04(4ch), 08(8ch), 16(16ch))
- Kernel : kttp5xXXmkernel_restore.bin (XX : 04(4ch), 08(8ch), 16(16ch))
- Application : kttp5xXXmapp_restore.bin (XX : 04(4ch), 08(8ch), 16(16ch))
- Format USB memory to FAT32 on PC. The DVR does not recognize the USB memory in other formats. Copy the files to be upgraded to USB memory. Copy the boot loader file to upgrade the boot loader, the kernel file to upgrade the kernel, and the application file to upgrade the application. To upgrade all three, copy three files.

A.3. Running app

If the DVR is powered on with the USB memory stick inserted into the DVR, check the USB memory while booting and upgrade if there is an upgrade file.

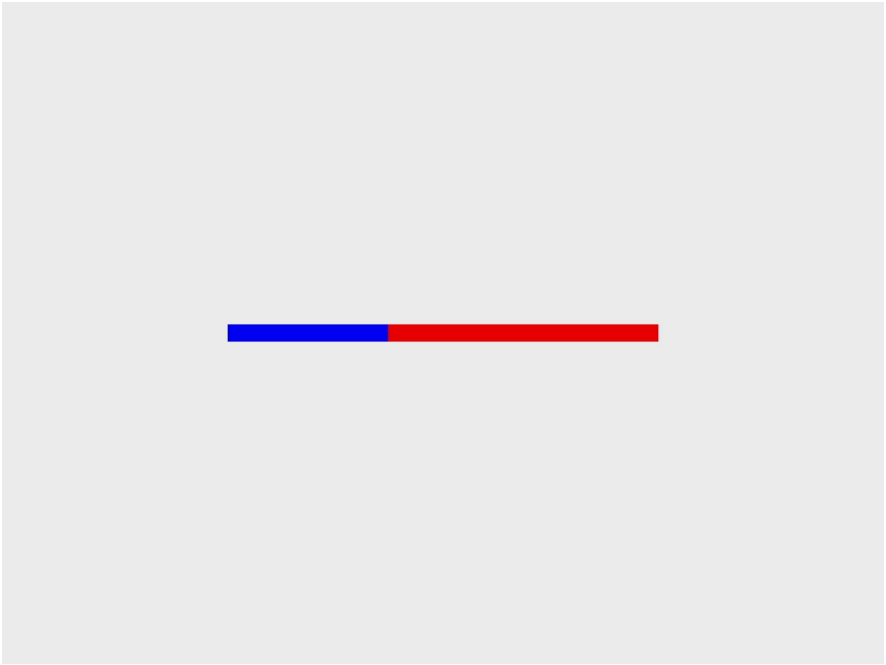

Figure A.1. Emergency recovery progress bar

Upgrade the boot loader, kernel, or application with the Emergency recovery progress bar displayed. When upgrading all, the progress bar shows the progress of the boot loader - kernel - application in the order of 3 times. The power must not be turned off while the boot loader is being upgraded. The kernel and application can be recovered to USB memory even if the power is turned off during the upgrade, but can not be upgraded if the boot loader is damaged. In this case, the board must be repaired.



Figure A.2. Emergency recovery complete

- When the upgrade is complete, the boot logo will be displayed and the system boots automatically.
- After booting, you can check whether the file is upgraded from the information in the menu.