Mounting and Operating Manual

Dear Customer!
By selecting this VC product you have chosen a professional device, which guarantees highest possible quality and reliability.

Please read the following instructions carefully before comissioning the product in order to be able to take full advantage of all quality features regarding this product line.

Digital Videorecorder

Art. No. 14511-S

VC-videocomponents... aligned for professional videosystems

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Forward

DVR (Digital Video Recorder) technology replaces the use of existing analog technology, like VHS tapes and VCR's, by being able to store images in digital formats that are superior in both convenience and quality.

One of the many problems with analog tapes is the limited searching capabilities they provide. Searching for a certain event or time period in an analog tape is both tedious and inefficient. Now, with the introduction of DVR, it has become easier, among other things, to find the images you want: simply enter the time and date into the computer and data is retrieved in seconds. No more mundane searches or manual tracking of tapes.

With VCRs, preservation of recorded data, especially sensitive recordings, was difficult to do. DVR provides several options (DAT, CD, DVDs) in permanently preserving large amounts of data in digital formats, maintaining the integrity of the video for far longer periods than any analog tape.

The DVR also works in conjunction with sensors to operate security systems: relays can close shutters or ring sirens when motion sensors are triggered, for instance.

In addition, our DVR makes it possible to modify DVR settings and retrieve recorded data remotely through a network or the Internet.

Reliability, convenience in searching and storing, and flexibility to meet various demands for surveillance systems are what make us proud in offering the next generation DVRs.

Various features briefly introduced here are just some of the features of a constantly evolving technology.
We are always striving to innovate and create new ideas to meet demands from all areas of the globe.

1. Specification

- **1~32 Camera Inputs / Output**

  Up to 32 camera inputs are available on screen for digital handling.

  Normal input condition: 75 Ohm, 1 Volt (p-p)

- **1~16 Sensor Inputs**

  Up to 16 sensors can be linked to the system.

  External DC 12 Volt power must be provided to the sensor input from outside.

- **1~4 Digital Outputs (Relay Outputs)**

  Digital Outputs can be used to activate things like shutters and sirens, and activation can be linked to sensor and motion detection.

- **Sound Recording and Two-Way Communication Capabilities**

  Sound can be recorded with video images. Two-way communication is possible between VC DVR main and VC DVR Net.

- **Display Features (w/ Multi-Viewing)**

  Multi-Viewing allows 1, 4, 6, 9, 10, or 16 different camera shots to be displayed onscreen at the same time. Other display features include enlarging all displayed cameras or just one. 32 channel viewing can be attained with specially configured cards.

- **PAN/TILT/ZOOM/FOCUS Capabilities**

  Each connected camera can be manipulated through the VC DVR main program as long as each camera supports such capabilities. This feature can be controlled remotely.

- **Auto Rebooting System**

  When VC DVR detects an error or malfunction within the system, it will automatically reboot the system in order to correct it.

- **Motion Detection and Sensor Trigger**

  Detection features make it possible to record images only when movement is detected, preserving volume space and maximizing the use of physical storage space.

- **Scheduled Recording**

  Scheduling allows the administrator to record images only during designated time periods, if so desired. Every combination of scheduling is available in the VC DVR program.

- **Manual and Auto Backup**

  Data can be preserved through various formats (DAT, CD, or DVD) and data from specific cameras and/or time periods can be specifically isolated for backup as well. Much like scheduled recording, backup of data can be scheduled as well.

- **Digitalized Video Search**

  Recorded data features digital playback for each camera simultaneously or one at a time. Playback features include advanced search features and image extracting, which allows portions of existing video to be extracted and saved as a separate file.

- **Network Support (PSTN, TCP/IP, LAN , Modem Protocol Support)**

  VC DVR supports network access, which allows administrators to login to VC DVR main and remotely access all the features provided locally.

- **Integration with Text data from External Devices**

  Data from external devices (POS, Access Control, ATM, etc) can be recorded with DVR video images. Text Search allows to search data from external devices with DVR video image when event occurs. This will raise the level of integrity and security.

Feature	Specification	
	CAP, LIVCAP, ACAP	MPG, MPGAMX
Camera Input	1~32Port(NTSC/PAL)	1~32Port(NTSC/PAL)
Sound Input	1, 2, 4, 16 Port	4, 16, 32 Port
Sensor Input	1~16 Port	4, 16, 32 Port
Relay Output	1~4 Port	1~8 Port
Composite Output	1 Port (NTSC/PAL, Split or Switching)	1~2Port (NTSC/PAL, Switching)
Image Format	S/W MPEG-4	H/W MPEG-4
Recording Mode	Watch, Normal, Motion Detection, Sensor, Scheduled Recording	
Remote Control	Full remote control PSTN, ISDN,ADSL, LAN and TCP/IP	
Back-up	DAT, CD, DVD	
PAN/TILT/ZOOM/FOCUS	RS-232/422/485 Interface	

2. Installation Notes

- Recommend to use Intel Chipset mother board.
  I) It might be incompatible with mobile system or special system motherboards.

Type	CAP	MPG	MPGAMX	LIVCAP	xxxN32
Intel 865 / 875 Chipset Motherboard					
Asus	Yes	Yes	Yes	Yes	No
Gigabyte	Yes	Yes	Yes	Yes	No
Intel*	Yes	Yes	Yes	Yes	No
MSI	Yes	No	No	Yes	No
Intel 915 / 945 / 965 / 975 Chipset Motherboard					
Asus	Yes	Yes	Yes	Yes	Yes
Gigabyte	Yes	Yes	Yes	Yes	Yes
Intel	Yes	Yes	Yes	Yes	Yes
MSI	Yes	No	No	Yes	Yes

*Intel 865GBF Model is not recommended

Note: Please contact technical support for the list of compatible motherboard. It is required to follow the recommendation, due to the variable capability of motherboards.

- Recommend Intel Pentium 4 2.4 or higher for CPU.
  I) CPU that is lower than Intel Pentium 4 2.4 can reduce the recording frame rate.
  II) Recommend Intel Pentium 4 3.0 or higher for 32 channel.

- Recommend 512MB or above system memory.
  I) Less than 512MB of memory may bring down the overall system performance.
  II) Recommend 1GB or more for 32 channel board.

- Recommend ATI Redeon 9000 or higher.
  I) Recommend ATI Express 300 or higher for xxxN32 board.
  II) Intel onboard Extreme Graphic II or GMA 950. However, using integrated video controller may drop frame rate for 32 channel models.

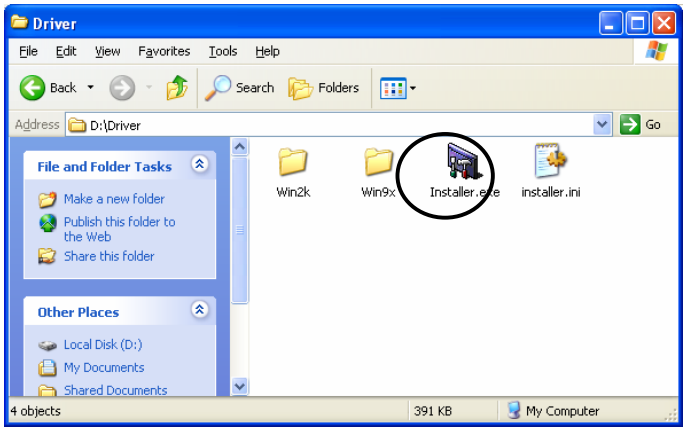
- Recommend 80GB or larger hard driver.
  I) Install the latest Service Pack when using 160GB or larger hard drive.
  II) Recommend Serial ATA type (SATA) hard drive for 32 channel.

- Recommend Windows XP. Under Windows 2000, must install Direct X 8.0 or higher for sound recording.

- Disable screen saver and Standby mode.
  I) Turn off System Standby mode.
  II) Turn off Screen saver.
  III) Turn off all the energy saving feature.

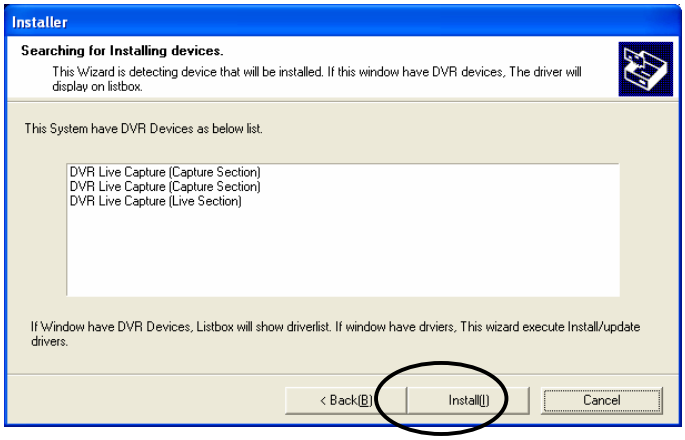
3. Driver Installation

Drivers for VC DVR CAP, VC DVR LIVCAP and, VC DVR MPG can be installed by “installer.exe”, which determines DVR model and installs proper Driver. When Hardware Wizard message shows up before the installation, click “Cancel” to close.



