



H.264 Digital Video Recorder

User's Manual
VER. 1.00

Future of Digital Video Recording at Hand

Safety Information

The safety information is provided for the wellness of the equipment and for the safety of the operator.

Please review and observe all instructions and warnings in this manual.

Note Keep this manual handy every time you operate this equipment. Also, check with your dealer if you require further assistance and for the latest revision of this manual. Your dealer might provide you with digital version of this manual. We ask to also keep original box and packing materials in case of return and for long-term storage of the DVR unit.

Preparations before installation

To protect your DVR from damage and to optimize performance, be sure to keep the DVR away from dusty, humid, and area with high voltage equipment such as refrigerator.

Do not install or place equipment in areas where the air vents can be obstructed, such as in tight enclosures or small utility closet. Keeping the unit in temperature-controlled room with ample regulated power is highly recommended. Do not overload the wall outlet as this can result in the risk of fire or electric shock.

Uninterruptible power devices such as UPS power surge protectors are recommended and at least the DVR units must be connected with UL, CUL or CSA approved power surge protector. Avoid direct sun light and avoid heat.

FCC Information



This equipment has been tested and found to comply with the limits of Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment under FCC rules.

UL Information

- For pluggable equipment, the socket-outlet shall be installed near the equipment and shall be easily accessible
- If the battery is placed elsewhere in the equipment, there shall be a marking close to the battery or statement in the servicing instructions.

| | |
|----------------|---|
| Caution | RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTION. THIS EQUIPMENT IS INDOOR USE AND ALL THE COMMUNICATION WIRING IS LIMITED TO INSIDE OF THE BUILDING, OR SIMILAR WORD. |
|----------------|---|





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1. Getting Started

1.1 Checking Supplied Items

Make sure that you have following items supplied with your DVR. If any of these items is missing or damaged, notify your vendor immediately. Keep the packing utilities for moving or storage purposes afterwards.

| Items | Photo | Quantity |
|--|---|---------------------------|
| User Manual (DVR & Software) |  The photo shows two items: a box for the 'MAX-4, 8, 16 H.264 Digital Video Recorder User's Manual' and a box for 'Client Software'. | 1 Set 1 Set |
| CD (Manual & Software) and Rubber Mount |  The photo shows a CD with the 'MAX' logo and four black circular rubber mounts. | 1 Set 1 Set (4 Pieces) |
| 12V D/C Adaptor and Power Cable |  The photo shows a black 12V D/C adaptor and a black power cable. | 1 Set |
| IR remote Control |  The photo shows a black IR remote control with many buttons. | 1 Set |
| Terminal Block (External) |  The photo shows two green terminal blocks. | 1 Pair (2 Pieces) |
| USB Mouse |  The photo shows a black USB mouse. | 1 Set |

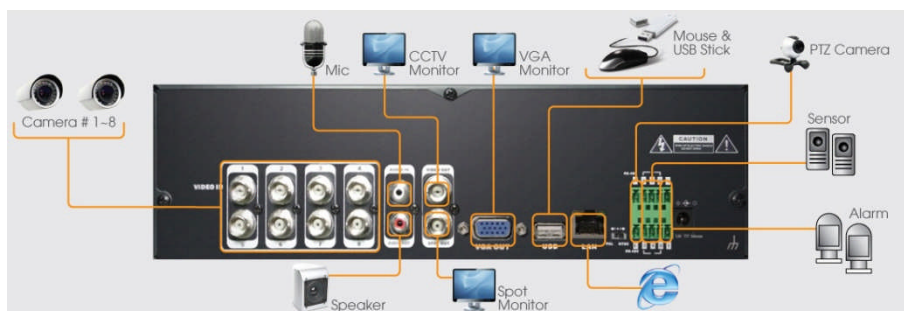
1.2 Connecting Peripheral Device

This section describes how to efficiently hook up peripheral devices with the DVR.

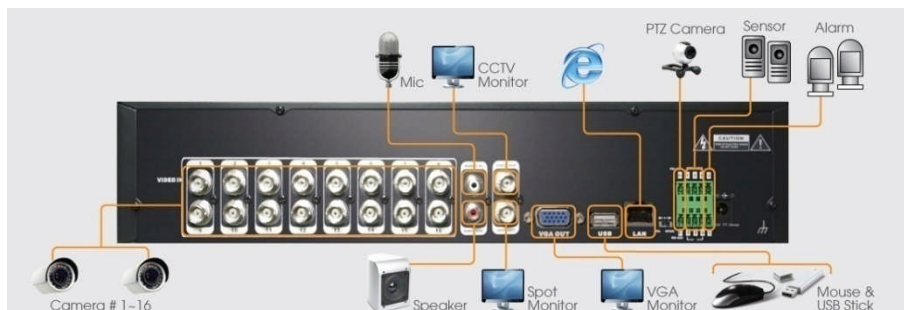
Install the DVR on flat surface. If required, attach a rubber mount for installation. **If a 19-inch rack is used with 1.5U Height case, it is recommend to install the system on shelf and use 2.5~3U (1U=1.75 inch or 4.45 cm) space for proper ventilation.**

Note Install the system in location with good ventilation to prevent overheating.

[DVR with Compact Case (W x H x D : 270 x 71 x 215 mm)]



[DVR with 1.5U Height (W x H x D : 360 x 66 x 380 mm)]



Warning ! ※When connecting power cord to the system, it is strongly recommended **to first plug the power cord to the system and then plug the other side of power cord into the wall AC socket.**

1.3 System Startup and Shutdown

1.3.1. System Startup

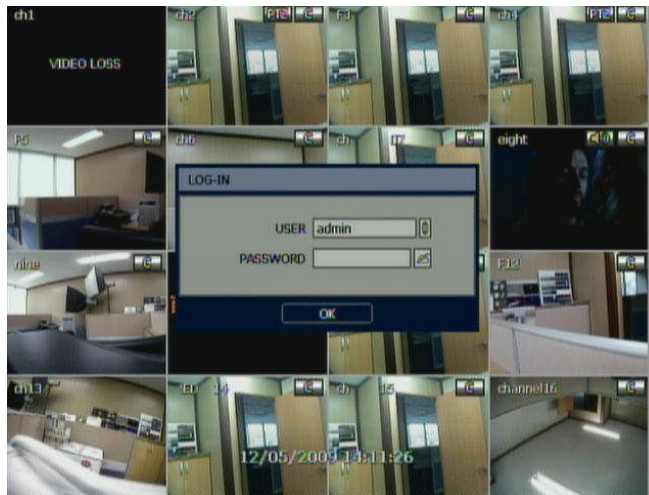
After connecting, the cameras and the monitors connect the DVR power cord to the wall AC socket

Login with "User Name" at the login screen.

The factory default is No password. Just Click "OK" button when you enter the User Name at Login Window

"Admin" user has to fully control the DVR system Setup

User can login with another username if he/she adds a new user in user setting menu.



Note Do not forget the administrator's password that was set for the first time. In case the password is lost, **contact** your vendor.

Note If a wired-USB mouse is desired, it is highly recommended to choose well-known major brands such as DELL, MICROSOFT, LOGITECH or SAMSUNG.

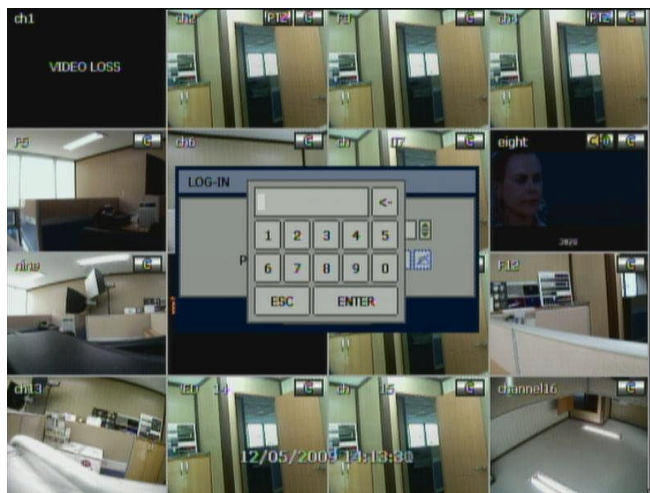
1.3.2. System Shutdown

To turn off the DVR, Click "MENU" button and then click "SHUTDOWN" in the GUI software as below.

Do not unplug!



The factory default is No password. Just click 'Enter' button on the dial pad.



Note User can choose the password by virtual keyboard, or the numeric buttons on the front of the unit (if available).

2. Explanation for Each Function

2.1 Front Panel

[DVR with Compact Case (270 x 71 x 215 mm)]



| No. | Buttons | Functions |
|-----|--|---|
| 1 | Power Button | System startup or shutdown (shutdown is password protected) |
| 2 | USB Port | USB port (Ver. 2.0) for mouse operation or backup or F/W update |
| 3 | LED Indicator | Indicates system status Power, Record and Remote Controller |
| 4 | Instant-Rec I-backup (Press and hold) | Emergency recording / Used to initiate instant back up |
| 5 | Search Instant Play (Press and hold) | Go to search mode / Used to initiate Instant Reverse Playback |
| 6 | Mode Freeze (Press and hold) | Change screen mode / Used to initiate Freeze function |
| 7 | Menu Exit (Press and hold) | Open system menu or return to previous mode |
| 8 | Direction Button | Move to the direction User wants to select |
| 9 | Enter Button | Select value or setting |

[DVR with 1.5U Height (360 x 66 x 380mm)]



| No. | Buttons | Functions |
|-----|---|--|
| 1 | Power Button | System startup or shutdown |
| 2 | USB Port | USB port (Ver. 2.0) for mouse operation or backup or F/W update |
| 3 | LED Indicator | Indicates system status Power, Record, HDD and Remote Controller |
| 4 | Fast Rewind Button | Fast rewind during playback |
| 5 | Play/Pause Button | Play or pause by toggle during playback |
| 6 | Fast Forward Button | Fast forward during playback |
| 7 | Search Instant Play(Press and hold) | Go to search mode / Used to initiate Instant Reverse Playback |
| 8 | Instant-Rec Call Mon(Press and hold) | Emergency Recording / Used to display full screen video of all installed cameras in sequence by spot out |
| 9 | PTZ I-backup(Press and hold) | Bring up PTZ Camera control / Used to initiate instant back up |
| 10 | Mode Freeze(Press and hold) | Change screen mode / Used to initiate Freeze function |
| 11 | Menu Button | Open system menu |
| 12 | Direction Button | Move to the direction User wants to select |
| 13 | Enter Button | Select value or setting |
| 14 | Exit Button | Cancel setup or return to previous mode |

Note I- Backup (Instant Backup)

In playback mode, the user can press "I-backup" button on the front to set backup "start" time. Once the "Quick backup starts" message is shown, press, "ENTER" button again to set backup "end" time. Then the backup menu window will be popped up to save the selected video images or

2.1.1. DIRECTION Button

1) Live Display & Playback Mode

User can change channel number by using Left & Right arrow button.

User can change display mode by using Up & Down arrow button

2) Menu Mode (when system menu is displayed)

To move to desired menu position.

3) Pan & Tilt Mode (once PTZ Button is pressed)

To move connected camera to desired direction.

4) Zoom & Focus Mode (when PTZ Button is pressed again)

User can control Zoom-In & Out by using Up & Down arrow button.

User can control Focus-In & Out by using Left & Right arrow button

5) CALL Monitor Mode (once Call Monitor is pressed)

User can bring up the full screen out of spot out channels by using Up & Down arrow button

2.1.2. ENTER Button

1) To select value or setting

2) I- backup function during playback. Refer to User Manual section 3.5

2.1.3. EXIT Button

To exit the menu setup or return to previous mode.

2.1.4. MENU Button

To set the system configuration according to user requirement.

2.1.5. MODE (Press once) / FREEZE (Press and hold) Button

MODE (Press once): to select the Screen display mode

FREEZE (Press and hold): Screen display will be paused until the Freeze button is pressed again.

2.1.6. PTZ (Short press) / I-BACK UP (Long press) Button

PTZ (Press once): Once pressed, DVR is changed to Pan & Tilt mode. User can control Pan & Tilt operation by using Direction Button. If pressed again, DVR is changed to Zoom & Focus mode. User can control Zoom & Focus operation by using Direction Button.

I-BACK UP (Press and hold): Press and hold to go to instant Back up mode.

2.1.7. INSTANT REC (Short press) / CALL MON (Long press) button

INSTANT REC (Press and hold): Used to engage real time recording mode.

CALL Monitor (Press and hold): Used to display a full screen video of a selected channel out of the assigned spot out channels. During CALL Monitor mode, if you click "CLOSE" button at the bottom of the numeric panel, the spot out display will go back to the previously programmed spot out mode.

2.1.8. SEARCH (Press once) / INSTANT PLAY (Press and hold)

SEARCH (Press once): To search the recorded Video by time and date

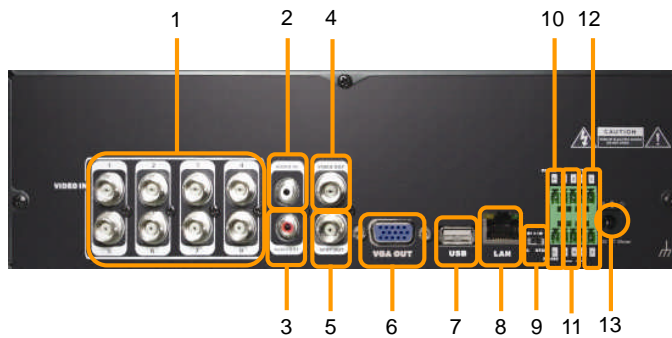
INSTANT PLAY (Press and hold): Used to initiate Instant Reverse Playback. Refer to "Operation > Search recording Image" for detailed image searching method.

2.1.9. IR Sensor Window (Remote Control Receiver)

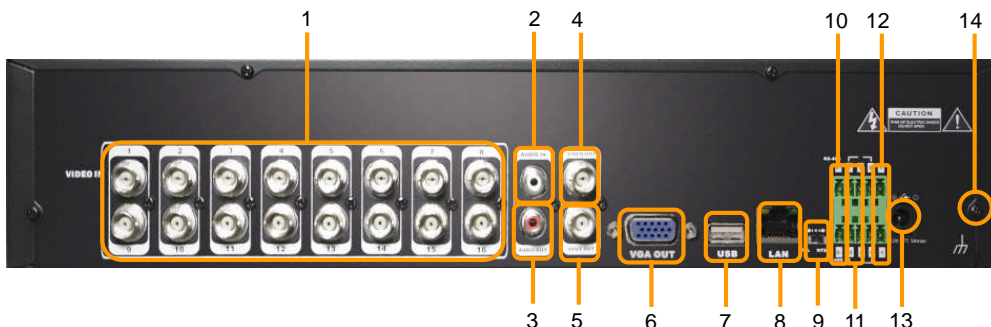
To receive input signal from the IR remote control

2.2 Rear Panel

[DVR with Compact Case (270 x 71 x 215 mm)]



[DVR with 1.5U Height (360 x 66 x 380mm)]



| No. | Name | Description |
|-----|--------------------|--|
| 1 | Video-In | Camera. (Supports NTSC/PAL) |
| 2 | Audio-In | Audio input device (with amplifier) |
| 3 | Audio-Out | Audio output device (with amplifier) |
| 4 | Video-Out | Composite Monitor |
| 5 | Spot-Out | Composite Spot Monitor |
| 6 | VGA-Out | VGA Monitor |
| 7 | USB Port | USB port (Ver 2.0) for mouse operation or Image backup |
| 8 | LAN Port | 10/100 Ethernet connection terminal |
| 9 | NTSC/PAL Switch | Select the video signal type |
| 10 | RS-485 Port | PTZ camera or external keyboard |
| 11 | Sensor Input | Sensor input |
| 12 | Alarm Output | Alarm output |
| 13 | Power Input | Power supply connection (Default : 12 V, 5~8A) |
| 14 | Grounding Terminal | Ground connection |

Note Carefully check whether the specification of the peripheral devices matches the DVR's specification.

2.2.1. Video-In

To connect the camera input to the corresponding channel marked on rear panel.

Note Camera Input voltage level is 1Vp-p±10%.

2.2.2. Audio-In

To connect audio input

2.2.3. Audio-Out

To connect audio output

Note Use of audio output with an amplifier is recommended

2.2.4. Video-Out

To connect composite monitor

2.2.5. Spot-Out

The spot monitor can be used to display input images in automatic switching mode.

2.2.6. VGA-Out

To connect a VGA Monitor.

2.2.7. USB Port (Version 2.0)

- 1) To backup recorded Video by using USB storage device (USB Memory Stick or USB HDD).
- 2) **Firmware** upgrade
- 3) **To connect a mouse for system navigation**

2.2.8. LAN Port

To connect RJ-45 jack of LAN cable. Consult network administrator or the internet provider for proper network setting.

2.2.9. NTSC / PAL Selection

Turn off the power of DVR and select the NTSC/PAL switch correctly. Then turn on the power again.

2.2.10. RS-485 Terminal Block

Connect RS-485 cable for the control of PTZ camera or external keyboard controller

2.2.11. Sensor Terminal Block

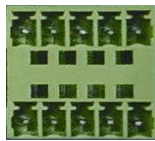
Connect sensors (dry contact type) with each ground (GND) line to "G" pin.

2.2.12. Alarm Terminal Block

Connect various alarm devices controlled by relay output.

Note Support both N/O (Normal Open) and N/C (Normal Close) types of sensor. If connected sensor is not functioning, ensure wiring is correct. The connection method may differ according to the type of P/T/Z controller. Enquire to your vendor for guidance.