Open Driver folder in CD-Rom and run “Installer”.

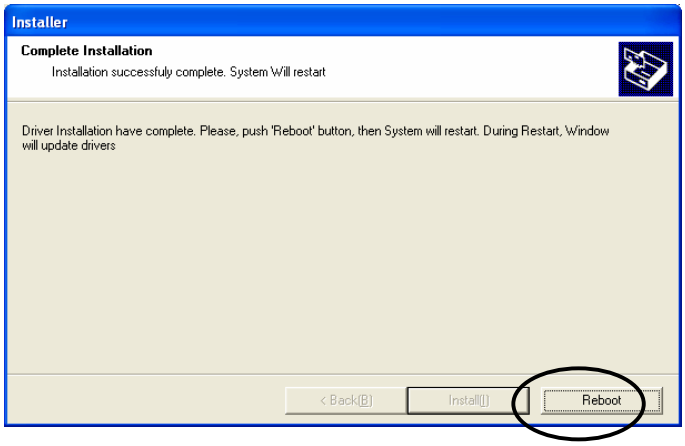
Click “Next”.



Following is a chart of device list. (Depending on model, different device(s) will be displayed)

Model	Device List
CAP series	DVR Capture
LIVCAP series	DVR Live Capture
ACAP series	DVR ACapture Device
MPG series	DVR MPEG 4
MPGAMX series	Live MPEG Capture Device

Click “Install”.

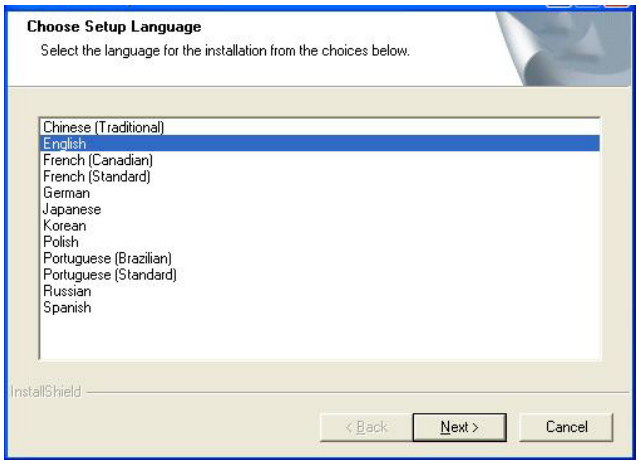


The above picture shows up when installation is completed. Click “Reboot” to restart the system. It is required to reboot the system to complete installation of drivers.

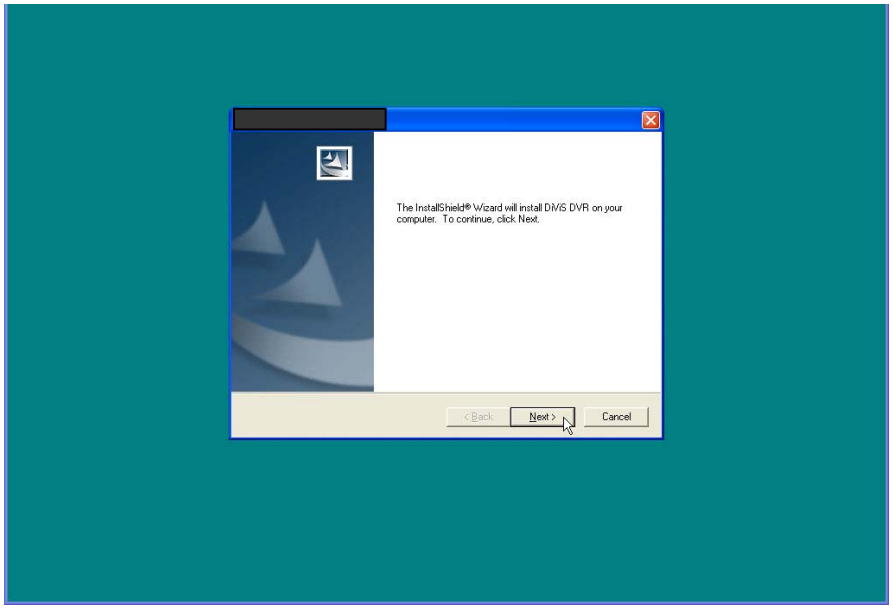
4. Program Installation

Run “Setup.exe”.

(Choose the language for the software to be installed.)



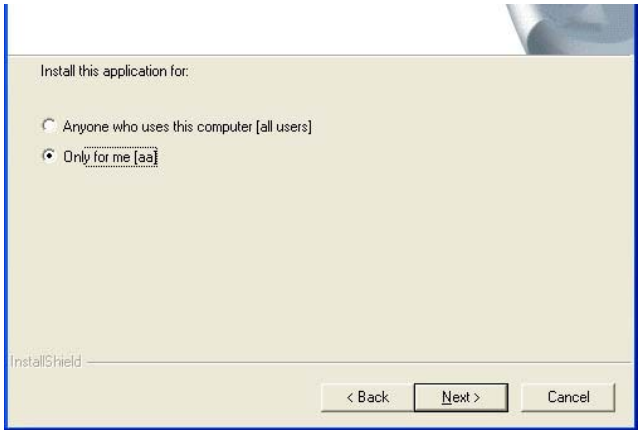
Click “Next”.



Choose the proper media format (NTSC or PAL) and continue by clicking “Next.”

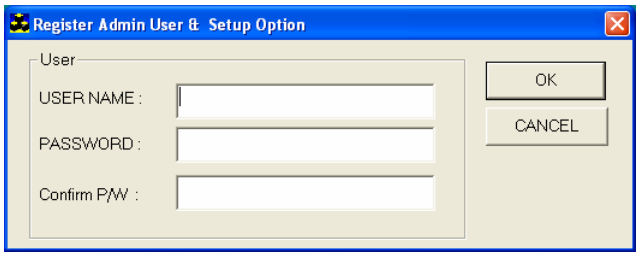
The last letter of version indicates the type of board.

i.e.) CAP – **C**, LIVCAP – **L**, ACAP-**A,** MPG – **M,** MPGAMX – **X**



· **Anyone who uses this computer [all users]** : Allows all administrator user accounts to use the DVR software if there are multiple user accounts available on the system – it is not accessible through limited user accounts.

· **Only for me[User Account Name]** : Only current user account can use the DVR software.

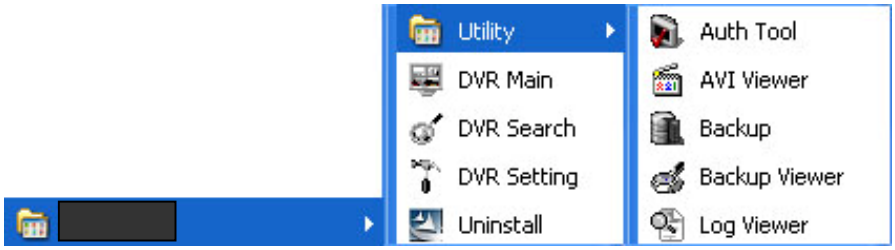


• **USER NAME**: Make Top Admin user name.
• **PASSWORD**: Make Top admin password.
• **Confirm P/W**: Confirm the password.

Note: Once the Top Admin user created, it cannot be modified from User Admin Setup. To change user name or password for Top Admin user, please refer to the page 52, Appendix 1.DVR Management.

Once setup of the software has been complete, the system will need to be restarted to allow the settings to take effect.

Setup will install a Program group into the Windows Start menu for easy access to the various VC DVR DVR programs.