Note



| No. | Sensor |
|-----|---------------|
| 2 | Sensor 1 |
| 3 | Sensor 2 |
| 7 | Sensor 3 |
| 8 | Sensor 4 |
| 4 | Sensor Ground |
| 9 | Sensor Ground |

| No. | Alarm |
|-----|-------------|
| 5 | Alarm 1 (+) |
| 10 | Alarm 1 (+) |
| | |
| | |
| | |
| | |

| No. | PTZ |
|-----|-----------|
| 1 | RS 485 D+ |
| 6 | RS 485 D- |
| | |
| | |
| | |
| | |

2.2.13. Power Input

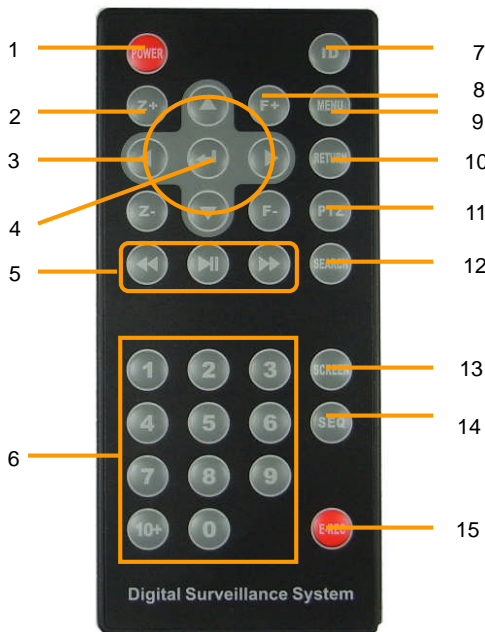
Before connecting the power cord to the system, check if the power is in accordance with the system specification.

2.2.14. Grounding Terminal

It is recommended for user to make grounding to protect the system against external electrical surge.

2.3 IR Remote Controller

The function buttons of the IR Remote Controller are as below.



| No. | Functions |
|-----|---|
| 1 | Power Button |
| 2 | PTZ control (Zoom In & out) |
| 3 | PTZ control (Left/Right/Up/Down) |
| 4 | Enter (Selection) Button |
| 5 | Playback Button on Search Mode (Fast Backward/Playback/Stop/Fast Forward) |
| 6 | Numeric Button |
| 7 | ID Selection Button |
| 8 | PTZ control Focus Button |
| 9 | Menu Button |
| 10 | Return Button |
| 11 | PTZ Button |
| 12 | Search Button |
| 13 | Screen Mode Button |
| 14 | Auto-Sequence Button on Live Display Mode |
| 15 | Instant (Emergency) Recording Button |

Note To use the IR Remote Control, set the initial ID to be same as the ID in the DVR in the menu **via** ;
 SYSTEM > SYSTEM INFO > REMOTE ID. (Default ID # for DVR and IR Remote Controller is "0")
 All DVR(s) have same default id from the factory. Therefore, when the default value is used, one IR Remote Control can control several DVR(s) at once. To prevent this, it is recommended to choose a different ID between DVR and IR Remote Controller.

Procedure **How to setup the ID in IR Remote Controller**

- 1) Keep pressing ID selection button marked as "#" for about 5 seconds.
- 2) Set the ID number by pressing numeric button on IR Remote Controller.
 - ID number is available from 000 up to 255.
 - You have to press numeric button as three-digit number format.
 - For example, press "000" for 0, "023" for 23, "234" for 234.

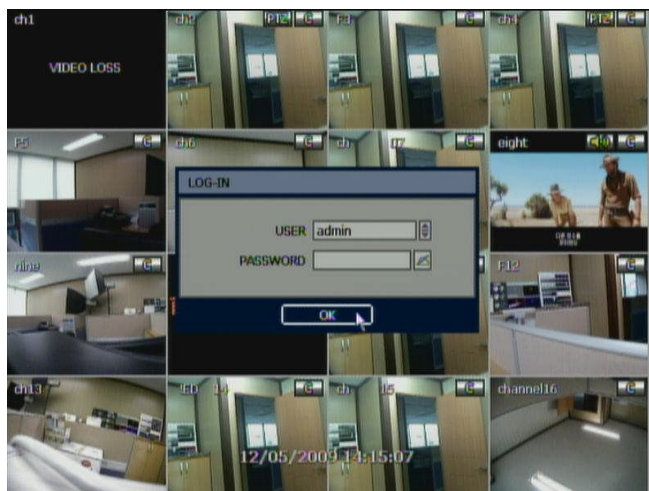
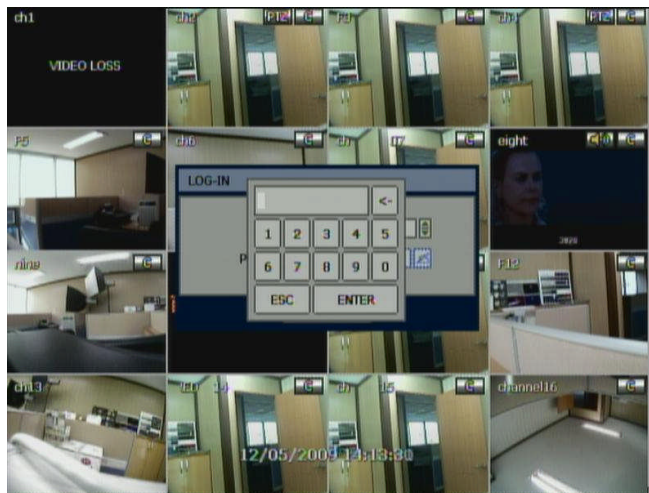
3. Operation

3.1 User Log-in

Check the power connection. The system can be used after power-on.

The DVR has various setting categories. The administrator can set the system password and <User> to prevent unauthorized changes to setting values and alteration of recorded file.

Enter the <Admin> or <User> password which had been set.



Note 1) <LOGIN> window will be permanently displayed in monitor as above picture until user logs in with the right ID and password.

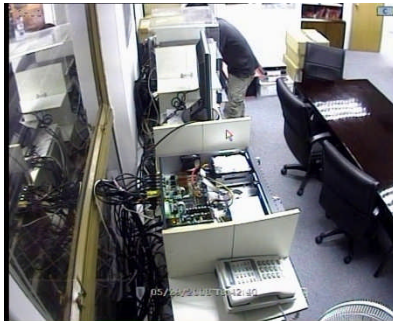
2) If it is set as Auto Log-In, DVR does not require LOG-IN. (Please refer to 4.1.2 User.)

3.2 Live Display Mode

3.2.1. Channel Selection

Real-time live image can be seen by easy button operation after power-on.

The images can be seen on real-time by 1, 4, 9, 16 and PIP screen. Whenever the up/down arrow button on the front panel or IR remote controller is pressed, the screen will be sequentially changed.



[1 Ch]



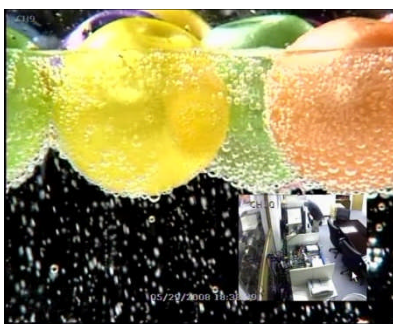
[4 Ch]



[9 Ch]



[16 Ch]




















[PIP Mode]

To select channel by mouse, **double click the left mouse button on the desired channel**. To return previous screen mode double click the left mouse button **again**.

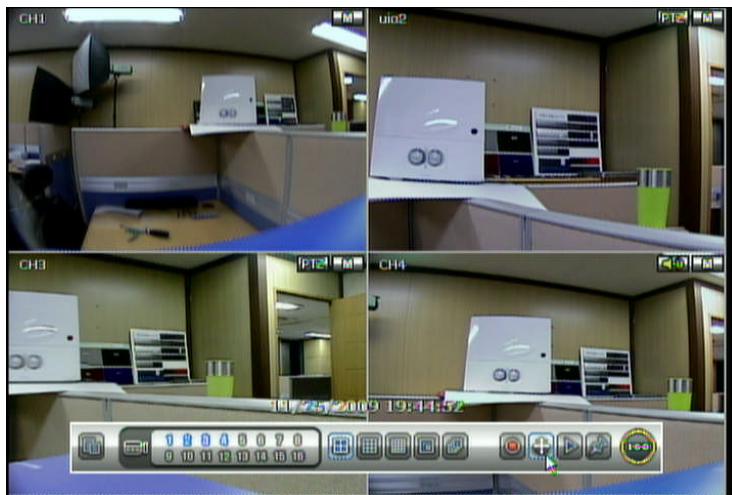
Note To properly select a channel **using the mouse**, the user is **required to perform a** slow and clear double-click of the left mouse button.


3.2.2. Icons


The live mode display, icons or messages will be indicated on the screen to **indicate** the system mode or status. Below are the icon categories, which are indicated on the monitor.

| Icon to be shown at right-upper corner on each channel screen | | Icon to be shown At right-bottom corner on full screen. | |
|---|--|---|-----------------------------------|
|  | Continuous Recording |  | No HDD, Smart Alarm & HDD Failure |
|  | Motion Detection Recording |  | Using Emergency Recording |
|  | Sensor Activating Recording |  | Using PTZ |
|  | Continuous+ Motion Recording |  | Warning for exceeding temperature |
|  | Continuous + Sensor Activating Recording |  | Showing sequence mode |
|  | Motion Detection + Sensor Activating Recording |  | Showing digital zoom mode |
|  | Emergency Recording | | |
|  | Sensor Activated | | |
|  | Motion Detected | | |
|  | Audio Channel | | |
|  | PTZ Camera | | |


User can place USB mouse pointer in the bottom of the monitor **during** live mode. Then menu bar will be instantly appeared as **shown below**.




Cross icon button  means “instant (emergency) recording”, which is useful to urgently start recording. In emergency recording, the system allocates the maximum number of recordable frames and distributes them equally across all available channels at 1 CIF resolution.

Joystick icon button  means “PTZ” mode, which is useful to instantly switch to PTZ control. In PTZ mode, user can move pan/tilt and zooming-in/out by moving the mouse pointer, a virtual joystick.

User can click the right-forwarded arrow button  to automatically playback the latest video clip.

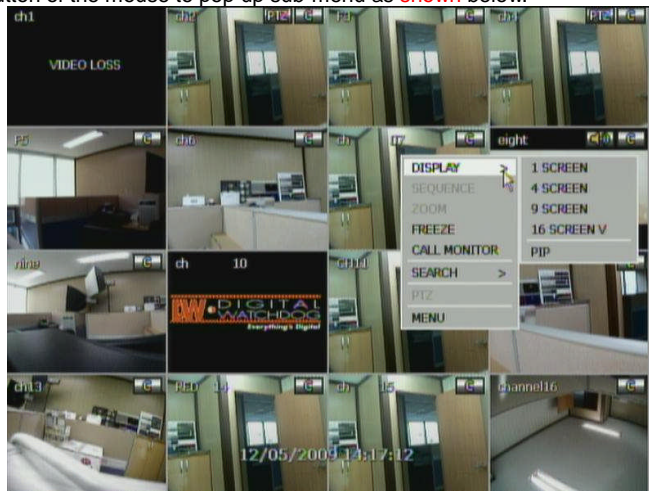
Pin icon button  means that user can fix this menu bar, or disable fixing the menu bar by moving out mouse pointer. If user fixes the menu bar, then this menu will not disappear even though user moves away mouse pointer out of this range.
If user does not fix the menu bar, then the menu will be shown when user places mouse pointer in this bottom area only.


Circle icon button  means the HDD usage percentage by video recording. If it shows 60%, then 60% of HDD space has been used up for recording.


Note If you cannot find any colored-mark in the right up corner of the live screen mode, then it means that the system does not record any image. In this case, you need to check recording schedule or camera of the main setup menu.

3.2.3. Pop-up Menu

User can click the right button of the mouse to pop up sub-menu as shown below.



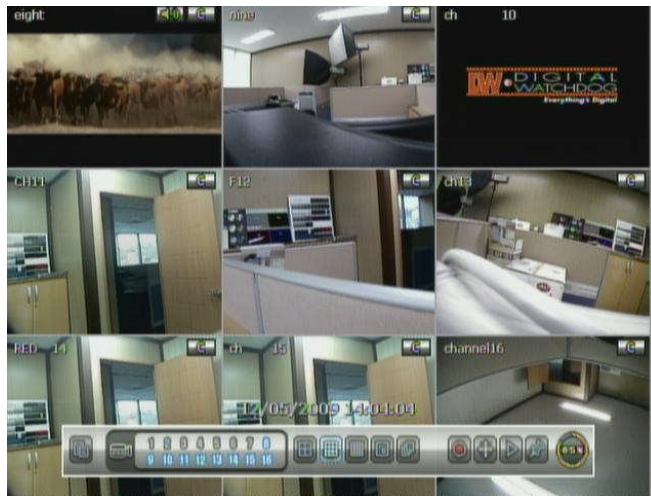
When “SEQUENCE” is selected,  icon is shown on the right-bottom corner of the screen and display screen will be sequentially changed.

When “ZOOM” is selected on full screen mode, digital zoom function is activated and  icon is shown on the right-bottom corner of the screen. In zoom pop-up menu, the user can select ZOOM-IN or ZOOM-OUT and ZOOM-EXIT.

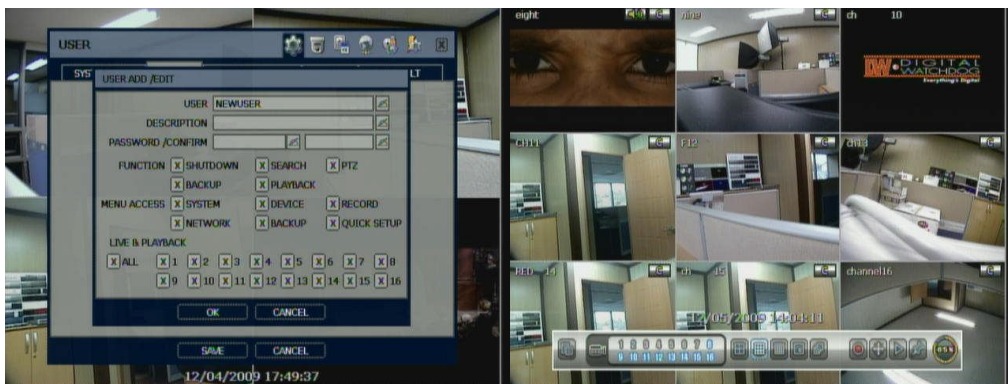
Selecting ZOOM EXIT returns the user to the normal live display mode.




"Digital Watchdog logo" is shown on the display screen when no camera is connected or camera is disconnected on a certain channel. When a camera is disconnected, a warning sound may be generated depending on the system settings.



Admin user can set different level of authorization for each user. If a certain user is not allowed to view a certain live and playback channel, then no image is shown on the display screen as below.



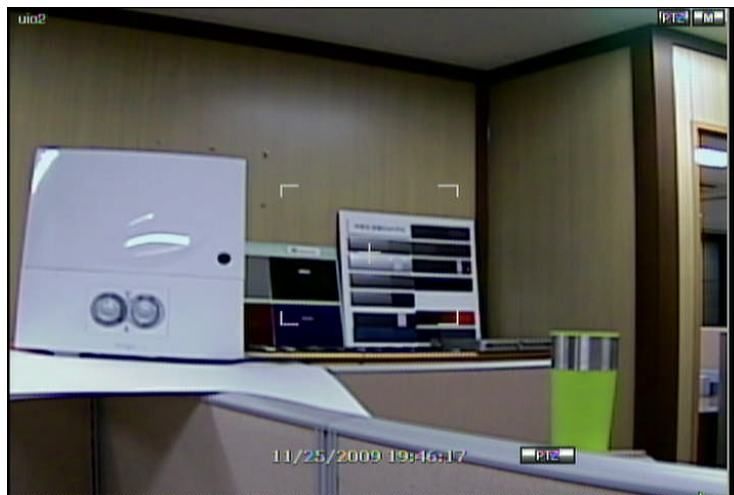
3.3 PTZ Operation

User can get into PTZ mode by clicking right button of mouse and selecting "PTZ" in the pop-up menu as **shown** below, or select joystick button  in the menu bar **located** in the bottom of the main screen.



In PTZ mode, user can control PTZ operation with USB mouse.

While pressing the left button of mouse, user can drag the mouse pointer to up/down or left/rightward to move pan/tilt position of the camera. If user moves the mouse pointer **far** away from the center position of the main screen, the PTZ camera moves at faster speed. **The** user can also zoom-in/out by rolling the wheel of mouse up or down.



Note Full PTZ functions are available by using USB mouse, IR remote control, or keyboard controller.

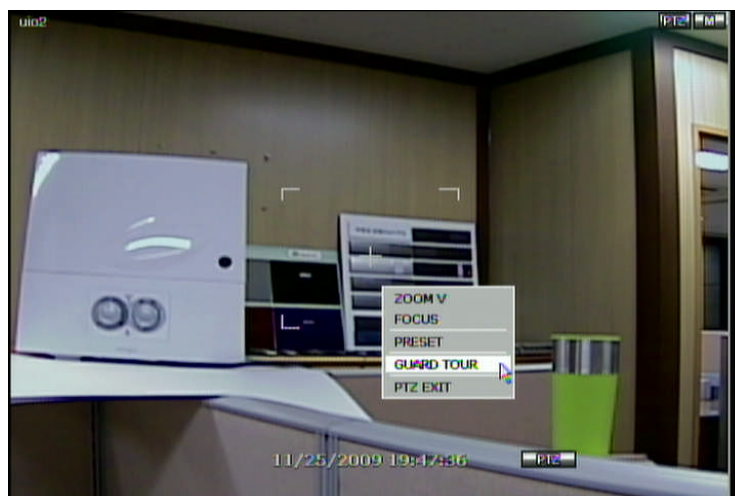
For focus control in PTZ screen mode, **the user can right-click using the mouse to get the pop-up menu as shown below.** Default mode is to "ZOOM". The user can select "FOCUS" to switch the wheel function of mouse from zoom-in/out to focus. This will change the default behavior of the mouse wheel.

The user can also select the preset button or exit PTZ screen model.



Note User will see numeric pad to select “Preset” number. The preset is defined by setting a PTZ protocol in the setting menu. The maximum number of preset is 255 but the max supported by the PTZ may be less.

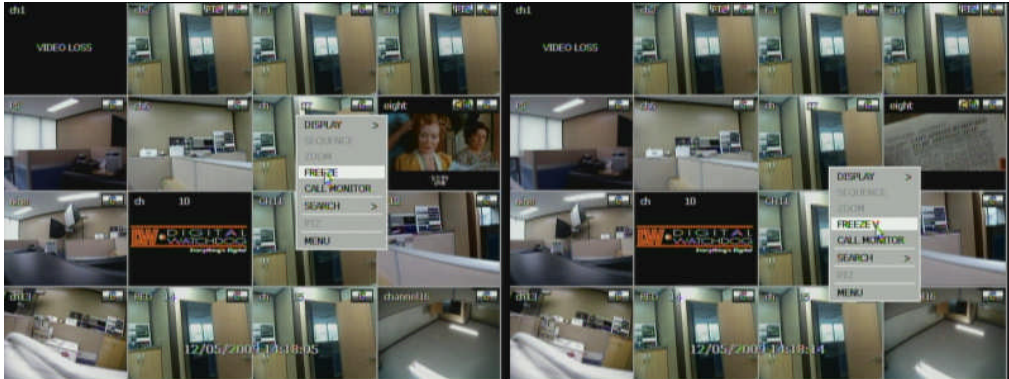
User can automatically switch PTZ camera positions according to the defined of preset setting by using GUARD TOUR function, though the connected PTZ camera does must support. “GUARD TOUR” on the pop-up menu can be enabled after changing to full screen for the channel that the PTZ camera is connected to. Please make sure that PTZ camera setting is correct, otherwise, “GUARD TOUR” is shown as disabled.



Caution Depending on PTZ camera, some preset positions might be skipped if, for example, the PTZ camera cannot mechanically move or control focus within the interval time required by the DVR. In this case, it is recommended to increase the interval setting to a value that allows for the cameras finish its Pan & Tilt.

3.4 Freeze Mode

Press FREEZE button on the front panel or click the right button on the mouse and select the Freeze mode while viewing a live image, the image then pauses, but the date/ time information does not, and the system clock continues running. Press FREEZE to pause the live view; press FREEZE again or click the right button on the mouse and select the FREEZE again to resume the live view.



3.5 Call Monitor Operation

Press the CALL MON button on the front panel or click the right button on the mouse and select the CALL MONITOR in order to enter call monitor control mode. The numeric panel will pop up at the center of the screen.

Click the specific channel button on the numeric panel to display full screen mode out of assigned spot out channels.

- Press the close button on the bottom of the numeric panel, it goes back to the previously programmed spot monitor mode.

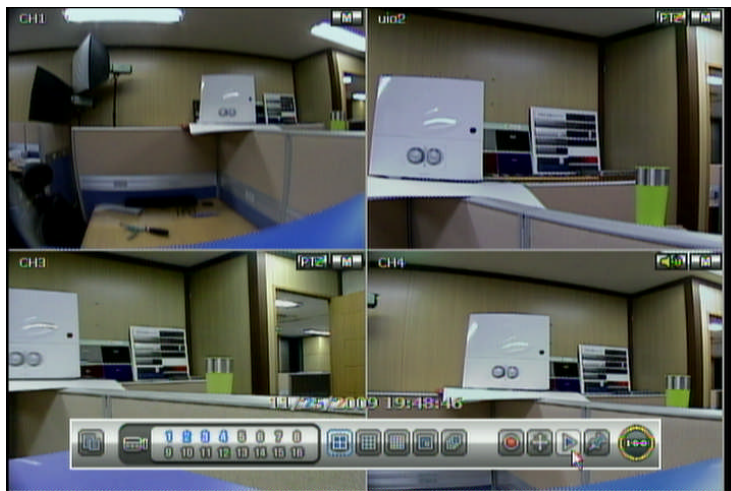


3.6 Playback of Recorded Video

To play a recorded image, press the Play button from the Front Panel or IR Remote Controller.

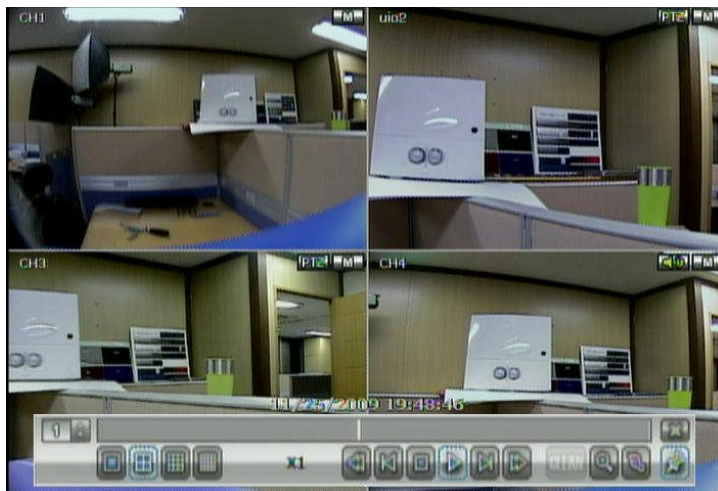
It is easy to use USB mouse to playback recording files. The recorded files can be seen backwards or forwards. Turn the Shuttle and the playback speed can be controlled in steps of 2, 4, 8, 16, 32 times real time while playing backwards or forwards.

User can click the right-forwarded arrow button  to automatically play the latest video clip.



The picture below shows the system playing back a video.

In playback screen, user can make various playback modes, make an instant manual backup (archive), go to calendar search mode, change channel, and change screen modes. By clicking the left mouse button in the colored-time bar, the user can jump to a different time in the recording.



3.7 Clean Button during Playback

De-interlacing feature is required for smooth playback of video that is recorded by 720x480/576 (D1) resolution. In playback mode, user can press "CLEAN" icon at the menu bar located in the bottom of the main screen or click the right button on the mouse and select " De-interlace ". After pressing "CLEAN" icon, it becomes with blue circle around the icon which means de-interlacing is activated. After changed to de-interlacing mode, press the pause and step forward icon after. User can get better image as shown below. Pressing "CLEAN" icon again, this function will be inactivated.



Click CLEAN icon Enable.

Click CLEAN icon Disable.

The picture comparison below shows the difference between "Interlace" video and a "De-interlace" video clip.

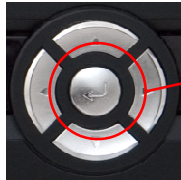


Note De-interlacing feature by pressing the "CLEAN" icon can be activated only during a full screen mode.

3.8 Quick Backup during Playback

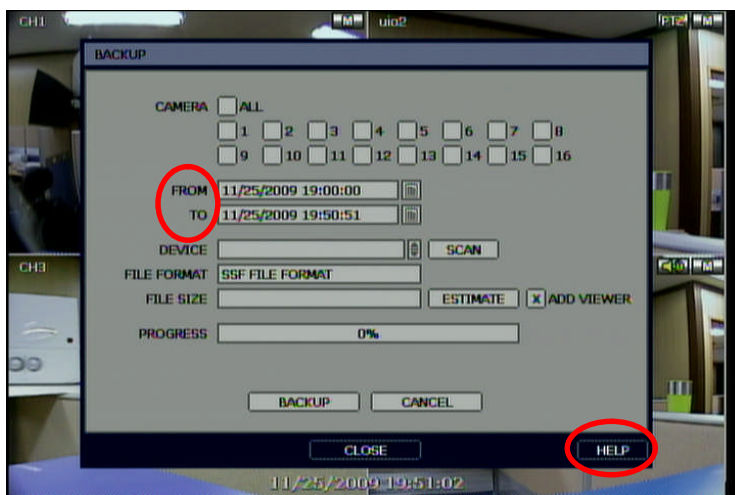
User can easily archive video while viewing the video playback.

In playback mode, user can press “ENTER” button in the front panel to set archive “start” (FROM) time. After pressing this “ENTER” button, user will see “INSTANT BACKUP START” in the right bottom of the playback monitor. Once “INSTANT BACKUP START” message is shown, user can keep playing back video until user wants to finish archiving, and then press the same “ENTER” button again to set backup “end” (TO) time. The backup menu window will pop up and user can select the backup media like CD/DVD or USB thumb drive, and execute archiving.



Press “ENTER” button to set “start” and “end” time of archive during video playback.

Buttons may vary between DVR models.



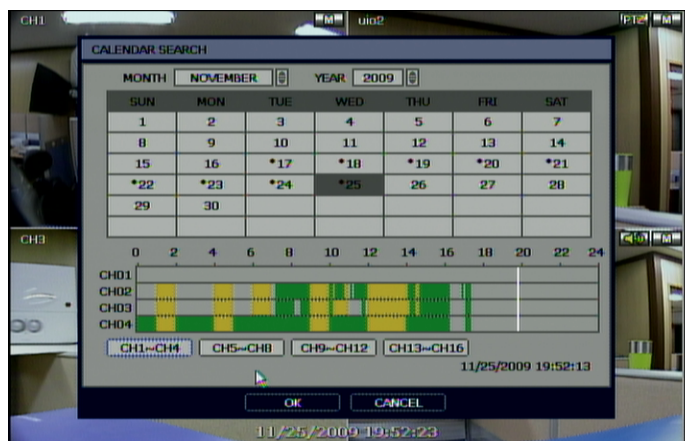
Note

The “HELP” button will help you understand how to setup several important settings even without the user’s manual book. For example, if you need help about how to set “BACKUP”, click “HELP” button at the right bottom of the BACKUP menu.

3.9 Search Recording Image

3.9.1. Calendar Search

The user can select the date and time to search for a certain file within the recorded video.



User can adjust the white-vertical line to the time that user wants to search.

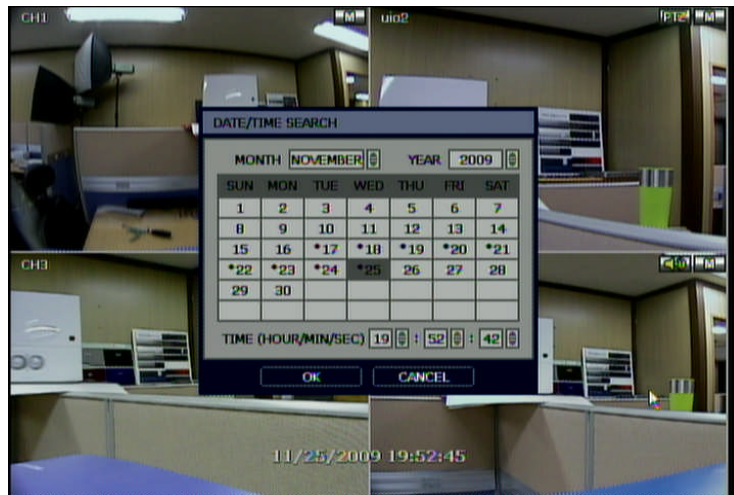
The colors of the time bar differ depending on the recording mode. Please, refer to section 4.3.2 for details on colors.

A “*” mark in date as above picture means that there is a video data recorded.

3.9.2. Search Date/Time

Enter the desired date and time for the user to playback the recorded video.

Use the arrow button to move to each day/month/year and time category for selecting second/minute/hour/month/year.

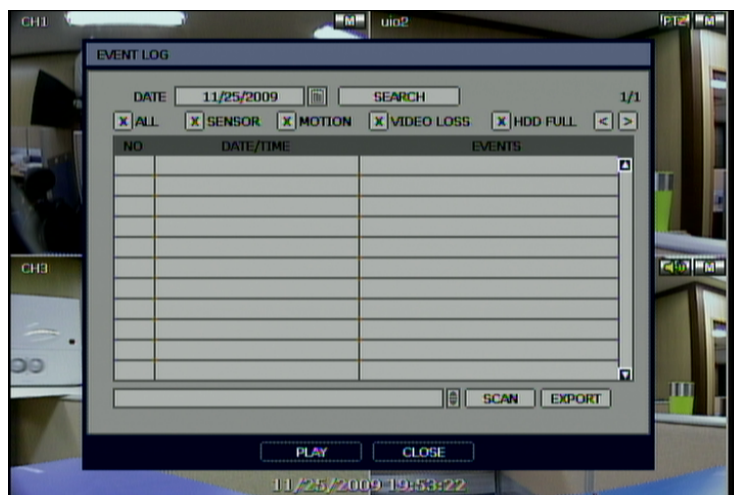


3.9.3. Event Log

The Event log search is used to find particular event, quickly and easily.

Users can copy this event list to a USB memory device in text file format.

Once a USB memory stick is inserted into the USB port, the user must press "SCAN" button to detect the USB stick, and then press "EXPORT" to copy the log information to the media.



To see a particular event, move the arrow button of the Front Panel or Remote Controller to the desired time range.

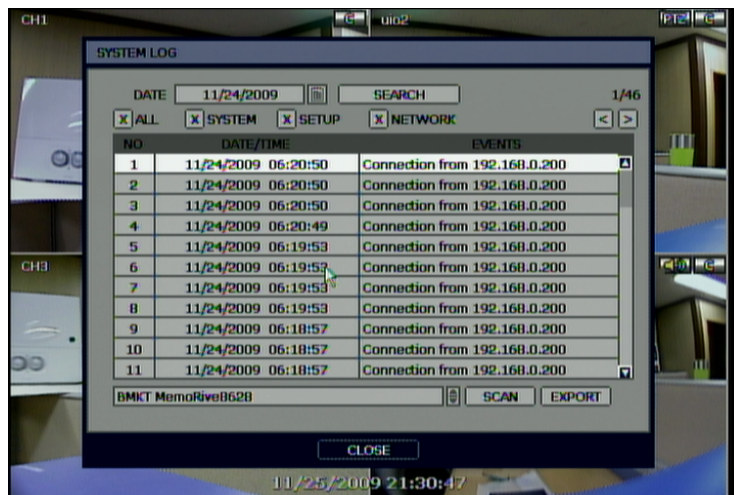
The followings are the categories indicated on the Event Viewer.

1. Alarm by Sensor
2. Alarm by Motion
3. Alarm by Video Loss
4. Alarm by HDD Full

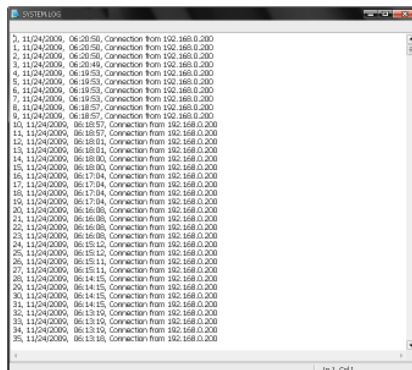
Note If the Alarm does not activate even though the alarm input setting has been done, check the alarm connection port of the DVR rear panel.

3.9.4. System Log

The system log search is used to find particular system log information, quickly and easily. User can copy this event list to USB memory device in text file format.



Once export is completed, the user can find a date folder created in USB thumb drive. There is "system.log" file stored in the date folder.



The followings are the categories indicated on the system log viewer.

1. Log by system
2. Log by setup
3. Log by network

Note 20 numbers of log record will be shown on one page of the <System Log> and <Event Log> window. User can click the arrow icon to search the log records on another page.



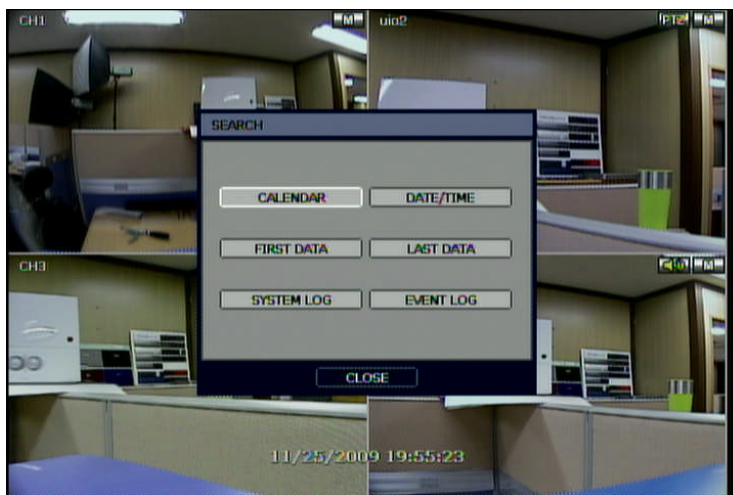
3.9.5. First Data

Go to the first screen of the recorded video. This is the oldest video recorded.

3.9.6. Last Data

Go to the last screen of the recorded video. This is the latest video recorded.