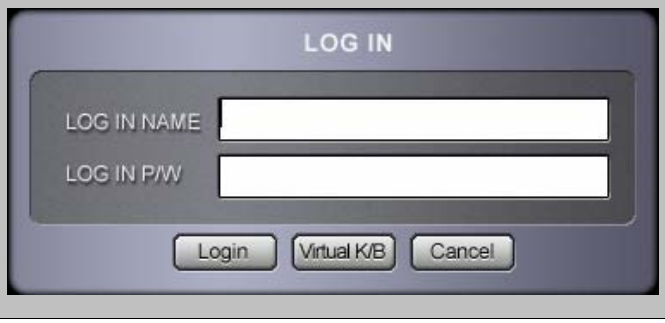


DVR Main: Main Program
DVR Search: Data Search Program
DVR Setting: Setting Program

Utility

Auth Tool: A program for discerning whether a stored original image (jpg file) has been altered
AVI Viewer: Viewer for saved video file in MP4 format
Backup: Data backup program
Backup Viewer: Allows viewing of data that has been stored as backup
Log Viewer: Log data viewer program

Whenever the DVR main program is exited (to either search for data or modify settings), a login prompt similar to the following will be appeared, in order to ensure that only authorized users will have access at all times and add a measure of extra security to the system.

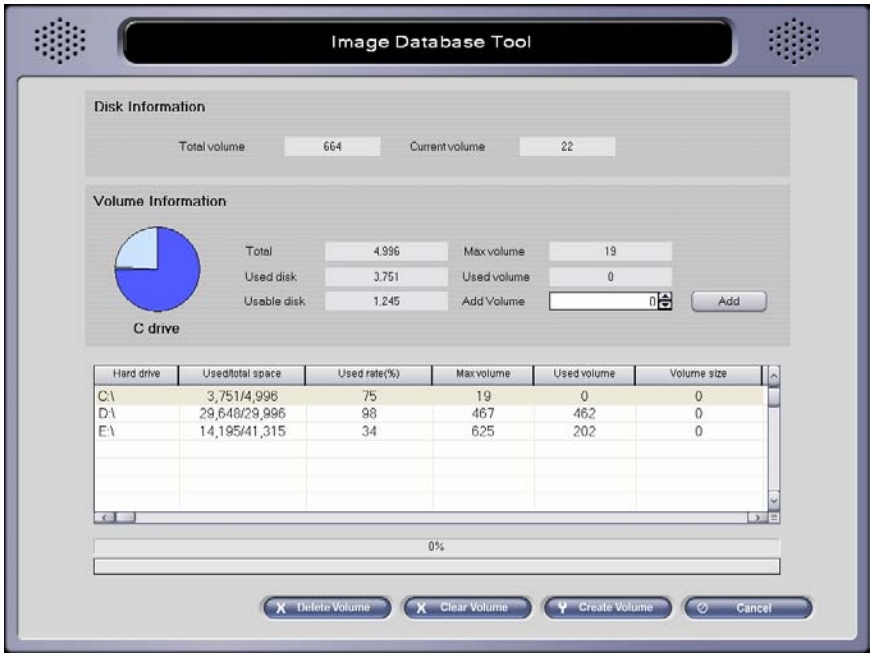


5. Configuration

Run “DVR Setting”.

- **Disk tool:** Creates a VC DVR DB file system. VC DVR will create its own file system to store large amounts of DVR data safely in its own dedicated disk space.
  Notice: DVR Main Program must be turned off prior to any database change.
- **System:** Sets system related settings, including network connection options, initial set of screen, sounds, automatic rebooting, etc.
- **Camera:** Sets up the cameras, recording schedule, motion detection, etc.
- **Sensor:** Sets up the sensors and link options.
- **Backup:** Sets up the automatic and manual backup.
- **User admin:** Sets up and manages authorized users.

5.1. Disk Tool

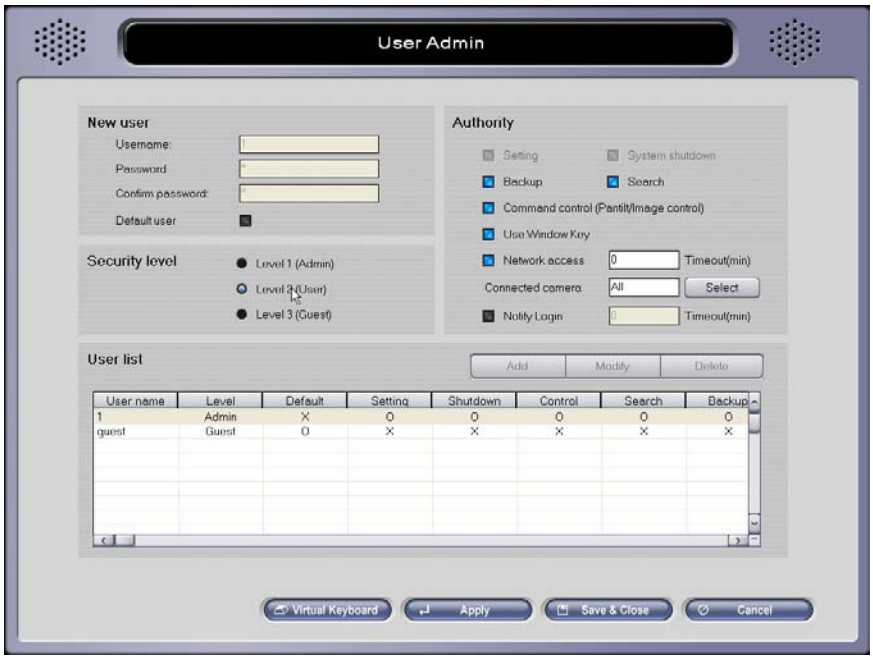


- **Total volume:** Total created volume numbers (volume).
- **Current volume:** Current volume number where data is being saved.
- **Total:** Total Disk space (MB).
- **Used Disk:** Total physical space already used (MB).
- **Usable Disk:** physical space still available in the logical drive (MB).
- **Max Volume:** Number of volumes available in the selected drive (volume).
- **Used Volume:** Number of volumes dedicated to DVR recordings (volume).
- **Add Volume:** Temporarily adds more dedicated space to DVR recordings – will not be finalized until "Create Volume" is clicked (volume).
- **Delete Volume:** Deletes all the database volume in selected driver.
- **Clear Volume:** Deletes all stored data in all drivers dedicated to DVR recordings.
- **Create Volume:** Creates the number of volumes specified in "Add Volume."

Note: In order to properly add more volumes to the VC DVR system, be sure to check that the number of volumes to be added has been stored in the right hand column of the bottom table under "Add Volume." If so, finalize the added volume by clicking "Create Volume."

What is a Volume? Volume is the unit used by the VC DVR DB system.
1 volume is equivalent to 65MB of physical HD space. All image data is recorded in volume units. When assigned Volumes are full, the program will continue recording by overwriting volumes that contain the oldest previously recorded data. It is recommended that important data be backed up prior to the start of the overwriting process.

5.2. User Admin



- **Username:** User name.
- **Password:** Password.
- **Confirm password:** Confirms password.
- **Default user:** "Default user" will be assumed by the program to be using the DVR main whenever it is loaded.
- **Security level:** Set the type of each user.
- **Authority:** Adjust detail authorities for each user.

  - Use Windows Key: enables Window key and Ctrl+Alt+Delete on the Keyboard if selected.
- **Notify Login:** Set duration of login time for a user when the user, (triggered by event notification) connects to the main by remote-client.

To create a new user, click on an empty row on the user list, assign username and password, adjust Security Level and Authority, and click "Add" button to finish the registration.

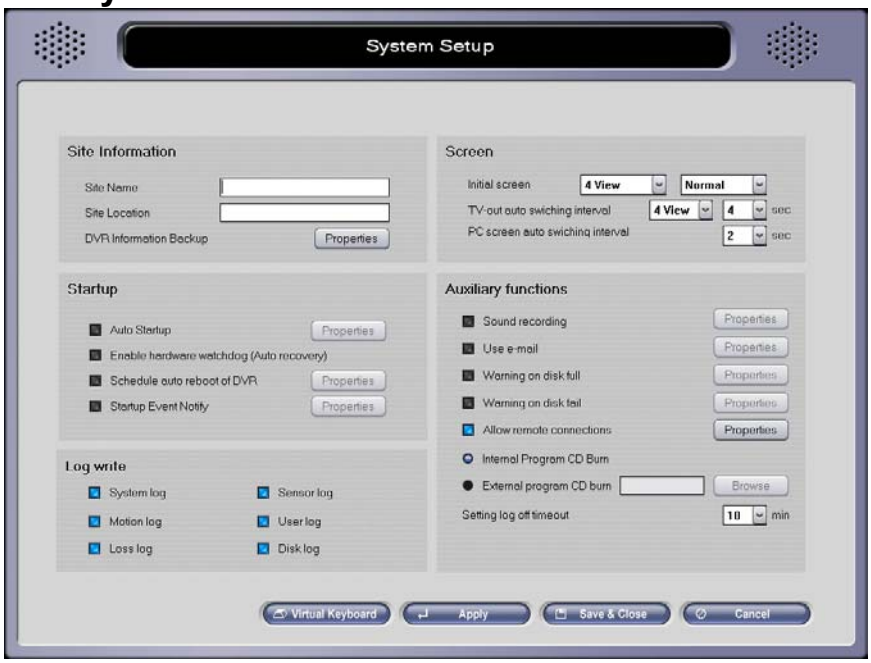
To modify an existing user, select a user from the user list, change desired option(s), and click "Modify" to apply change(s).

To delete a user, select the user in the list first and then click "Delete".

All changes will be finally applied only if "Save & Close" or "Apply" button is clicked.

Note: Top Admin User cannot be modified or deleted from this section. Please refer to the page 52, Appendix 1.DVR Management.

5.3. System



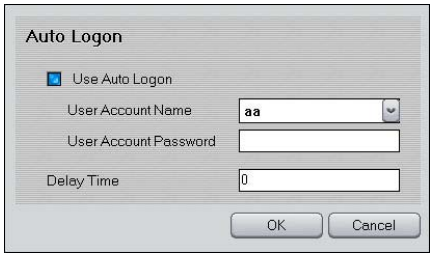
• **Site Information**

- **Site Name:** System name that uniquely identifies the computer (used to send email.)
- **Site Location:** Name of the location where the DVR computer is located

• **Startup**

- **Auto Startup:** Enable automatic startup of DVR Main Program upon system start.

Properties :



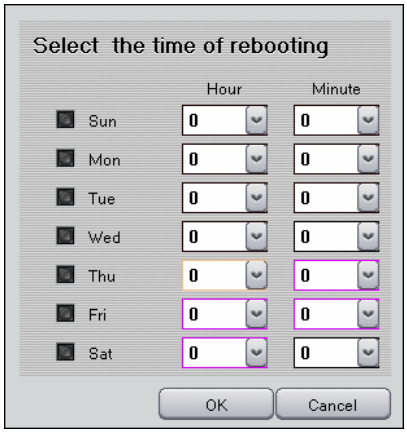
-- Use Auto Logon: Select to login automatically with a windows user account when the system starts up – in case that there are multiple user accounts available on the system.

--- User Account Name: Select a user account which will be logged in automatically. (Only administrators can be selected, and you cannot login with other user account if you have selected “Only User” during installation process.)

--- User Account Password: Enter the password of the selected user account. Leave it blank if the account does not have a password.

-- Delay Time: Allows users to set delay time (second) for DVR Main startup. (Program startup initialization + Delay time)

- **Enable hardware watchdog (Auto recovery):** If enabled, the watchdog will reboot the entire system if it becomes unstable or encounters errors.
- **Schedule auto reboot of DVR:** If enabled, a schedule to reboot the entire system automatically can be set by clicking “Properties.” This reboot is independent from the watchdog functionality.



Notice: “Auto Startup” option must be enabled in order to run DVR Main automatically once system has been rebooted.

- **Startup Event Notify:** If enabled, email notification will be sent out upon the start of the software. Using reserved parameters, it is possible to send starting time (“$$2”) and assigned IP address (“$$3”). Refer to the Chapter 5.7. Event Setup for detail.

• **Log Write:** Record a Log file (Log can be viewed with Log Viewer in Utility.)

- **System log:** Time information of Main, Search, Setting start / end.
- **Sensor log:** Log for sensor detection.
- **Motion log:** Log for motion detection.
- **User log:** Log information of User login.
- **Loss log:** Log for Video Loss.
- **Disk log:** Log for last recorded time and disk full warning.

• **Screen:** Initial setting for main program.

- **Initial screen:** Number of camera shots that will be displayed when system is started.
- **Normal**, **Large, Full:** Size of the camera shots displayed when system is started.
- **TV-out auto switching interval:** The amount of time each camera shot will be displayed intermittently through the Composite-Out port.
  -- Normal: Displays the current camera shots of the monitor.
  -- 1 View: Sequential switching of each camera.
  -- 4 View: Sequential switching of 4 cameras.
  -- (CAP and MPG series only support single channel switching.)
  -- MPGAMX boards do not support this feature since they output the same screen that is displayed on the monitor.
- **PC Screen auto switching interval:** It sets the time between one split screen shot and the next, only when the auto switching button function is activated

• Auxiliary Functions

- Sound recording: Select to record images with sound.

Press “Properties” button to set sound configurations.

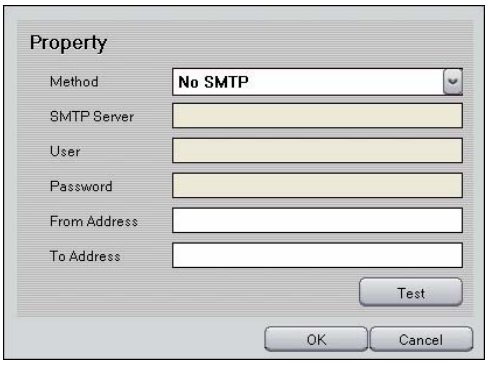
(Systems with MPG, MPGAMX boards do not have “Select Channel" option available, and it will be configured as 8 channel or 16 channel depending on the number active of cameras)

If there are two sound cards available in the system, 4 Channel option will become available, and two sound devices can be selected if 4 Channel is selected. (Top Device corresponds to Audio 1 and 2, and bottom one corresponds to Audio 3 and 4.) Select “Input Device” in case that there are multiple selections available on the device list due to the nature of the sound card. In order to store 16 Channel Audio, a separately provided audio card is needed

-- Select Channel : Select from 1, 2, 4, 16 Channels.

Notes: *1. The system requires Direct X 8.0 or higher for sound recording.*
2. In order to have more than one channel sound recording for one installed sound card, use the included audio cable and insert it into the sound card’s “Line In” port. Must use amplified microphones in each audio cable input
3. Sound communication with remote client is available 1 channel at a time.

- **Use e-mail:** Select this function to receive email notifications from the system



-- Method

--- No SMTP: Find outgoing mail server (SMTP) automatically.

--- SMTP/No Login: Use this option if you mail server is SMTP Server without Login process.

--- SMTP/Login/No RSA: Use SMTP server login without RSA encryption on ID/Password

--- SMTP/Login/RSA: Use SMTP server login with RSA encryption on ID/Password

--- SMTP/Login/RSA/MD5: Use SMTP server login with RSA encryption and MD5 (Message Digest 5 algorithm) on ID/Password

-- SMTP Server: Enter SMTP Server address.

-- User: Enter SMTP Server login User.

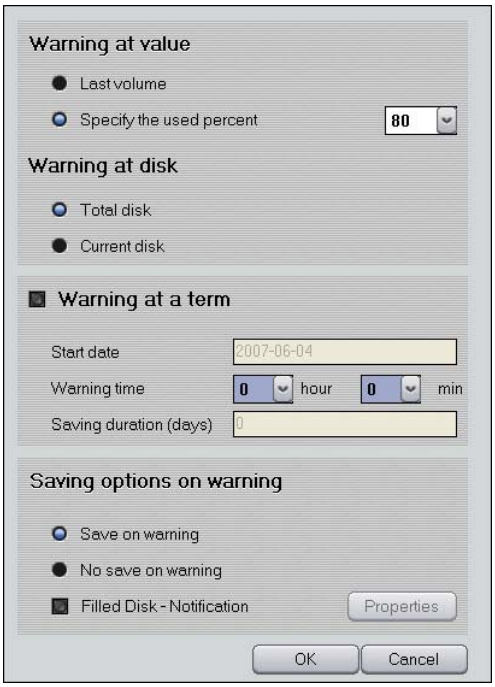
-- Password: Enter SMTP Server login Password.

-- From Address: The designated email address of the system.

-- To Address: The email addresses of the people who will receive email notifications from the system. Multiple email address can be assigned, separated by ';', limited up to 50 characters.

-- Test: Test the email by sending a testing email.

- **Warning on disk full:** Select this feature to receive popup warnings when disk is full.



-- Warning at value

--- Last volume: Warning on the last volume of database.

--- Specify the used percent: the system will send a warning when it reaches *x* percent, *x* being 90 ~99%.

-- Warning at disk

--- Total disk: Displays warning based on total disk space.

--- Current disk: Displays warning based on current disk space.

-- Warning at a term: Allows setting up a warning at a scheduled time and date.

--- Start date: The date in which the warning countdown begins

--- Warning time: The hour in which to issue the warning (military time)

--- Saving duration (days): The duration of the countdown (in days)

-- Saving options on warning

--- Save on warning: Keep recording regardless of warning message. (Once database is full, it will start to overwrite from the first volume.)