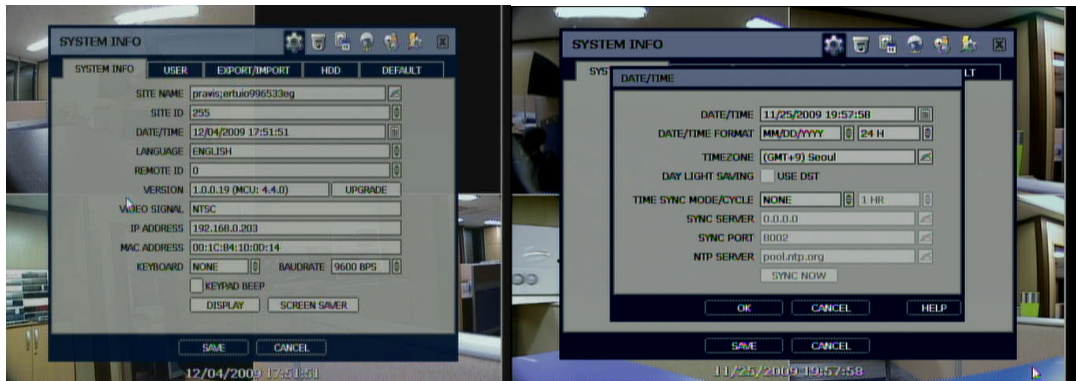
Note User can press "SEARCH" button in the front panel to get the SEARCH pop-up menu as shown below. In this menu, full search functionality is controlled using the front panel key buttons.



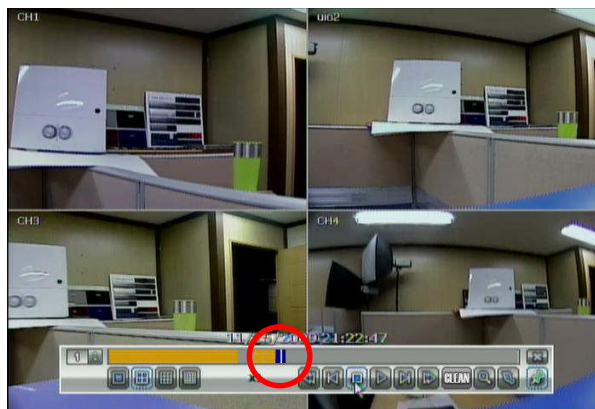
3.10 DST Setting and Image Playback

During DST (Daylight Saving Time) period, DVR time clock has to be adjusted according to regional time zone. That is, DVR time clock will be shifted by one hour after DST setting while DVR will restore the time clock to normal after DST finishes.

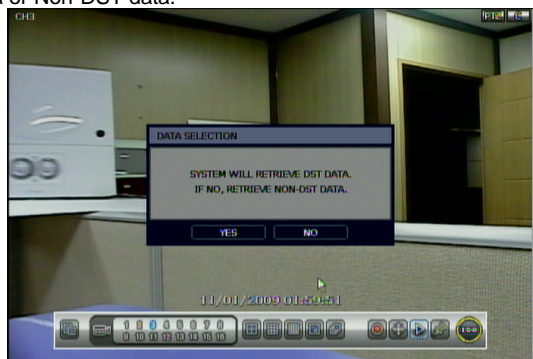
To make DST setting on the DVR, go to the menu: SYSTEM > SYSTEM INFO and click “DATE/TIME” to get the DST setting window as **shown** below. User can setup DST “Begin & End” time after checking “USE DST” box.



There is an hour of overlapped video when DST finishes. The overlap video will be indicated in a blue color in the Intelli-Search Bar **during** playback mode.



When user click on such overlapped period, a message titled “Recorded video Selection” will pop up. The user can then select whether to play DST data or Non-DST data.



Click OK to play DST image.

Click CANCEL to play Non-DST image.

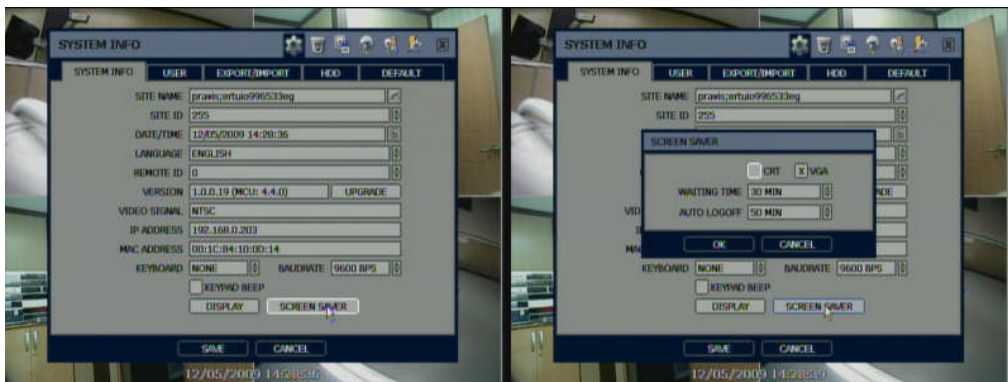


["DST" image is displayed on screen]

["Non-DST" image is displayed on screen]

To make SCREEN SAVER setting on the DVR, go to the menu setup: **SYSTEM > SYSTEM INFO** and click "SCREEN SAVER" to get the SCREEN SAVER setting window as shown below. Users can select CRT and/or VGA by checking the boxes. Users can set the WAITING TIME that the monitor will automatically turn off.

Users can make the selected monitor on again by clicking a mouse, pressing any frontal key buttons or pressing any buttons on the remote controller.



Note WAITING TIME: Users can select the WAITING TIME from NONE, 1,2,3,4,5,6,7,8,9,10,20,30,40,50, up to 60 MIN. The SCREEN SAVER will not work when either WAITING TIME is set to "NONE" or both SPOT and VGA checkbox are unchecked.

SCREEN SAVER may not work, during upgrading the system, formatting HDD or data backup process.

The system continues to record while the monitor is turned off.

When it comes to the "AUTO LOGOFF" setting, please refer to the USER setting.

4. Setting

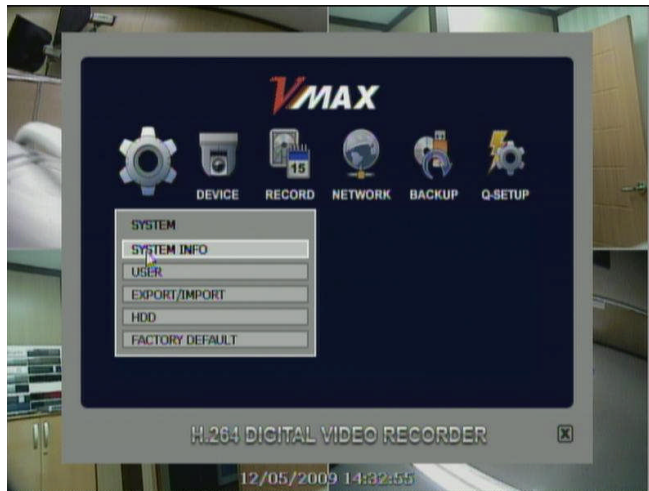
General setting structure consists of “System”, “Device”, “Record”, “Network”, “Backup” and ‘Quick Setup” as shown below.

| Main Classification | Sub Classification |
|---------------------|--------------------|
| SYSTEM | SYSTEM INFO |
| | USER |
| | EXPORT/IMPORT |
| | HDD |
| | FACTORY DEFAULT |
| DEVICE | CAMERA |
| | AUDIO |
| | SENSOR |
| | MOTION ALARM |
| | EXTRA ALARM |
| | PTZ |
| RECORD | CAMERA |
| | SCHEDULE |
| NETWORK | NETWORK |
| | DDNS |
| | NOTIFICATION |
| BACKUP | MANUAL BACKUP |
| QUICK SETUP | QUICK SETUP |

4.1 System

The system menu button is selected by clicking "TOOL" on the menu bar or the right click pop-up menu.

Users can move mouse pointer from "System" through "Quick Setup" to instantly look around the sub-menus on the menu screen. Using the left mouse button, the user can select a desired category for editing.



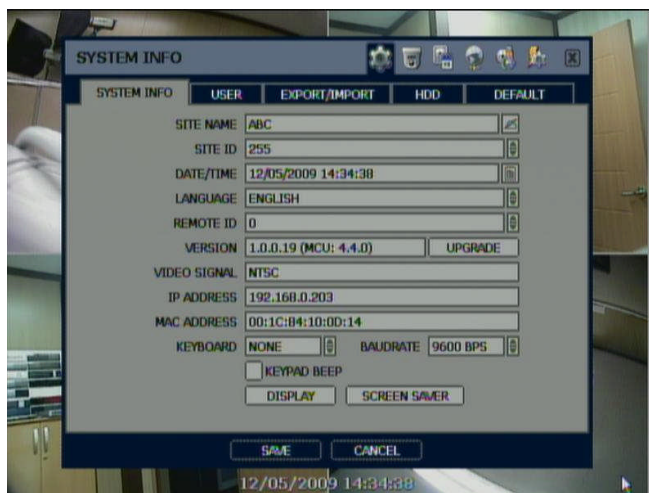
4.1.1. System Info.

Use this submenu to check system information status or change the system-related configuration.

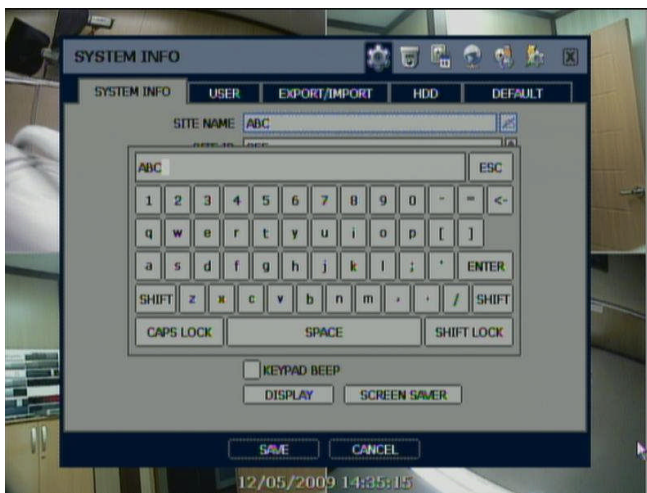
Users can then move to other sub-menu of the System; System Info, User, Export/Import, HDD, and Factory Default by moving mouse pointer or pressing the front arrow buttons.

Mac address is a unique network identification number for each system...

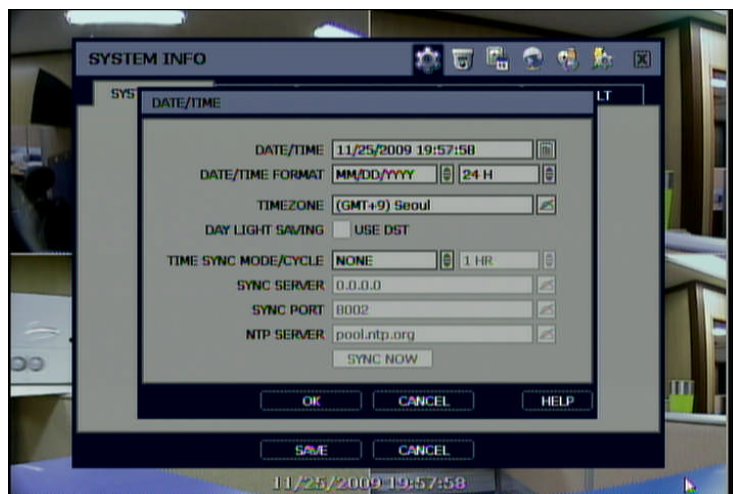
NTSC/PAL is convertible by moving selection switch on rear panel of the system and rebooting.



Users can name a site by using the virtual keyboard as shown below;



In "DATE/TIME SET", user can activate DST (Daylight Saving Time); select the time synchronization server, and other basic settings like time zone/time format.



Note Video images may be shaking and blinking in black & white if NTSC/PAL is not properly set.
 The user needs to make sure of NTSC/PAL setting according to country power frequency

Note There are two types of TIME SYNC MODE.

1) Server Mode

The operating DVR is set as a Time Sync Server, which can synchronize the time clock of another DVR(s) connected over same network environment.

2) Client Mode

The operating DVR is set as one of the client DVR(s). Input the IP No of designated DVR or Remote Manager

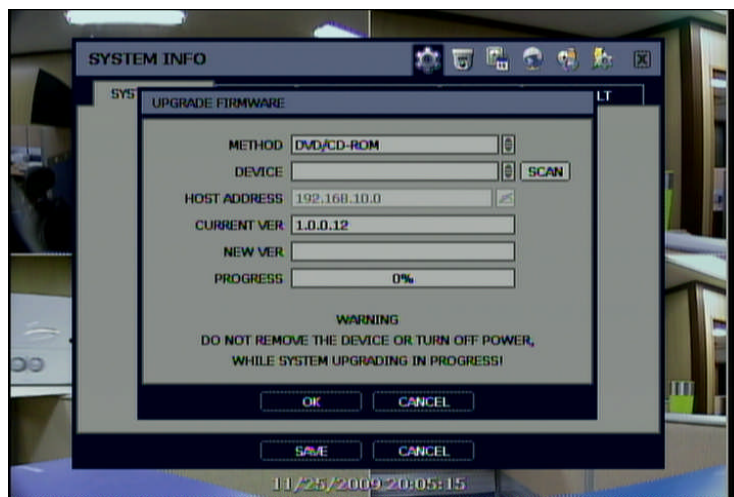
P/C (RMS) or Central Management P/C (CMS) as a Time Sync Server in "SYNC SERVER", then its time clock is synchronized with Time Sync Server by setup time in "SYNC CYCLE".

SITE ID: users must setup SITE ID to match with the ID setting in keyboard, if user wants to use a keyboard to control DVR.

The user also needs to select the KEYBOARD model and BUAD RATE setting.

REMOTE ID: users must setup the REMOTE ID to match with the ID setting in the IR remote controller in order for the remote to function.

Users can easily upgrade the system in "Upgrade Firmware" menu via DVD/CD/USB/FTP server upon the selection as shown below;



Procedure How to upgrade system firmware by using USB memory stick

- 1) insert the USB thumb-drive formatted by FAT32, in any USB port of DVR (compatible with USB 2.0)
 - 2) Once the system detects the thumb-drive, user can see its brand or model name in the "DEVICE" field after pressing the "SCAN" button.
 - 3) Click "OK" to confirm.
-

Caution

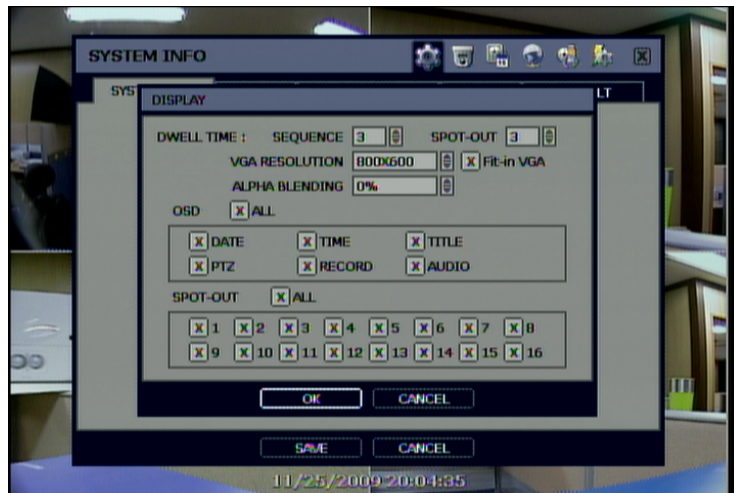
It is recommended to format the HDD after finishing the firmware upgrade because the data recorded by previous firmware may cause mal-function of DVR due to different format.

It is possible to send the system firmware back to factory default. This may be useful if functionality takes a step backwards after a system upgrade. It is highly recommended to check all functions and menus after a firmware upgrade for proper layout and performance.

In "Display Setting", user can set sequence dwell time, spot-out dwell time, the spot-out channel, camera pop-up and OSD

as below picture.

User can set Spot-Monitor output and sequence dwell time in this menu as well as OSD show/no-show. Alpha blending is the transparency level of the menu screen. 0% means no transparency at all.



“VGA Display” is to get the proper edge alignment of display video depending on the monitor to be used, VGA or CCTV monitor. In case that edge part of display video is cut off on the monitor (VGA or CCTV monitor), then try to change the setting of “VGA Display” by checking/unchecking.

The position of icon is changed depending on the “VGA Display” setting.



[VGA Display is checked]



[VGA Display is not checked]

Note DVR support following video resolutions: 640x480, 800x600, 1024x768 and 1280x1024.
User must to set the proper resolution according to the monitor resolution.

4.1.2. User

Master user of this system is always Admin with factory default is No password

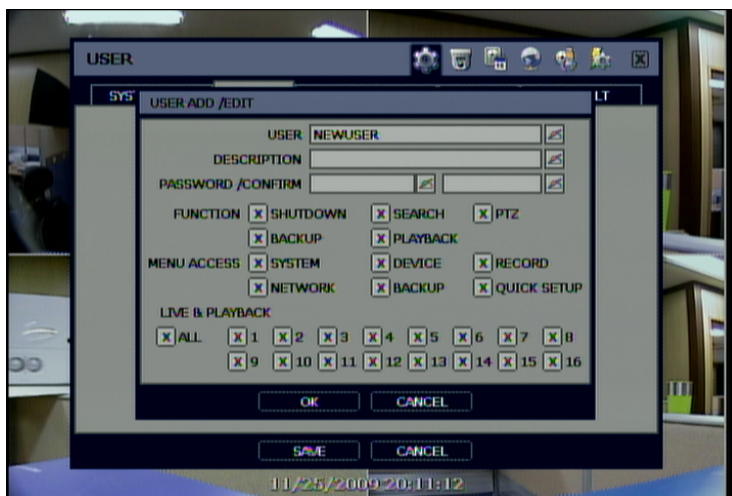
Admin must change the password of the DVR for extra security

Admin can designate a new user with different permission levels by: functions, menu access, and live & playback.