--- No save on warning: Stop recording once warning message is on

-- Filled Disk: Configure event when message shows up. (Refer to 5.7. Event setup)

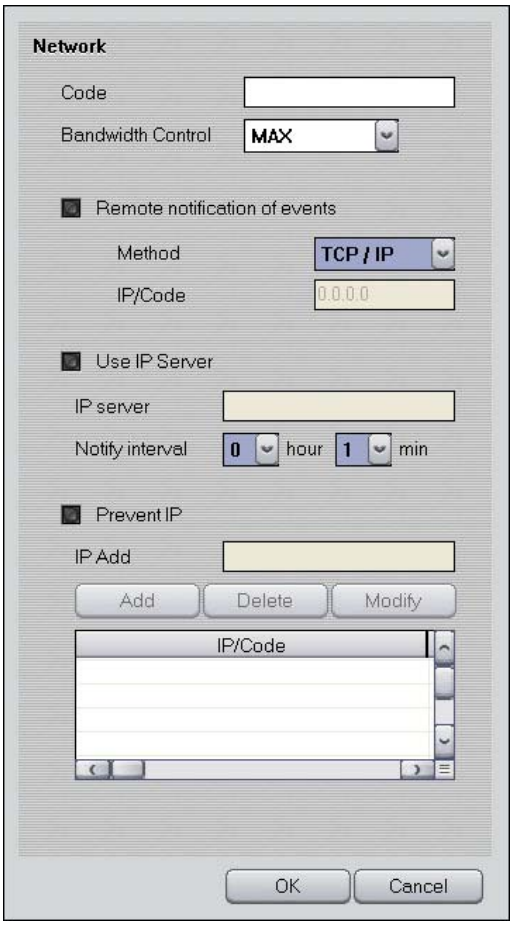
- **Warning on disk fail** : Select to display a warning message if any problem occurs while writing data on disk. Press "Properties" to set up.

-- Warning message popup: displays a message box when it cannot write data on disk.

-- Disk fail event : triggers an event when the system cannot write data on disk.

(Refer to 5-7. Event Setting)

- **Allow remote connections:** Allow users to log into the system from a remote location through the network



-- Code: Give a unique combination of case-sensitive alphanumeric and numeric character, maximum of 10 characters. It is required to use IP Server.

-- Bandwidth Control: Adjust bandwidth depending on the connection type. It is recommended to reduce the bandwidth in order to increase the transmission speed. However, the image quality will be lower. This control is not available on MPG, MPGAMX series boards.

-- Remote notification of events: Enable and assign remote client information to be notified. The system is capable of sending a warning message to the remote client when motion or sensor is detected. The remote client is notified through sound, and it will popup if running and minimized. In order to notify the remote client, make sure to configure the IP address or Code in “IP / Code”.

-- Method: Select between TCP/IP and Server (when using IP Server)

-- IP / Code: Give IP address or Code (IP server) of remote client to send Notification.

- Use IP Server**:** In case of using IP server, check the box. Since IP Server uses Code to identify DVR system rather than its IP address, it is possible to connect DVR system with dynamic IP address. (Code name must be unique for each DVR system)

-- IP Server: IP address of system in which IP Server program is running (Server must use static IP.)

-- Notify interval: Update DVR system’s IP address to the IP server once in every interval period.

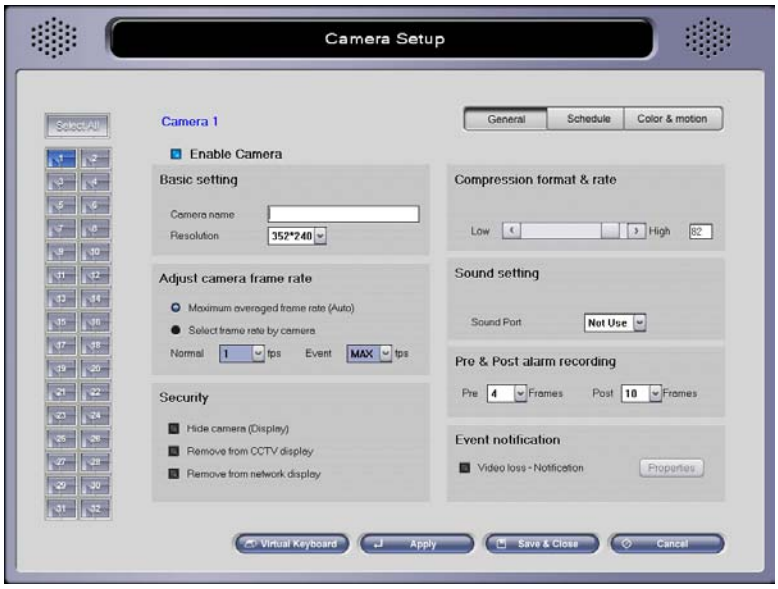
-- Prevent IP : Blocks IP addresses registered on the block list.

-- Add, Delete, Modify : Add the IP address entered on “IP Add” field, delete or modify the selected IP address of the list.

- **Internal program CD burn:** Use CD Burn Program in DVR Program (Windows XP required).
- **External program CD burn:** Click **“**Browse” button to choose external CD Burn Program (CD-RW). CD burning program will start once CD Burn button is selected in Search program.
- **Setting log off timeout:** This feature allows the administrator to set the amount of time available for each logged-in session.

5.4. Camera

5.4.1. General



Select All : If selected, the settings selected in "General", "Schedule", "Color & Motion" will be applied to all the cameras.

If you would like to customize each camera uniquely, select a camera from the buttons on the left of the menu (1-16) FIRST, then modify the following options

• **Enable Camera:** Enables or disables camera. (Ch1 camera is always enabled.)

• **Basic setting**

- **Camera name:** Assigns name of the camera. (Name will be displayed in Main screen.)
- **Resolution:** Chooses the desired resolution for the camera. (Note: higher resolution size of the recording will lead to a slower frame rate.)

• **Adjust camera frame rate**

- **Maximum averaged frame rate:** Sets the recording frame rate to the maximum available rate for each channel.
- **Select frame rate by camera:** Allows manual setting of the frame rate per second.

  Normal: Frame rate when the camera is scheduled as normal.

  Event: Frame rate when the camera is scheduled as Motion or Sensor.

  If the camera is scheduled as Normal & Event, Normal frame rate will be applied without event, and Event frame rate will be applied when motion or sensor input is detected.

• **Security**

- **Hide camera (Display):** The camera will not display its image on the monitor.
- **Remove from CCTV display:** the selected camera will not be displayed on the CCTV during the auto-switch rotation. (For LIVCAP boards, this option may not take effect if "TV-out auto switching interval" is set to "Normal").
- **Remove from network display:** Blocks from being displayed to remote connections

• **Compress format & rate:** Change compression rate. (Moving bar to the the left makes image file size smaller, but at the same time quality of image gets lower.)

(MPGAMX - All camera channels will use the same Compression & Rate value.

Note: "Hide camera (Display)" also hides images from being displayed on TV-Out. "Remove from CCTV display" feature is not supported under MPGAMX board.)

• **Sound Setting:** Select the audio port to synchronize with the camera. “Sound recording” under System setup must be configured first. it is allowed to record same audio channel from multiple cameras.

• **Pre & Post alarm recording:** applies only if “Motion” or “Sensor” is selected in 'Scheduling' menu.

- **Pre:** Recording frame number prior to a Motion detection or Sensor trigger.
- **Post:** Recording frame number after a Motion detection or Sensor trigger.

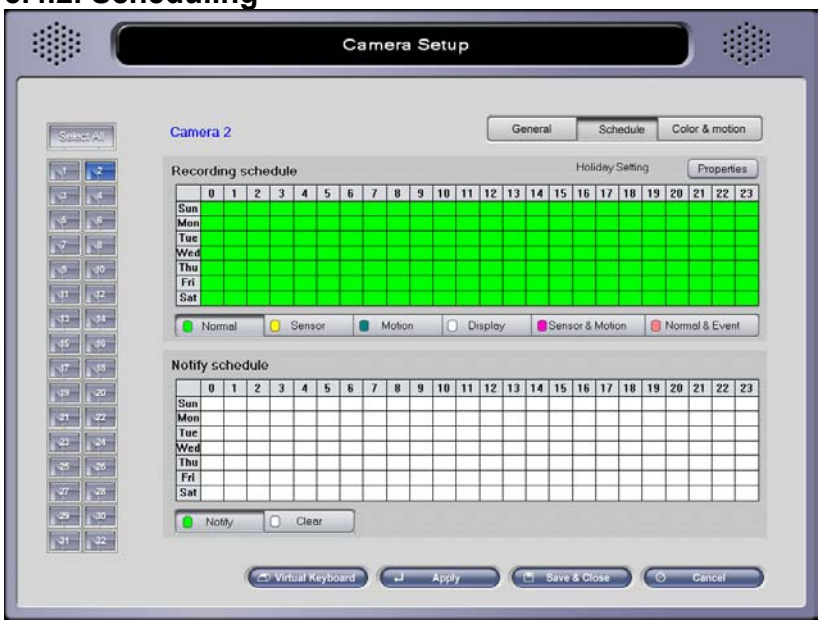
• **Event notification**

- Video loss - Notification: Choose event for Video Loss. (Refer to 5.7. Event Setup)

Click “Apply” or “Save & Close” to save and apply changed setting.

What’s Frame? Frame is One still image.

5.4.2. Scheduling

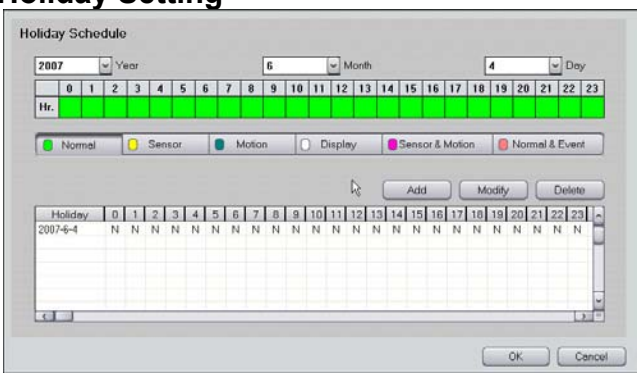


Select the desired time (**by hour and day-of-the-week)** in which to record images displayed by the camera.

• **Recording schedule**

- **Normal:** Records all images captured by the camera.
- **Sensor:** Records images only when the sensor is triggered.
- **Motion:** Records images only when a set degree of movement is detected on the camera
- **Display:** Does not record images; only displays the images without recording.
- **Sensor & Motion:** Records images when the sensor is triggered and/or motion is detected.
- **Normal & Event:** Records at Event frame rate at “Select frame rate by camera” under General tab, when an event is triggered. Otherwise records images at Normal frame rate.

• **Holiday Setting**



: Allows users to apply different recording schedule on certain days – such as holidays.

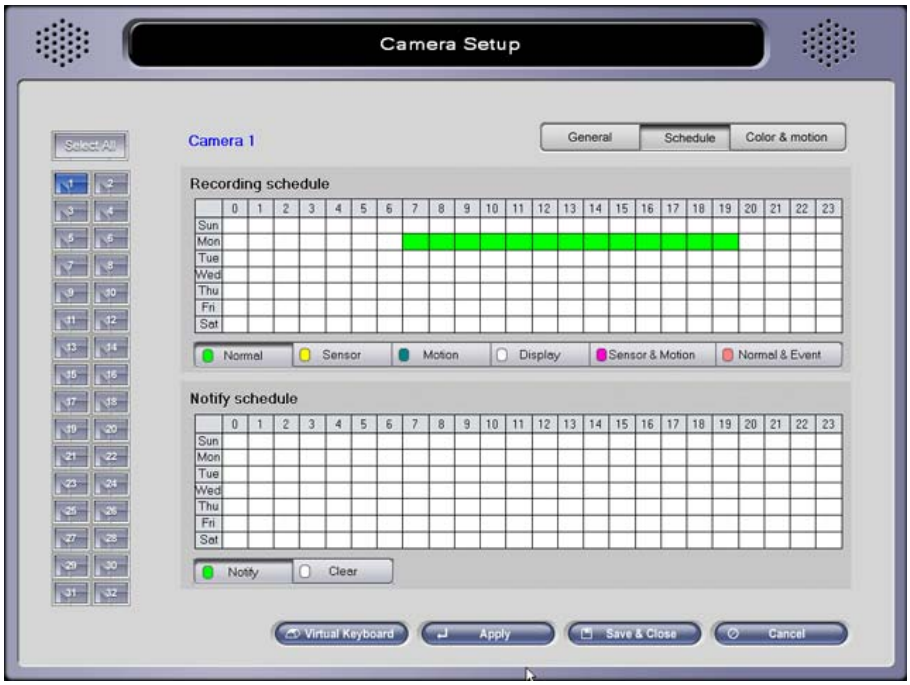
• **Notify schedule**

On this menu, schedule appropriate times in which the system should send remote notifications.

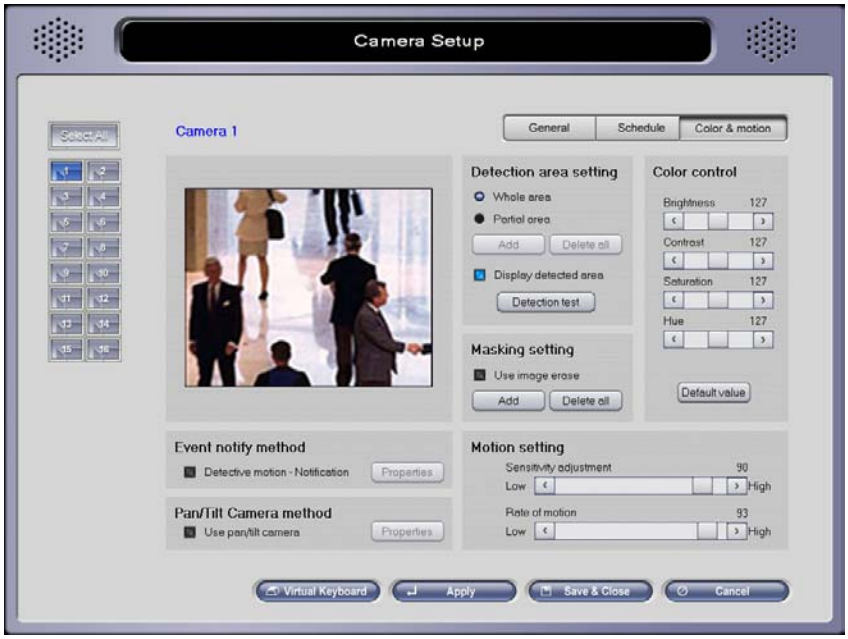
- Notify: Press “Notify” and set up the desired time and day-of-the-week.

<< Example **>>**

- **Recording images of camera 5 every Monday from 07:00 to 20:00**
  Select camera 5 from the buttons on the left, select "Normal" mode, then click the chart on the "Mon" line, from 7 to 19.
- **Recording images of camera 5 everyday from 07:00 to 20:00**
  Select 7~19 for all days of the week. Recording will be enabled every day from 7:00 to 19:59:59.
  Recording images only when movement is detected from 07:00 to 20:00.
  Use the “Motion” button instead of “Normal” and set as above.

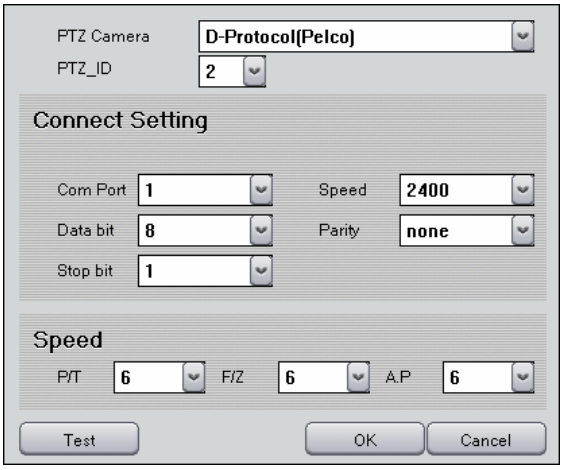


5.4.3. Color & Motion

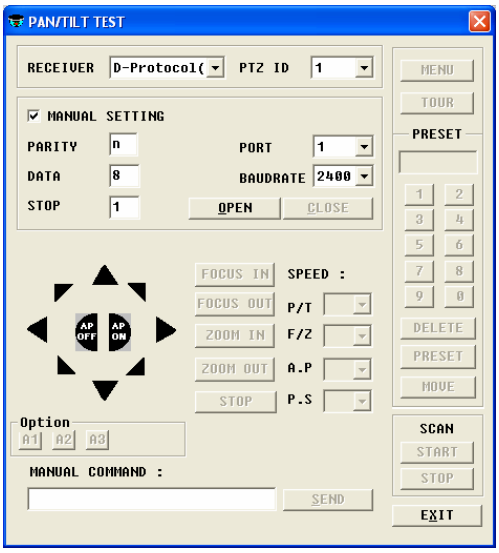


This menu allows the user to control the color of the recorded images, modify motion detector settings, and set up relay outputs (sirens, locks, etc.) for the system

- **Event notify method**
  - **Detective motion - Notification:** Setup event of video loss. (Refer to 5.7. Event Setup)
- **Pan/Tilt Camera Method**
  - **Use pan/tilt camera:** Check this box when using PTZ cameras.