"FUNCTION" is to restrict a user to control a certain function like shutdown, search, PTZ control, backup and playback.

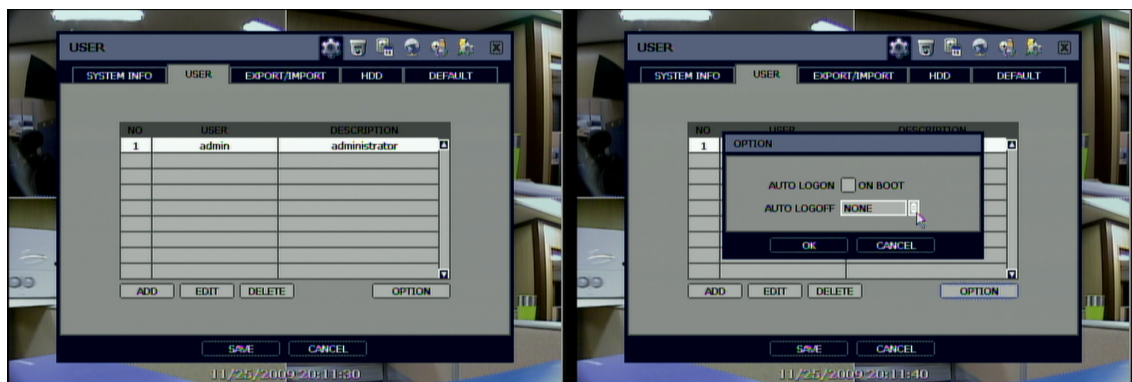
"MENU ACCESS" is to restrict a user to access a certain main menu setting like system, device, record, network, backup, and quick setup.

"LIVE & PLAYBACK" is to restrict a user to see both live display and playback video for a certain camera channel.



Note Total number of users including administrator is 32 Users.

User can set the DVR does not require login, afterwards, or lock the DVR control.

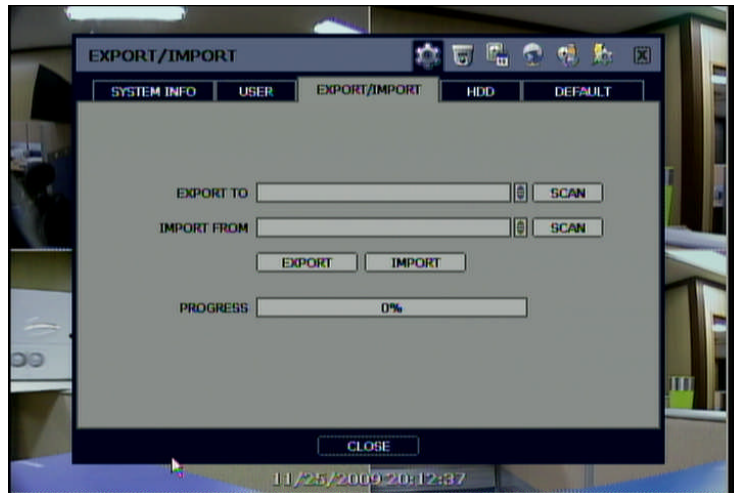


If user selects "On Boot", the DVR will not ask ID and Password input, again, even though after system rebooting.

On the contrary, if user selects Auto Log-off and sets the time, the DVR will go to live display mode, automatically, after the setting time from the last time of operation by user. Then, ask ID and Password input when user wants to control the DVR.

4.1.3. Export/Import

Users can copy and paste the system configuration values in this menu. "Export" allows the user to copy the settings for this system to USB memory devices. "Import" allows the user to recall the settings saved from other systems using CD/DVD/USB memory devices. During import process, make sure that the firmware version of source DVR is the same as the destination DVR.



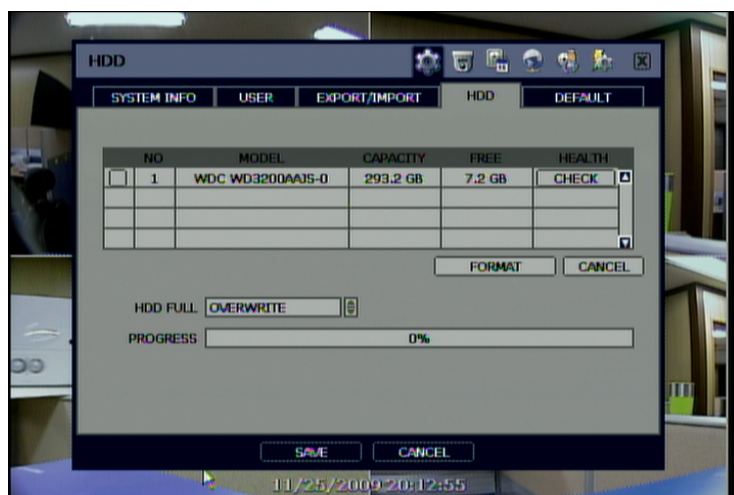
4.1.4. HDD

HDD information is displayed at the menu. (SATA HDD is used in this system)

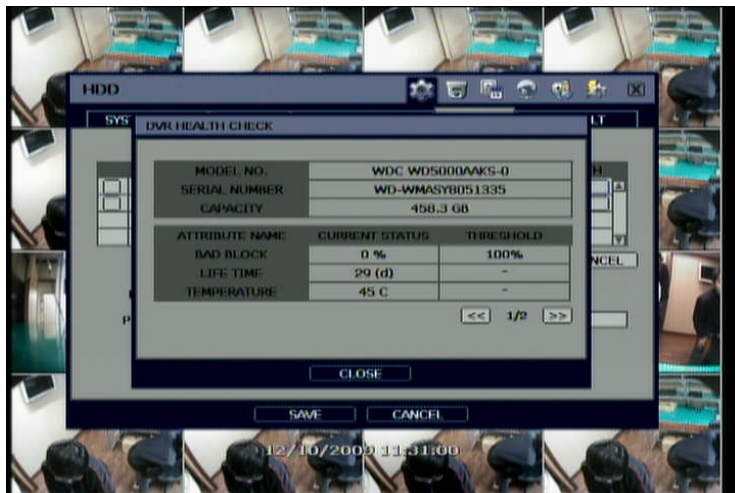
User can select "Overwrite" or "Stop recording" when the HDD is full.

Users also can easily format a new HDD or an existing HDD for each drive. In order to format a HDD, the checkbox should be checked and then click "FORMAT" button in the HDD menu.

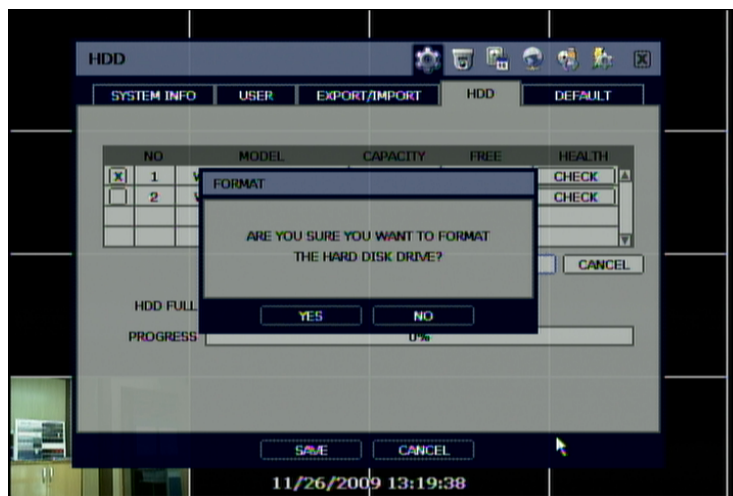
The maximum number of built-in HDD units varies across DVR models.



On the DVR system, DVR HEALTH CHECK is represented in % sign as shown below. It also indicates the lifetime and the temperature of the hard disk drive represented by Celsius.



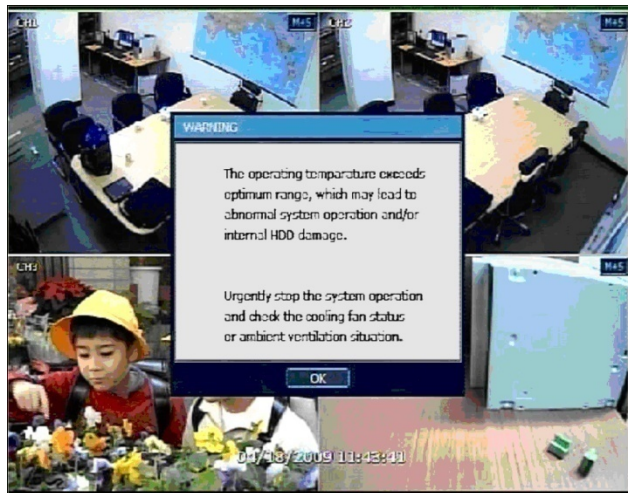
If system resources are occupied with task, such as making a network connection or performing video playback during the format process, the format may fail. If the format fails, reboot the system resources and then try to format again.



[Format completed]

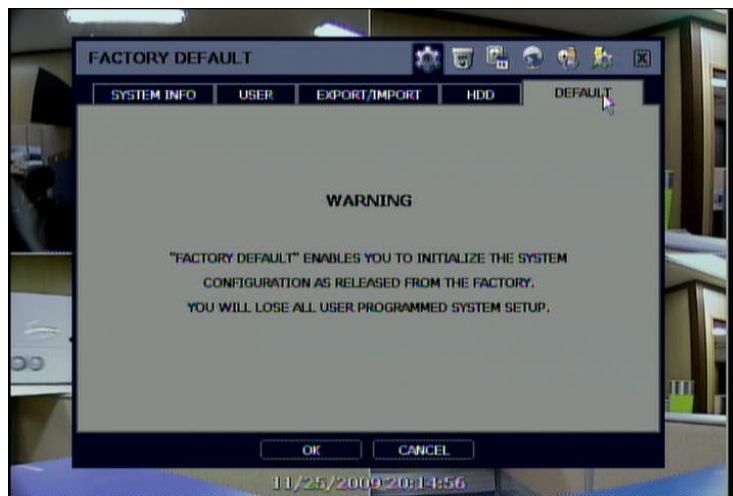
-
- Note**
- 1) Formatting may take around 2 minutes for 250GB, 3 minutes for 500GB, or 4 minutes for 750GB.
 - 2) The system always reserves a maximum of 5GB of space in each built-in HDD to effectively utilize Memory for archiving.
-

To achieve high-level system stability, warning message like the one below may popup when the temperature inside the system exceeds optimum range. This problem may be caused by a mal-function of ventilation fans. If the fans seem fine after inspection, the ambient temperature around the unit is likely cause for the warning.



4.1.5. Factory Default

With authorized password, **users** can get the system back to factory default configuration.




Note Upon clicking "OK" button and **entering the admin password**, all the configuration values made by user will be deleted.

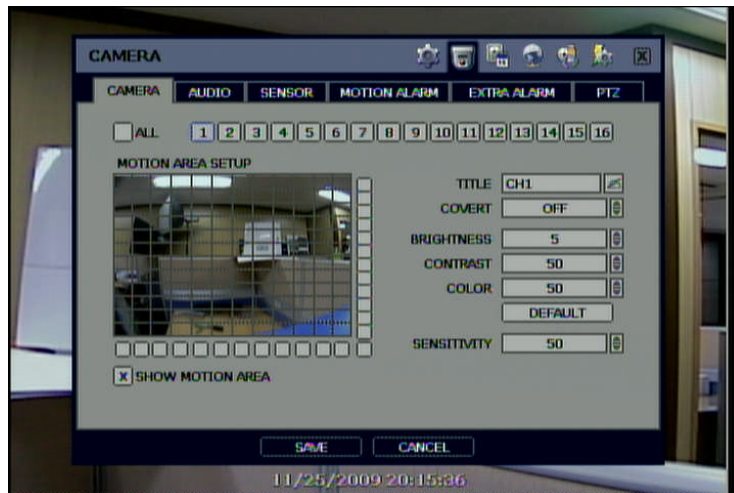
The system setting will be sent to factory defaults. The recorded video data will be not be erased.

4.2 Device

4.2.1. Camera

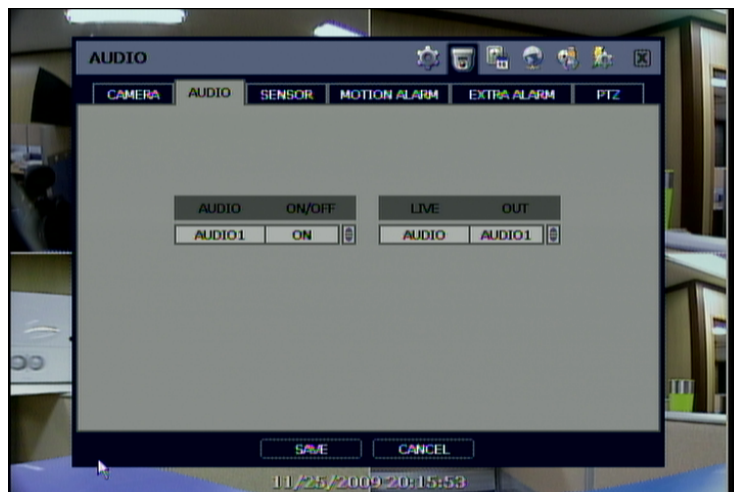
Users can easily move to the “Device” menu by selecting the icon  in right up side of the menu screen. “Covert” is to hide camera display and playback as if there is no camera recording, a so-called “hidden camera” feature.

The default motion area setup is the entire camera area.



4.2.2. Audio

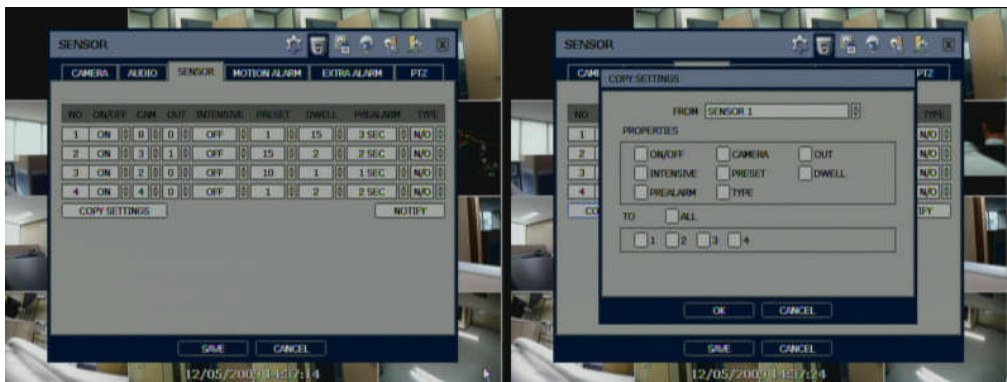
Users can select the audio input and output during live display, and match the audio input to a designated channel (Please refer to Section 4.3.1 Camera Record)



Note User can listen to the audio sound on both live display and playback mode depending on the setting. In addition, users can listen to the audio for both live display and VOD mode through the network using Remote Manager S/W (RMS), Central Management S/W (CMS) and/or IE web browser.

4.2.3. Sensor

"Intensive" means that the system increases the recording speed up to the maximum frame rate at the selected resolution when an alarm is triggered during the selected dwell time. The recording speed of all other channels will be automatically decreased during an alarm-triggered intensive recording. The unit will also trigger an alarm signal via the selected sensor-out channel.



- **ON/OFF**
Turn on or turn off the sensor
- **CAMERA**
Select the associated camera
- **OUT**
Select the associated alarm output

Caution Relay contact can handle up to 24DC/1A of other devices. If connected to a circuit which is Over 24V/1A, the system may experience problems.

- **INTENSIVE**
"Intensive" means that the system increases recording speed up to the maximum frame rate at the selected resolution when an alarm is triggered during the selected dwell time. The recording speed of all other channel will be automatically decreased during alarm-triggered intensive recording. The unit will also trigger an alarm signal via the selected sensor-out channel.
- **PRESET**
User can select the camera to move to a preset position, once the sensor is triggered. (User should setup preset position in PTZ menu 4.2.6 in advance)
- **DWELL (Post Alarm)**
Set the recording period from the start of sensor input activation. During this period, the corresponding camera video will record according to the frame and alarm (relay) output set. The recording stops and alarm output is turned off when the dwell time has elapsed.
- **PRE-ALARM**
Set the recording period in seconds just before the alarm-sensor input, up to 3 seconds. The system records video for the defined amount of pre-alarm so that user can search video even before alarm is triggered. The pre-alarm recording mode is at the recording that user sets in "record" of "camera" menu.

- **TYPE**

Select the sensor type between N/O(Normal Open) and N/C(Normal Close), **connected** to **the** alarm input terminal. **A** circuit of N/O type **activates the sensor when the circuit closes. An N/C circuit works in the reverse way.**

- **COPY SETTINGS**

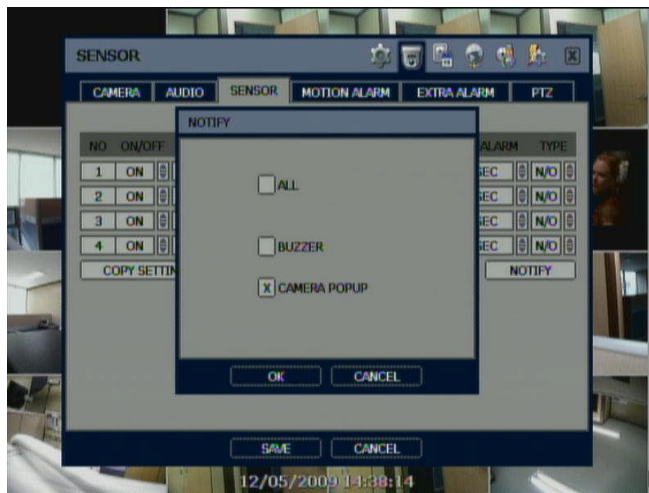
Upon pressing Copy Settings button, Copy Settings popup will appear. In this popup, choose the sensor the user wants to copy from at the "FROM" field. Choose the parameters such as ON/OFF, CAMERA, OUT, INTENSIVE, PRESET, DWELL, PREALARM, and TYPE on the check box. Check on the check box with sensor numbers to apply the copy setting to on "TO" check box selector section.