-- PTZ Camera: Choose the make and model of the camera.
-- PTZ_ID: Choose ID (address) of PTZ camera.
-- Connect Setting: Selects the serial port that the camera uses to connect to the computer. Refer to camera manufacturer's documentation to set these values.
-- Speed: P/T-Pan/Tilt speed, F/Z-Focus/Zoom speed, A.P-Auto pan speed (Depending on PTZ camera Speed might not be adjustable.)
-- Test: Test PTZ camera.



. RECEIVER: Choose PTZ camera
. PTZ ID: Choose ID of PTZ camera
. MANUAL SETTING: Selects the serial port that the camera uses to connect to the computer. Refer to camera manufacturer's documentation to set these values.
. OPEN: Open the connection to take control of PTZ camera.
. ARROW, FOCUS, ZOOM, AP, SPEED: Test each function.
. A1, A2, A3: Test Extra feature of the PTZ camera. (Depending on protocol it might not function.)
. MENU: Bring the PTZ camera menu (Depending on protocol it might not function.)
. TOUR: Tour the preset of camera.
. 0~9: Preset numbers (Combination of 2 digit, 1~99). Move camera to each preset position.
. DELETE: Delete position of PRESET Number.
. PRESET: Setup of waypoints can be done by doing the following:

1. Select a preset number to setup and click "Preset".
2. Move the camera view to a desired location.
3. Click "Preset" again to finish.

. SCAN: Only available with camera that supports Auto Pan function.
START-Press START from the beginning position.
STOP-Press STOP at the ending position.
. SEND: Manually give Hex value and send it to the camera.

• **Detection area setting**

- **Whole area:** Detect motion at the whole area.
- **Partial area:** Click "Add", and select specific area(s) to detect motion. Up to 10 partial area selectable and delete them all by "Delete All".
- **Display detected area:** If selected, any region with motion will show a group of red grid. It may be used to test motion sensitivity.

• **Masking setting**

: Press “Add” button, and select an area on the camera screen to mask on display.

- Use image erase : Select to erase masked areas on recorded images. (This feature is not available on MPG & MPGAMX boards)

• **Motion setting**

To receive desired optimal detection, configure the following options.

- **Sensitivity adjustment:** Adjusts the level of color difference detection between the foreground and background.
- **Rate of motion:** Adjusts the rate of motion detected by the camera – if the number is higher, the camera will be able to pick up slower moving objects better.

• **Color Control**

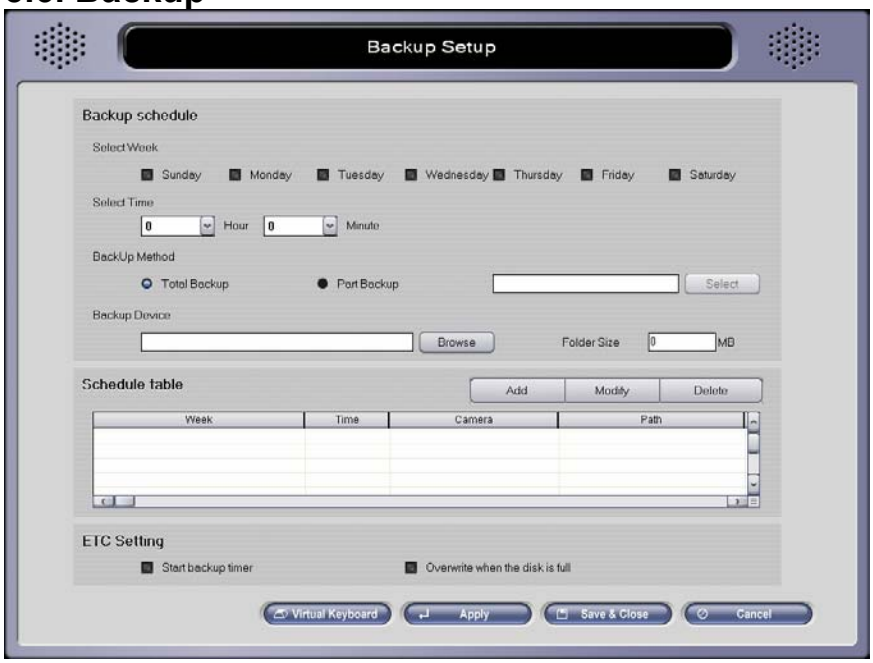
- **Brightness:** Brightness
- **Contrast:** Contrast
- **Saturation:** Saturation
- **Hue:** Hue
- **Default Value:** Set to default value.

5.5. Sensor

• **Select sensor to use:** Enable or disable a selected sensor.
• **Sensor location:** Description of the place where the sensor is currently located.
• **Sensor type:** Select the type of sensor being used.
• **Connected camera:** Assigns a camera that will record when the selected sensor is triggered.
• **Check time:** Amount of recovery time allocated to a sensor if triggered.

• **Emergency notify:** If “Remote notification of events” was selected in “System” setup, an email notification will be sent to the designated addresses when the selected sensor is triggered.
• **Sensor trigger - Notification:** Choose event for sensor detection (Refer to 5.7. Event Setup)

5.6. Backup



Recorded images can be backed up automatically if a backup schedule is set. After completion of automatic backup scheduling, “Backup.exe” must be initiated. The automatic backup will not take effect if “Backup.exe” is closed or processing is interrupted by user.

• Backup Schedule

- **Select Week:** Select day of a week to start the backup.
- **Select Time:** Select time of a day to start the backup.
- **Backup Method**
  - Total Backup: Backup based on Volume File (Backup all operating cameras).
  - Part Backup: Backup based on data index. (Backup selected cameras).
    -- Select: Choose cameras to backup from Camera 1~16(32).

  * Total Backup is much faster than Part Backup. **(Total Backup is recommended to use)**
- **Backup Device:** Choose the data path for backup data.
  - Folder Size: assign the size of each folder for backup data. Backup data will be stored into separated folder(s), which is automatically created with assigned size value.

• Schedule table

- **Add:** Add new schedule in the list.
- **Modify:** After any changes applied to existing schedule click “Modify”.
- **Delete:** Delete selected backup schedule.

• **ETC Setting**

- **Start backup timer:** Automatically initiate “backup.exe” upon the system restarts. The backup program icon will be placed at the system tray if initiated.
- **Overwrite when the disk is full:** During automatic backup, assigned backup device will get overwritten if it is full. (Overwrite starts from the oldest backup data.)

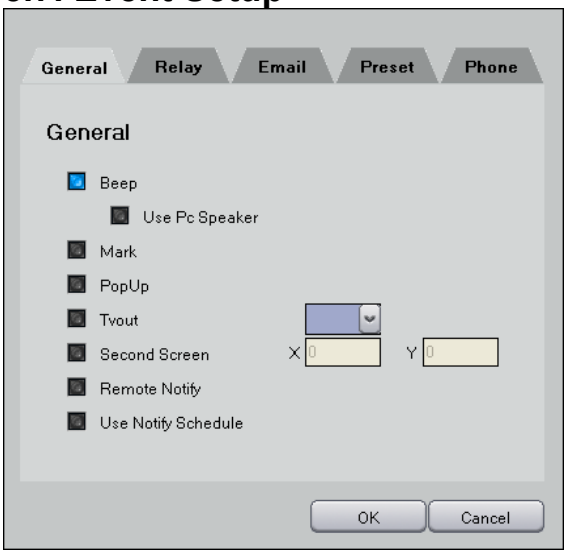
Backup always starts from the end of the last backup session. (First time Backup will start from the very beginning of recorded data)

<< Example >>

1) **Backup (automatic) at 20:00 every day**
   - Data will be backed up at 20:00 each day until data for the day has been completely backed up.
2) **Backup at 20:00 every Saturday**
   - Data will be backed up at 20:00 each Saturday until data for that week has been completely backed up.

After automatic Backup schedule has been configured, start the Backup program manually.

5.7. Event Setup



Depending on events, different action can be configured and take place.

• **Beep:** Play Beep on sound card.
  - Use PC Speaker: Play Beep on PC speaker (Sound card is not required)

• **Mark:** Display Red dot on camera screen.