- **NOTIFY**

Users can select how to be alerted **when a** sensor is activated or motion is triggered by pressing **the** "NOTIFY" button.

The system **can** generate **a** buzzer sound and/or **make pop-up screen for the camera in alarm.**

Note "Sensor" here means the alarm connected to DVR, which is triggered by physical sensor input.

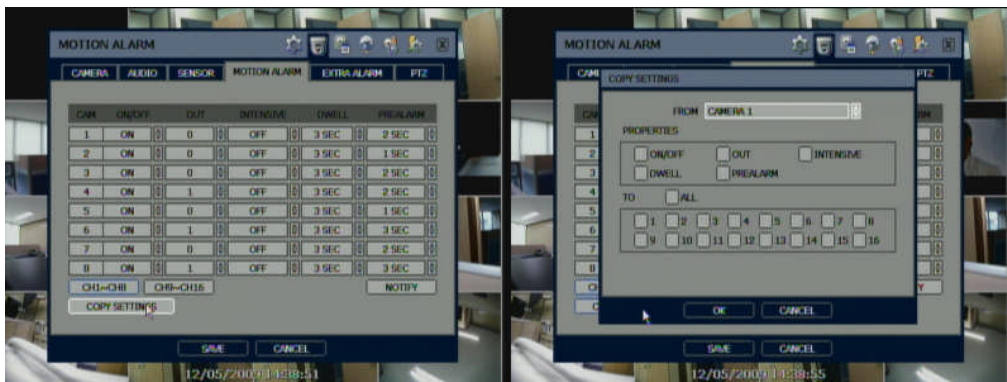


Note Check the setting of the sensor type (N/O or N/C), if the sensor does not operate properly. The alarm might not function if the actual connecting sensor type and the sensor type in the system setting are inconsistent.

Note "Camera pop-up" means that multi-screen live video mode will be switched to single channel mode automatically **when an alarm** is triggered. This single channel video **will be** the channel triggered by alarm.

4.2.4. Motion Alarm

Select Motion alarm to record only when motion detection is triggered by DVR S/W upon user's defined motion area. The system records at the maximum recording speed upon motion detection if user sets "Intensive" to "on". Video will record for the selected post-alarm dwell time and pre-alarm video will also record for the specified time. An alarm signal is sent via the selected sensor-out channel.



- **COPY SETTINGS**

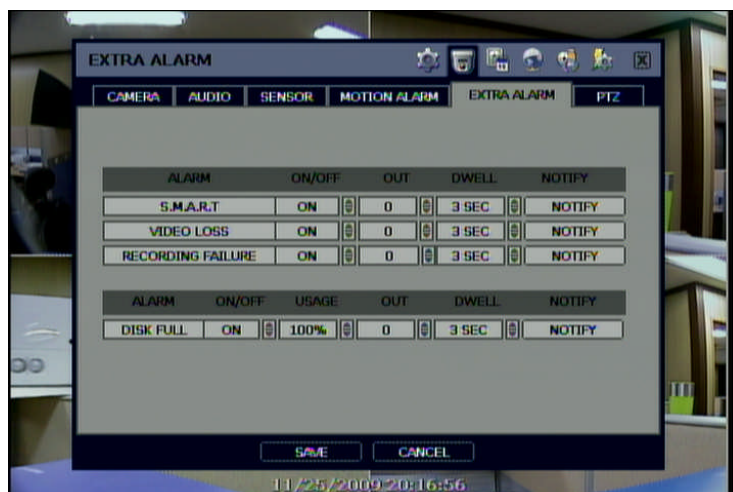
Upon pressing Copy Settings button, Copy Settings popup will appear. In this popup, choose the camera the user wants to copy from at the "FROM" field. Choose the parameters such as ON/OFF, OUT, INTENSIVE, DWELL, and PREALARM on the check box. Check on the check box with camera numbers to apply the copy setting to on "TO" check box selector section.

Note "Motion Alarm" here means alarm triggered by motion detection set by motion menu of DVR.

4.2.5. Extra Alarm

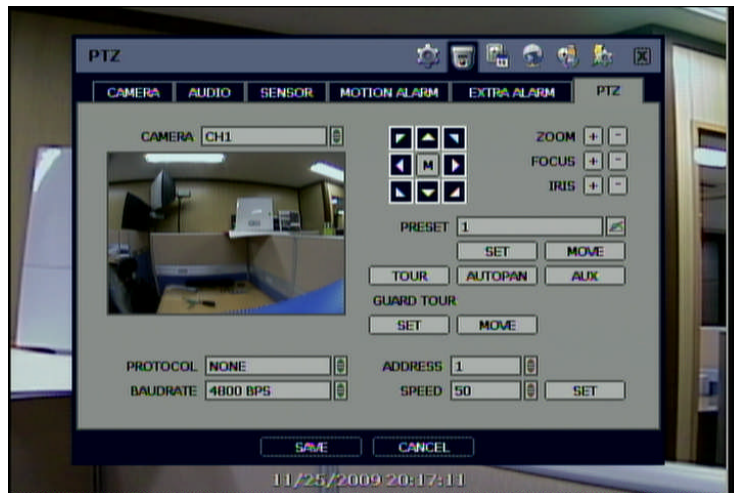
S.M.A.R.T. alarm is an alarm signal triggered when the HDD is about to be out of operation.

This alarm is created by the HDD and captured by DVR. If the HDD does not create this alarm, then the DVR also cannot capture and output this signal.



4.2.6. PTZ

Full control of PTZ camera is available in this menu.
For details, please refer to Section 3.3 PTZ Operation.



“M” (Depending on the model of PTZ camera)

If selected, the OSD menu of PTZ camera is imported and shown on the DVR monitor allowing the user to control the full PTZ settings.

Protocol

Select the proper protocol of the connected PTZ camera.

Address

Set the PTZ driver address of the connected camera.

Check the below items for proper P/T/Z operation.

1. Check if the protocol of the connected PTZ camera is correct.
2. Check if the communication setting including baud rate of the connected PTZ camera is in accordance with the assigned value for that P/T/Z protocol.
3. Check if the address of the connected PTZ camera is correct.
4. Check if wiring to P/T/Z controllers is correct.

Procedure How to setup PTZ camera with Pelco-D protocol (example)

- 1) Make sure the serial communication with the PTZ camera is through RS-484 port.
 - 2) Select “Pelco-D” at the protocol list, and set the address.
 - 3) Select Baud Rate to be the same as the PTZ camera
 - 4) Click the “Save” button to confirm this configuration.
-

Preset

The system supports the number of preset from 1 to 255.

This number can be restricted by the number that PTZ camera actually supports.

Baud Rate

User can select the baud rate level from 2,400bps up to 57,600bps.

4.3 Record

4.3.1. Camera

“On/Off” switches “recording” on and off in each channel. If recording is not required on the selected channels, even if a camera signal is connected, set the recording of the corresponding channel as [OFF]. This will shut off recording for the camera without disconnecting the camera BNC cable from the DVR. Either [ON] or [OFF] can be selected. The default is [ON].

FPS means “Frame per second”. The system automatically calculates “Remained FPS”.

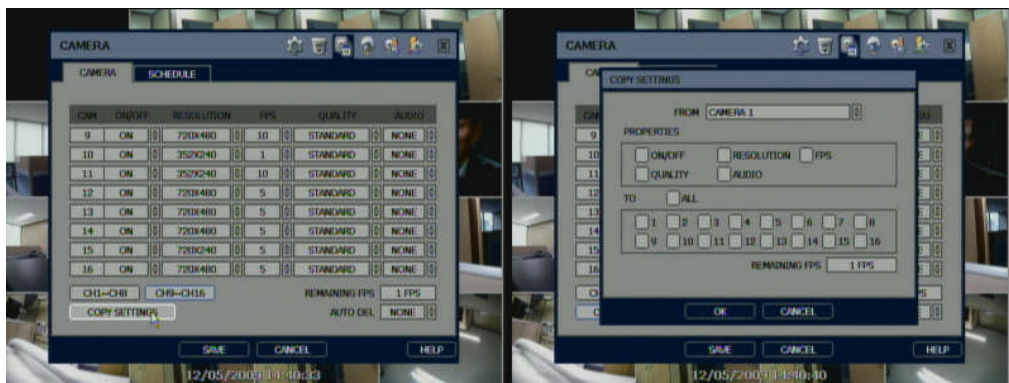
Select the resolution for the recording video.

In here, the resolution means required horizontal and vertical pixels in a page. The resolution is indicated as (horizontal) X (vertical) pixel number. Select one setting from 352×240/288, 720×240/288, and 720×480/576. Default is 352×240/288. As the resolution number increases, the picture quality is higher. In fact, 352×240 is VHS level and when high quality camera is used, 720×480/576 shows DVD level picture quality. When the picture quality gets higher, the storage capacity is bigger and the recording period will be shorter. Thus, selecting an appropriate resolution according to the situation is important.

The setting value of “Quality” directly influences the byte size per image. For example, the byte size decreases as the quality goes lower. At low quality settings, blocking (mosaic) phenomena tends to appear, which is in result of high compression. In contrast, blocking phenomena disappears as quality goes higher. As quality increases, the required storage space per image increases, which leads to the shortening of total available recording period. Therefore, give careful consideration to the necessary recording period, importance of each camera image, and quality of the analog signal when setting the recording quality.

“Auto Del”, or auto delete, means that the system will delete recorded video after the number of days set by “Auto Del” in accordance with privacy regulation in certain country.

“Audio” can be selected for each video channel.



■ COPY SETTINGS

Upon pressing Copy Settings button, Copy Settings popup will appear. In this popup, choose the camera the user wants to copy from at the “FROM” field. Choose the parameters such as ON/OFF, RESOLUTION, FPS, QUALITY, and AUDIO on the check box. Check on the check box with camera numbers to apply the copy setting to on “TO” check box selector section.

Note “Auto Del” does not guarantee the number of recording days user set. For example, even though user sets 10days in “Auto Del”, if HDD space is not enough, then the system cannot record up to 10days.

This feature is not to keep the recorded video for a certain number of days set by user.

The system will keep video from August 11th to August 20th for 10days. All other video recorded before August 11 will be deleted by the system. On August 21, the system will keep video from August 12 to August 21 for 10days.

Note The storage capacity for the same image will be different. Image per byte is ratio to the image dimensions (horizontal x vertical), thus 720×240/288(2CIF) is twice the size of 352×240/288(1CIF) and 720×480/576(D1) takes about 4 times the storage capacity. Therefore when high resolution is selected for the same period, the storage capacity taken up will be larger and the storage period will be shorter on the same Hard disk capacity.

Note For the same resolution, frame per byte size will vary according to various reasons such as **the recorded** picture quality setting, movement, complexity of the **image**, and noise. Therefore, **the** total recording period will differ hugely according to **the specific image conditions**.

- 352×240/288 : Standard Quality Standard 1~5KB
- 720×240/288 : Standard Quality Standard 5~10KB
- 720×480/576 : Standard Quality Standard 10~20KB

“Quality” by 40(low), 60(standard), 80(high), and 100(highest) makes frame size different by around 30% in each level.

4.3.2. Schedule

Set the recording schedule for each camera. First, select the camera to set a schedule, or "All".

Recording can be set by each hour from 00 through 23 a day.

No color - Off
"Off" means no recording. Even though user set recording frames to and on in "CAMERA", the DVR will not record if SCHEDULE is set [OFF]

Yellow color - Continuous recording
In continuous recording mode, the system records all the time as set by "CAMERA".

Green color - Motion-detection recording
In this mode, the system records only when motion is detected

In addition, users can set motion-recording configuration in "MOTION ALARM" at the menu setup

If user sets "MOTION ALARM" to "OFF" in the "DEVICE" and sets "MOTION" in "SCHEDULE", then the system will record when motion is detected but motion alarm is not activated.

Orange color - Sensor-activated recording
In sensor mode, the system will record when a sensor is triggered only during the dwell time as set in "SENSOR" of the "DEVICE" menu.
If user sets "SENSOR" to "OFF" in the "DEVICE" and sets "SENSOR" in "SCHEDULE", then the system will not record anything even though a sensor is triggered.

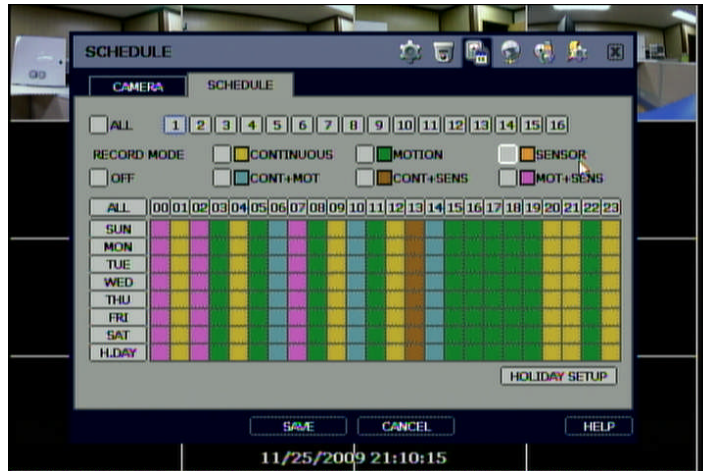
Sky Blue color - "Continuous" + "Motion detection" recording
The system records all the time by "continuous" as set by the "CAMERA" in the "RECORD" but will switch recording mode to the motion configuration specified by "MOTION ALARM" in the "DEVICE" menu if motion is detected in the motion area. The system will also send a "motion event" message to the Remote Manager PC over the network.
If user sets "OFF" in "MOTION ALARM" of "DEVICE" and sets "CONT + MOT" in "SCHEDULE", then the system will record with continuous recording mode even though motion is detected in motion area.

Dark orange color - "Continuous" + "Sensor-activated" recording
The system records all the time by "continuous" as set by "CAMERA" in the "RECORD" menu but will switch recording mode to the sensor configuration defined by "SENSOR" in the "DEVICE" menu if a sensor is triggered during dwell time. The system will also send a "sensor event" message to the Remote Manager PC over the network.
If user sets "OFF" for "SENSOR" in the "DEVICE" menu and sets "CONT + SENS" in "SCHEDULE", then the system will record with continuous recording mode even though a sensor is triggered.

Pink color - "Motion detection" + "Sensor-activated" recording
The system does not record in normal operation but records only when motion is detected as set by "MOTION" in the "DEVICE" menu and a sensor is triggered as set by "SENSOR" of "DEVICE".
If user sets "OFF" in both "MOTION" and "SENSOR" in the "DEVICE" menu, then the system will neither record nor notify the Remote Manager PC or Central Management PC.

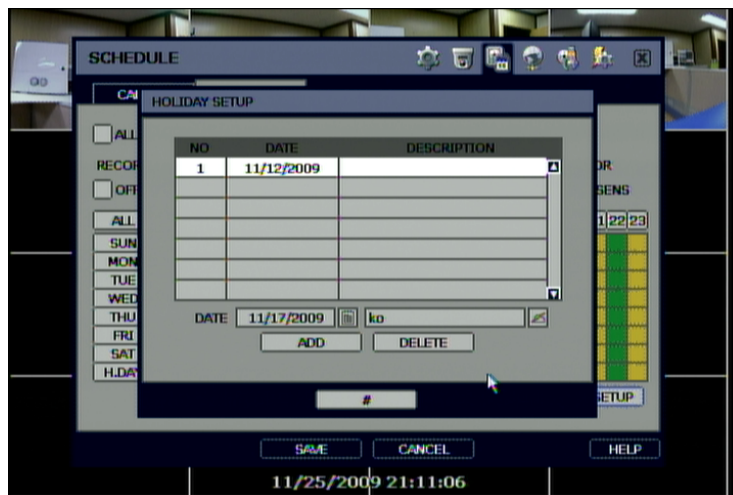
Caution Dark Blue Color

The data recorded during DST (Daylight Saving Time) will be indicated in Dark Blue color in the Intelli-Search Bar on playback mode.



Note If the recording schedule is set to “CONT + MOT” or “MOT + SENS”, then the system records by continuous or motion detection mode in normal operation. However, when the motion occurs in motion area or alarm is activated, then recording mode will be automatically switched to intensive recording as set by “MOTION” or “SENSOR” in the “DEVICE” menu.

Users can add holiday in HOLIDAY SETUP as below picture to up 32 holidays. Press, “DATE” first and write description, and then press “ADD” button to list up holiday.



4.4 Network

4.4.1. Network

The system has built-in web server.

Network Type

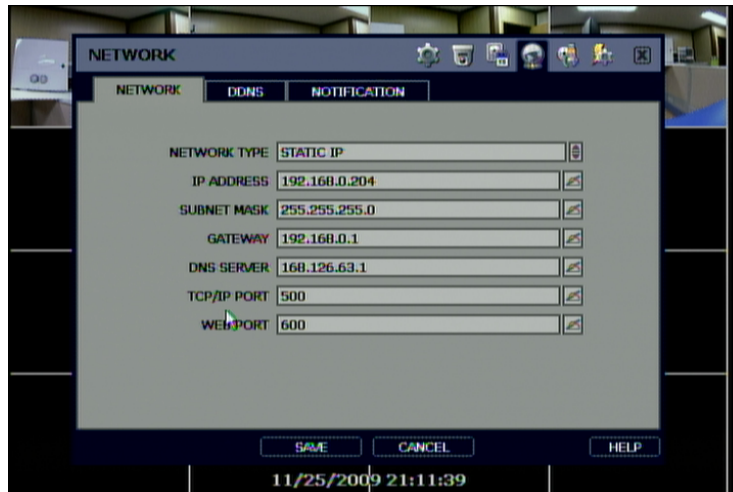
Select network connect type. Select either LAN for fixed IP or DHCP for dynamic IP.

Subnet Mask

Subnet Mask address classifies the subnet that the system belongs to. Standard address is 255.255.255.0. For more information, please **consult** your network administrator or your internet provider

Gateway

This is the IP address of the network router or gateway server. It is required when the user wants to connect through the external router from the remote. For more information, please **consult** your network administrator or your internet provider



Note The system transfers video images at real-time over the network even during no record.
For example, user can monitor live video even when motion **has** not occurred **during** motion detection mode.

Note It may take a few minutes **for the system** to start working **if** the network configuration in DHCP mode **and the DHCP connection cannot be made or there is no physical network connection.**

Note The maximum number of simultaneous connection is 5 times(3 times for 16 Ch model) the number of DVR channel, which means 20channel connections for 4channel model, 40channel connections for 8channel model, and 48channel connections for 16channel model.
For example, 3 people can connect to a 16channel model DVR at the same time watching all 16 cameras, **or** 48 people can connect to 16channel model DVR at the same time watching only a specific single **camera.**

4.4.2. DDNS

DDNS is to use Dynamic IP server is managed by Digital-Watchdog

The User has to tick on "Use DDNS" check box to use it.

DDNS Server

cctv-link.net. is the fixed domain name of DDNS server managed by Digital-Watchdog

User cannot change the DDNS name.

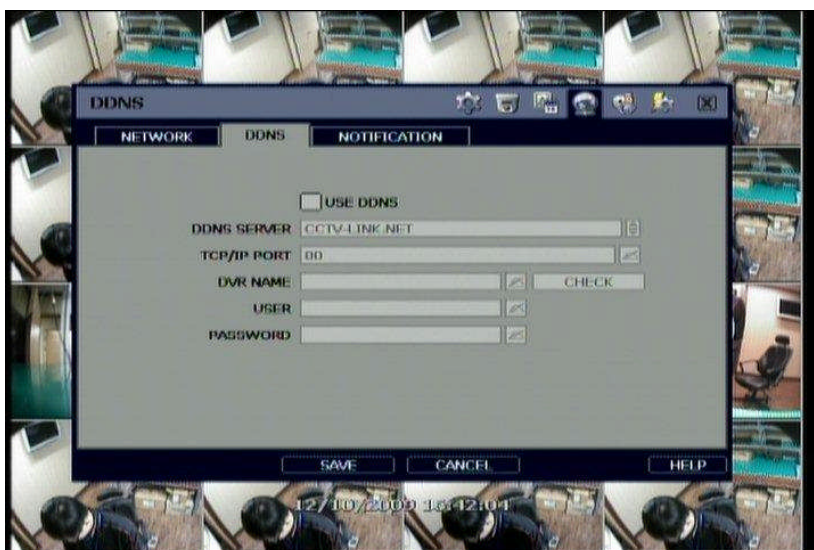
Note The standard DDNS domain name is cctv-link.net.

4.4.3. How to Set DDNS

The Setting in DVR

As shown below, user can just leave the DDNS setting in factory default.

DDNS server is cctv-link.net.

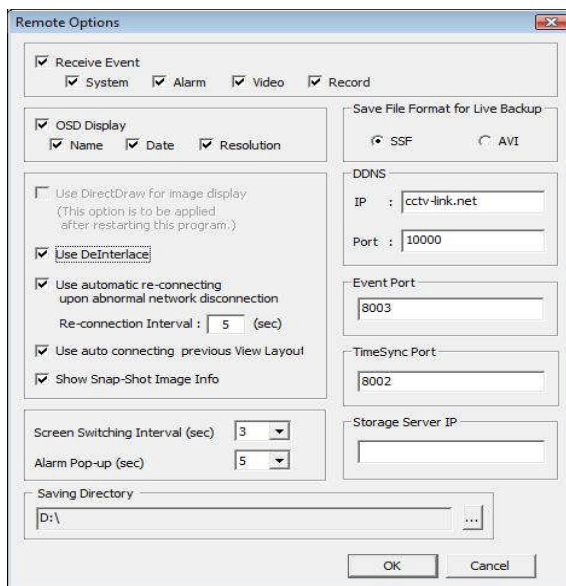


Note It is recommended to reboot the system after setting.

The Setting in Remote Manager S/W

In "Setting" in the "Option" menu in the Remote Manager S/W, users need to make sure to enter the correct DDNS IP and port.

DDNS is "cctv-link.net" and Port is 10000, the same as the DDNS setting of DVR.



Remote Options

☒ Receive Event
☒ System ☒ Alarm ☒ Video ☒ Record

☒ OSD Display
☒ Name ☒ Date ☒ Resolution

☐ Use DirectDraw for image display
 (This option is to be applied after restarting this program.)

☒ Use DeInterlace

☒ Use automatic re-connecting upon abnormal network disconnection
 Re-connection Interval : 5 (sec)

☒ Use auto connecting previous View Layout

☒ Show Snap-Shot Image Info

Screen Switching Interval (sec) 3

Alarm Pop-up (sec) 5

Saving Directory D:\

Save File Format for Live Backup
☒ ASF ☐ AVI

DDNS
 IP : cctv-link.net
 Port : 10000

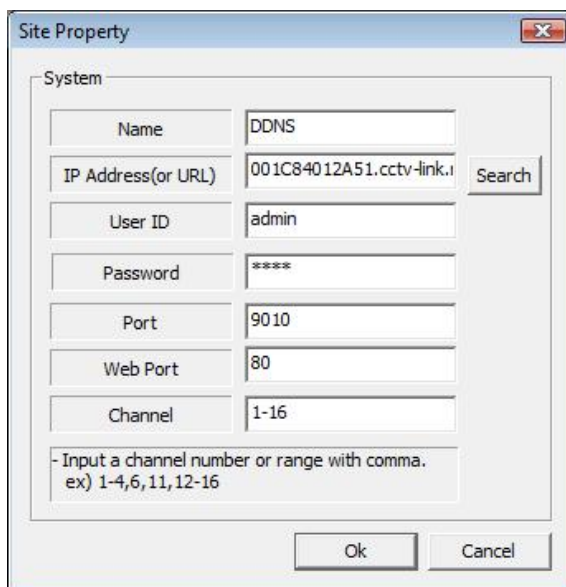
Event Port 8003

TimeSync Port 8002

Storage Server IP

OK Cancel

In "Registration" of the "File" in the Remote Manager SW, users can press "ADD" to go to "Site Property" as shown below. It is very important to type the DVR name + cctv-link.net" in IP Address (or URL) as below.



Site Property

System

| | |
|--------------------|----------------------------|
| Name | DDNS |
| IP Address(or URL) | 001C84012A51.cctv-link.net |
| User ID | admin |
| Password | **** |
| Port | 9010 |
| Web Port | 80 |
| Channel | 1-16 |

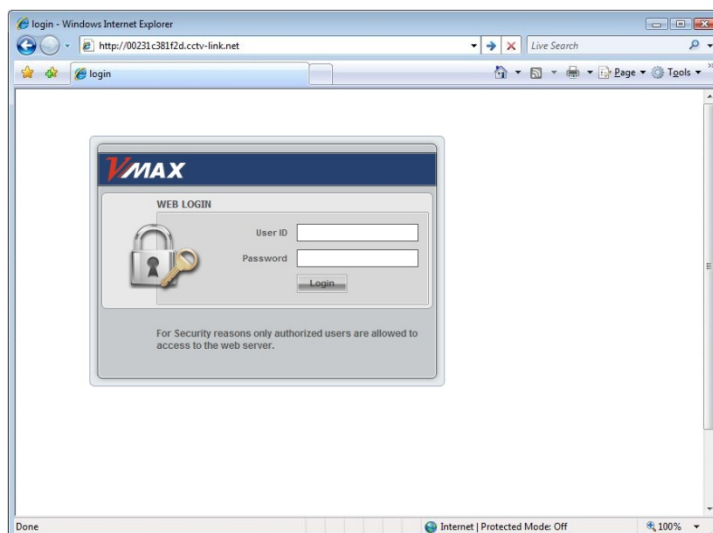
Search

- Input a channel number or range with comma.
 ex) 1-4,6,11,12-16

Ok Cancel

The Setting in Web browser

User can just type the DVR Name + cctv-link.net, for example, <http://mydvr.cctv-link.net>.



The Setting in Router

If DVR installed behind the router, then user must open the related-network ports in reference of below chart.

TCP Port List

| Protocol | Port | Usage | Remark | Editable | Location |
|----------|-------|---------------------------------------|------------------|----------|---------------------------------|
| TCP | 9010 | Control port of authorization service | TCP Base Port | Yes | Network/ Network |
| TCP | 9011 | Control port of VOD service | TCP Base Port +1 | | |
| TCP | 9012 | Data port of VOD service | TCP Base Port +2 | | |
| TCP | 9013 | Control port of Live service | TCP Base Port +3 | | |
| TCP | 9014 | Data port of Live service | TCP Base Port +4 | | |
| TCP | 9017 | System log service | TCP Base Port +7 | | |
| TCP | 8002 | DVR system time sync service | | Yes | System Info & Date/Time Setting |
| TCP | 8003 | Event notify socket (requesting port) | | Yes | Network/ Notification |
| TCP | 80 | Web service | | Yes | Network/ Network |
| TCP | 10000 | DDNS Server | Fixed | | Network/ DDNS |

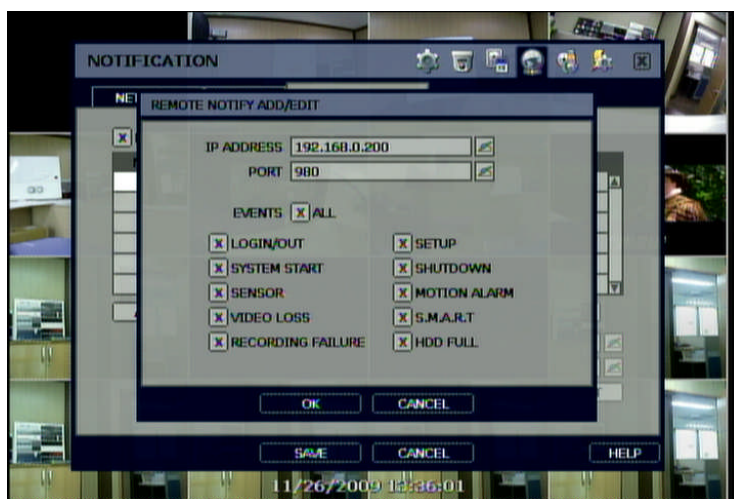
4.4.4. Notification

Remote Notify

The system can notify an alarm message to the IP address of Remote Manager PC over the network.

User can choose various different kinds of alarms by pressing "ADD" for such as Log-in/Out, System start, Sensor, Video loss, Recording failure, Setup, Shutdown, Motion alarm, S.M.A.R.T., and HDD full.

Up to 5 message recipients are allowed.



Note Configuration first priority is always given to "SCHEDULE" of the "RECORD" menu. Thus, the system will not send alarm message upon motion alarm or sensor even though user ticks the check-box of above event selection, unless user sets the "SCHEDULE" in the "RECORD" menu and "MOTION"/"SENSOR" in the "DEVICE" accordingly. For example, If user sets just "Continuous" only in "SCHEDULE" of the "RECORD" menu and ticks the "All" check-box in "REMOTE NOTIFY", then the system will not send alarm messages. In this case, user has to set "CONT + MOT", "MOTION", "SENSOR", or "CON + SENS" to enable REMOTE NOTIFY to function properly.

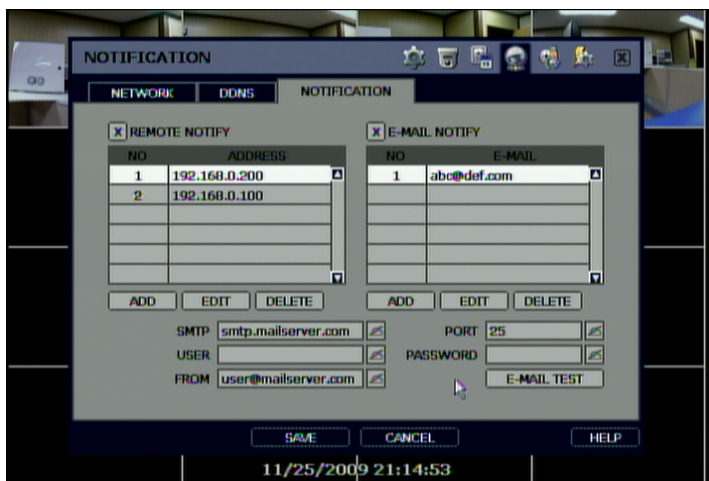
Note Users can set remote pop-up in Remote Manager S/W (RMS) and Central Management S/W (CMS) upon alarm trigger in DVR. In order for a RMS user to receive an instant pop-up video over network from DVR, a DVR user has to tick "SENSOR" or "MOTION ALARM" in above menu. "SENSOR" means the alarm triggered by physical alarm, while "MOTION ALARM" means the alarm triggered by motion detection.

E-Mail Notify

The system can send notification to an Email address or Remote Manager PC and Central Management PC over the network.

Users can choose various different kinds of alarms by pressing “ADD” for such as Log-in/Out, System start, Sensor, Video loss, Recording failure, Setup, Shutdown, Motion alarm, S.M.A.R.T., and HDD full.

Up to 5 email recipients can be defined.



Note Configuration first priority is always for “SCHEDULE” of the “RECORD”.

Thus, the system will not email alarm message upon motion or sensor alarm even though the user ticks the check-box in the above event selection, unless the user sets the “SCHEDULE” in the “RECORD” menu and “MOTION”/“SENSOR” in the “DEVICE” menu accordingly.

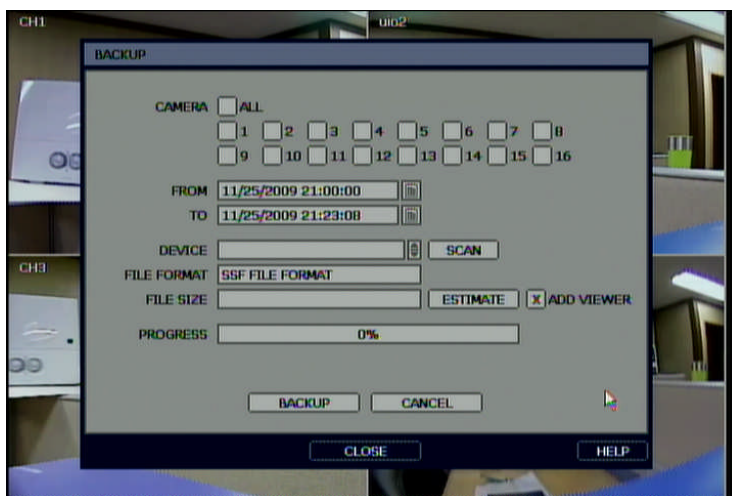
For example, If user sets just “Continuous” only in “SCHEDULE” of “RECORD” and tick “All” check-box of “REMOTE NOTIFY”, then the system will not send email notification. In this case, user has to set “CONT + MOT”, “MOTION”, “SENSOR”, or “CON + SENS” to enable Email Notification properly.

4.5 Backup

4.5.1. Manual Backup

Users can archive a video clip recorded for a certain period on a selected channel or channels as shown below. Connect an appropriate USB memory device like USB thumb drive/USB HDD, built-in CD or DVD burner and press "SCAN" button to get the system recognize it before archiving. Necessary file size will be shown before burning.

Users can select the "ADD VIEWER" check-box to automatically save with an executable viewer file. This allows the user to play the video clip without installing program on his/her computer. Otherwise, the file backup format is in the manufacture's proprietary "SSF" format.



Note Backup device shall be well-known major brand of USB thumb drives formatted by FAT/FAT32 for proper backup. The system does not detect external HDD due with a different format type.

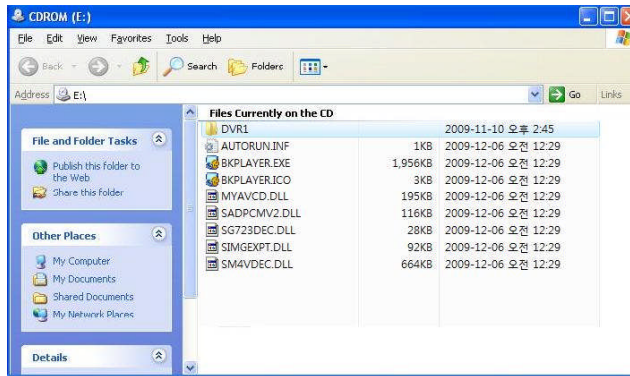
Caution DVD medias supportive are DVD+R, and DVD-R. DVD-RW/+RW are generally not supported. Check the compatible media list provided by ODD driver manufacturer.

Note User can easily backup video in "Quick Backup" during video playback. Refer to section 3.5 for quick backup details.

Note User can click the "CHECK" button to learn the backup file size before executing backup.

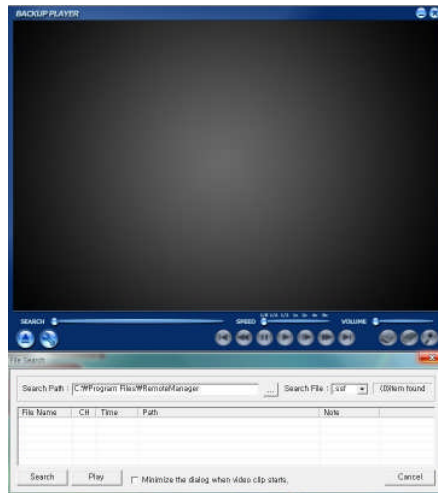
4.5.2. Backup Video Retrieve

After archiving, there **will** be multiple files created **as seen in** the picture below if “ADD VIEWER” was selected. User can double click **the** “BackupPlayer.exe” file **to** open the video data file (SSF format) in the folder of date. The folder is named by the date recorded.

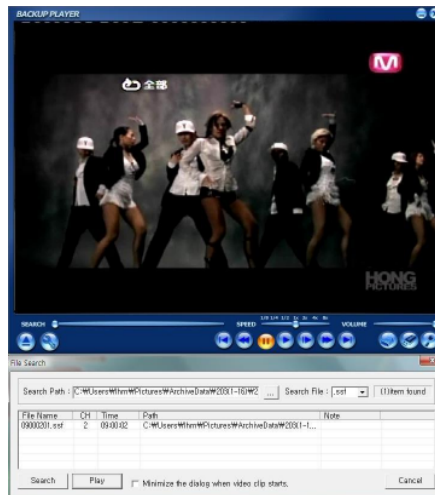


User can drag a SSF file (Video data file) and drop it in the empty screen of Backup Player **as shown** picture to **begin** video play. **Alternatively, the SSF file can be opened by clicking the bottom-left button.**

If the user inserts USB memory stick or CD media that has the Video data file, the Backup Player will automatically begin the video from the first video data file in it.

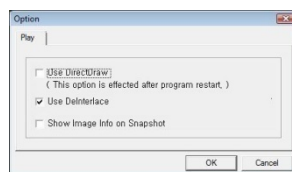


User can print out, capture a still image, and zoom-out using the icons on the bottom right of the player window.

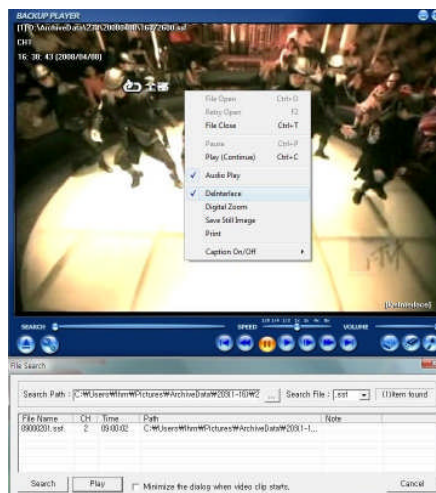


Note User also can play the backup-video clips by Remote Manager S/W (RMS) and Central Management S/W (CMS).

Note There are some PCs that do not support "Direct Draw".
In this case, user can **uncheck the DirectDraw check-box in the "Option" menu.**



Users can check or uncheck "De-interlace" or verify video resolution by bringing up a popup using right mouse button. Users must select "Audio Play" to retrieve audio data along with video playback in this sub-menu.



De-interlacing feature **is required** for smooth playback of video that is recorded by 720x480/576 (D1) resolution. The picture comparison **below shows the difference** between "Interlace" video and a "De-interlace" video clip.

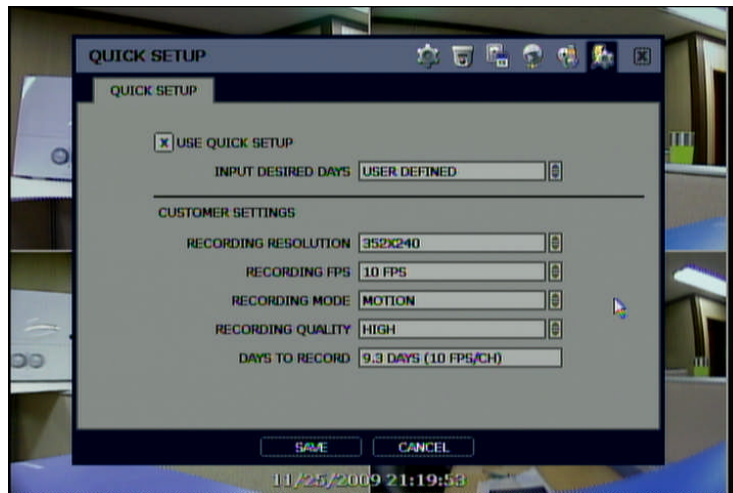


Note **Users** can convert this backup file from SSF format to AVI format **using** Remote Manager S/W or Central Management S/W, **allowing playback using the Window Media** program with manufacturer's own codec. Refer to the user's manual of Remote Manager S/W for AVI conversion details.

4.6 Quick Setup

Quick Setup helps user make simple configuration for recording resolution, entire recording speed by frame, recording mode, and recording periods.

The system will put the first priority for configuration on this quick setup and will follow this rule regardless of configurations set in other menus. Users should not tick in the check-box of USE QUICK SETUP if he/she wants to utilize full system configuration defined in the other menus.



Note Quick setup must be de-activated if the user requires configuration from the other menus.

Note After the user ticks "USE QUICK SETUP" to define settings, the system will ignore all other configurations set by full menus.

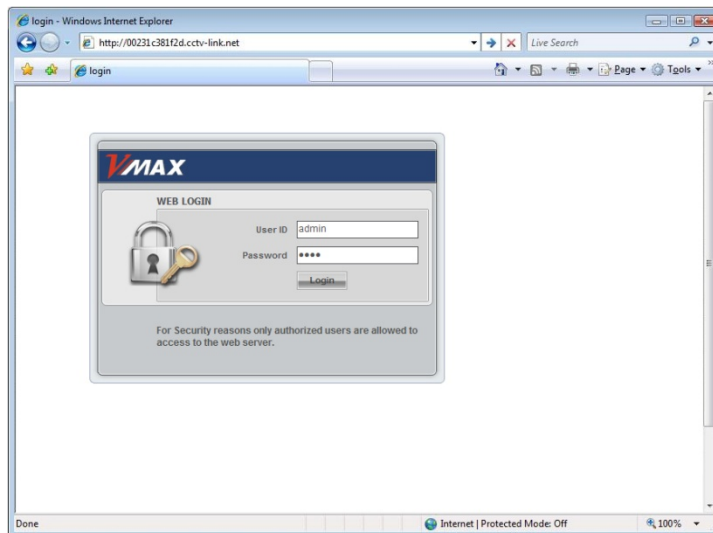
5. Web Surveillance

The system has a built-in web server.

Users can stay always connected to the system using an ordinary web-browser over a network for live monitoring, playback or remote configuration without installing the Remote Manager software.

5.1 Web Login

The user is required to input the correct IP address in the web browser after making the web port available in the router. After allowing the download of the Active-X file, users can find the login page view seen below. Default USER ID and PASSWORD are “admin” and “1234”.



5.2 Web Configuration

Menu of Web Configuration

| Main Classification | Sub Classification |
|---------------------|--------------------|
| SYSTEM | SYSTEM INFO |
| | USER |
| | FACTORY DEFAULT |
| | SYSTEM REBOOT |
| DEVICE | CAMERA |
| | AUDIO |
| | SENSOR |
| | MOTION ALARM |
| | EXTRA ALARM |
| RECORD | CAMERA |
| | SCHEDULE |
| NETWORK | NETWORK |
| | DDNS |
| | NOTIFICATION |
| QUICK SETUP | QUICK SETUP |

After logging in with the right ID and password, users can make various configuration changes in the Web Configuration window seen below. This Web Configuration menu is only available to the "admin" account.

[System]

The [System] configuration window includes the following fields:

- SYSTEM INFO:** SITE NAME (DVR), SITE ID (1), DATE/TIME (2008/09/02 - 13:01:22), DAY LIGHT SAVING (USE DST), TIME SYNC MODE (None), SYNC SERVER (192.168.0.100), REMOTE ID (1), VERSION (3.0.0), VIDEO SERIAL (PAL).
- NETWORK:** IP ADDRESS (192.168.0.200), MAC ADDRESS (00-AA-BB-CC-DD-EE), KEYBOARD (None), KEYBOARD MODE (USB Type).

[Device]

The [Device] configuration window includes the following fields:

- CAMERA SELECTION:** CAMERA SELECTION (1), MOTION AREA (TOP).
- MOTION AREA:** TITLE (CH1), CONTRAST (50), BRIGHTNESS (50), COLOR (50), SENSITIVITY (70).

[Record]

The [Record] configuration window displays a table with 16 channels. Each channel has settings for On/Off, Resolution (3520x2880), FPS (1), Quality (High), Audio In (None), and Audio Out (1, 2, 3, 4). A 'REMAINING FPS' field shows 131.

[Network]

The [Network] configuration window includes the following fields:

- NETWORK TYPE:** LAN.
- IP ADDRESS:** 192.168.0.200.
- SUBNET MASK:** 255.255.255.0.
- GATEWAY:** 192.168.0.100.
- DNS SERVER:** 8.8.8.8.
- WEB PORT:** 80.

[Quick Setup]

The [Quick Setup] configuration window includes the following fields:

- USE QUICK SETUP:** YES.
- RECORDING RESOLUTION:** 3520x2880.
- RECORDING FPS:** 30.
- RECORDING MODE:** CONTINUOUS.
- RECORDING TIME 1:** FROM 00:00:00 TO 00:00:00.
- RECORDING TIME 2:** FROM 00:00:00 TO 00:00:00.

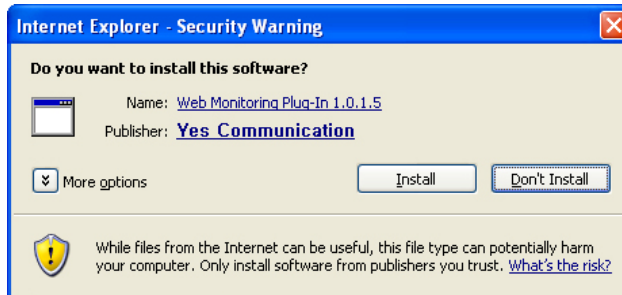
Note This DVR system has its own built-in web server. This web CGI screen is directly supported from the built-in web server in the DVR regardless of Internet

connection.

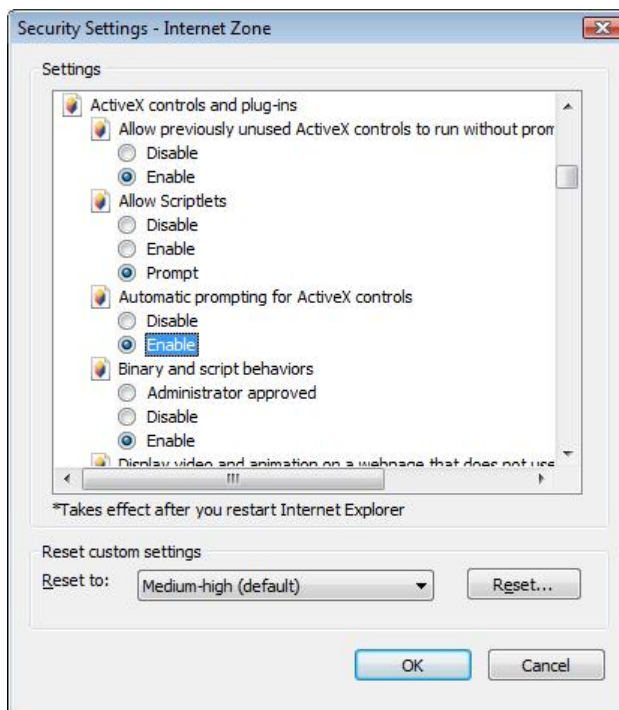
Note <System Reboot> enables user to reboot the system without any change to the setup. User can use this function when the network is disconnected due to abnormal operation of the system and try to reconnect. However, IP number assigned to the system may be changed due to the DHCP mode.

5.3 Web monitoring

User has to download Active-X file from DVR and install it at workstation P/C before monitoring live video.



In order to download Active-X file from DVR without any problem, the “Security Setting” of IE web browser has to be properly made. Select “Tools > Internet Options > Security > Internet > Custom Level” in IE menu and enable all Active-X controls and plug-in as shown below.

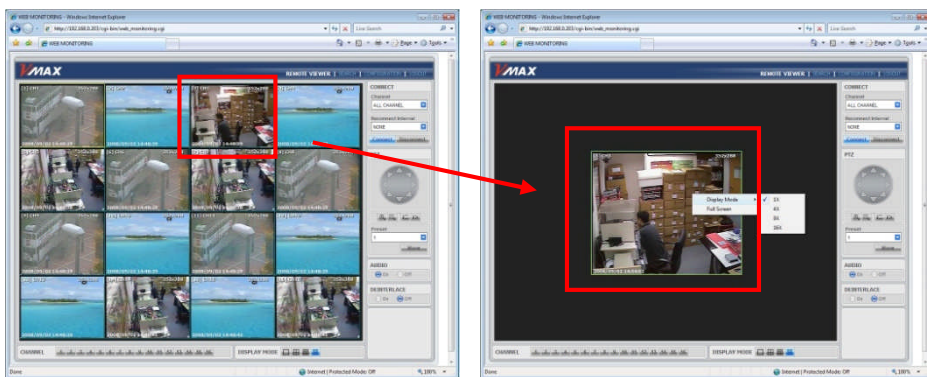


User can get into web monitoring by clicking “WEB MONITORING” button in the top right corner of the window. In order to

connect to DVR, the user has to select the channel number or select "ALL CHANNEL", and then click the "CONNECT" button.

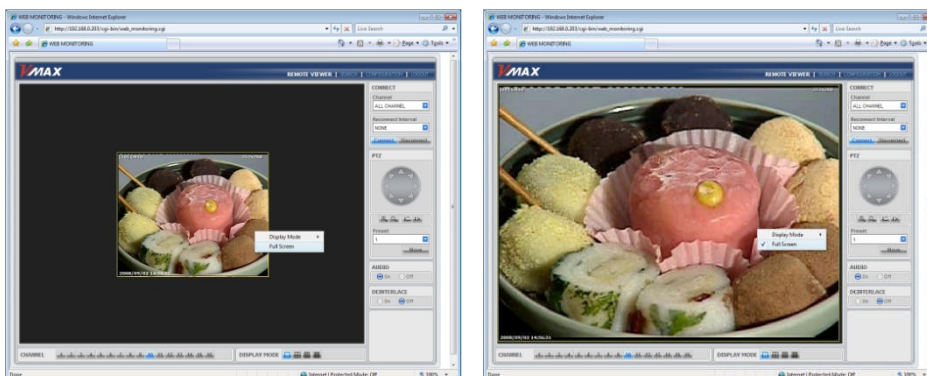


User can monitor live video in 1, 4, 9 or 16 screen modes. If user wants to see single channel in full screen, then user can make double-clicks of the left mouse button positioned on the live video screen.



Note

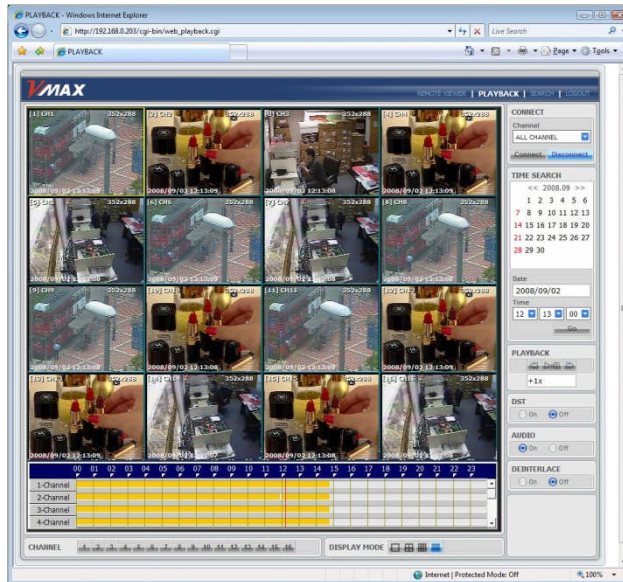
The image resolution in "Live monitoring" in this web browser is directly transferred from DVR. Therefore, user will see original resolution size set in DVR in single channel mode. In order to get full screen of CIF (352 x 240/288) video size, then user has to click right button of the mouse, and select "Full Screen" menu.



Note If live image is not properly shown on IE web browser due to network traffic jam or narrow bandwidth, it is recommended to close and re-open the IE web browser.

5.4 Web Playback

Users can remotely playback the DVR images by clicking "PLAYBACK" button in the **top-right** corner of the window. In order to connect to DVR, a user **must** select the channel number or select "ALL CHANNEL" and then click **the** "CONNECT" button.



Playback Time

Select the date and time and click "GO" button.

Playback Icon

Play/Pause is toggled and playback speed is shown on the right box.

Play DST

Check this box to play overlapped images during DST (Daylight Saving Time) period.

For **further** details, please refer to Section 3.7 (DST Setting and Image Playback)

Intelli-Search Bar

User can move the red-vertical line to the time that user wants to search.

The colors of the time bar are different by each recording mode. Please, refer to Section 4.3.2 for details on colors.