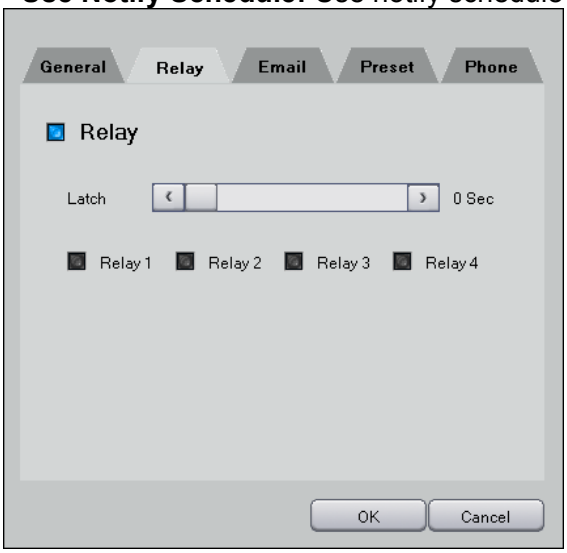
• **Popup:** Display 1 view Popup in the Main.

• **TV-out:** Display the camera through Composite out for selected time period (in seconds)

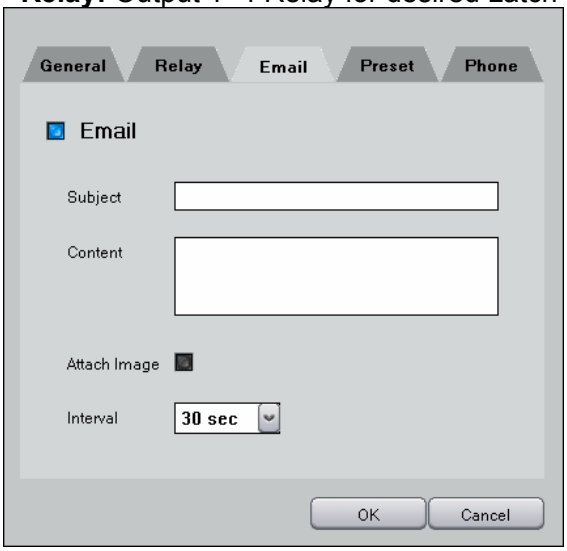
• **Second Screen:** If system has second monitor, display popup on the selected coordinate of the second monitor.

• **Remote Notify:** Notify to the Net program (remote client).

• **Use Notify Schedule:** Use notify schedule (Camera – Schedule – Notify schedule).



• **Relay:** Output 1~4 Relay for desired Latch time(seconds).



• **E-mail:** Send an E-mail. (In System setting, “Use e-mail” must be enabled and configured.)

- Subject: subject of email
- Content: E-mail content
- Attach Image: Attach video image.
- Interval: Email will be sent once for every selected time interval.

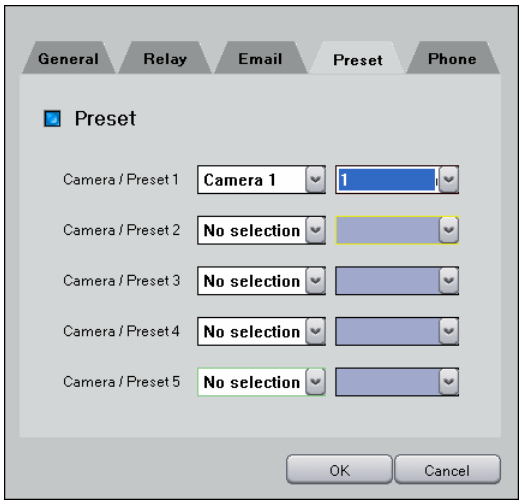
Note: This table will help complete the Subject and Content fields.

Reserved word	Contents
$$0	Camera No.
$$1	Events
$$2	Time
$$3	IP address

<<Example>>

Subject: “At $$2, $$1 triggered at number $$0 camera.

Subject: “At 01-18-2005 19:10:12, Motion triggered at number 3 camera.

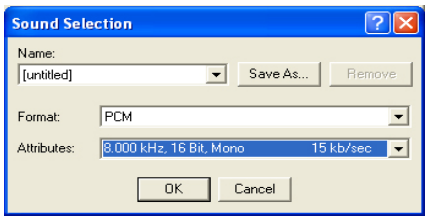


• **Preset:** If selected sensor is tripped, this feature allows the selected camera to focus into the selected preset position.

• **Phone Call:** When event occurs makes phone call and plays sound file(.wav)
(**Voice Modem required**)

- Number 1, 2, 3: Enter up to 3 phone numbers. If first number doesn't work it will try next phone number and retry 3rd number if that doesn't work either.
- Wave: Select sound file (.wav). (Browse: select file, Play: play sound file)
- Play Time: Play the sound file for selected time.
- Interval: Make call once for every selected time interval.
- WAV file must be in form of PCM, 16 Bit, 8 KHz, Mono.

*** Making Wav File**



- Execute sound recorder from Windows: File → Properties → Convert Now → Attributes
Choose PCM, 8.000 KHz, 16 Bit, Mono and start recording.

6. Main

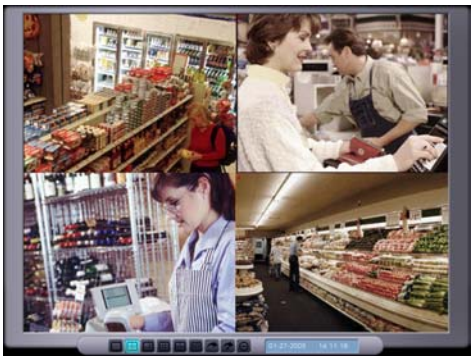
IMPORTANT DVR settings must be set before operating the VC DVR main program.

: This “hot button” allows instant recording at the push of a button.

: Listen to the sound while you are recording sound.

: Click one of the split image profiles to view multiple cameras at once. The screen can display up to 32 different camera images.

: Camera switch, Automatic camera switch, Enlarge screen buttons.



F5 enlarges the screen, same as Enlarge screen button above. Pressing F6 under enlarged screen will lead to full screen view, without displaying any controls.

: It shows the status of display/record of cameras. The solid lights on the top row indicate that images are coming from the camera. The blinking lights on the top row, if any, indicate that the camera(s) are enabled in the DVR Settings, but no signal(s) are delivered for any of reason, such as no camera connection or weak signal. The solid lights on the bottom row indicate that the the camera is being recorded.

: This displays the status of the 4 digital outputs. A pressed tab indicates that particular relay is active; a depressed tab indicates that the relay is inactive.

: When network connection is made this image lids up. Move cursor over the image and IP address of net client will be displayed.

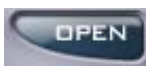
: Indicates backup execution.

: The numbers and bars on the bottom indicate the total number of volumes and the number of volumes being used. Number of days for currently recorded data is displayed at the end.

: shows current software version and number of channels available.
From the software version, change of the first two digits indicates major change in software, next two digits indicates minor changes, and the last digit letter shows the type of board installed.

: Shortcuts for Search, Setting, Smart Search program.

: Exits the Main program.



: Shows P/T/Z and image control and Changes to “Close”

: Pressing this will pop up the login dialog – requires a valid username and password.

: Click "CAMERA" to use the CAMERA CONTROL options. Click "IMAGE" to use the IMAGE CONTROL options for tuning the image color.

: Left-figure shows the general DVR skin for P/T/Z control. Note that only the basic controls are available in this section of P/T/Z control.

: Control Preset, Tour, P/T Speed of PTZ camera.
(By clicking “Preset” button, the control box appears).

Note: Pan/Tilt skin may or may not be active, subject to the type of camera. If proper camera is used, “Pan/Tilt Camera Method” section, in section 5-4-3, must be configured to activate the control. Setting preset locations is also referenced in section 5-4-3.

: This menu adjusts the various camera color display settings. Clicking the “Default” button will return the color settings to their default values.

7. Search

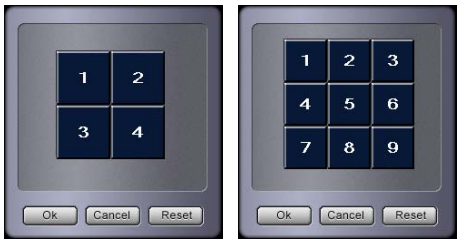
Searching for a single or multiple image data by any combination of date, time and camera, is possible. Any image(s) can be saved and printed while searching.

: hides the time information.

: Select one of the split image profiles for viewing the images.

- Under 32 channel system, double click on 16 split image to search channel 17~32.

Cameras on 4 or 9 viewing mode can be selected as desired. The following screen will popup by double clicking on the 4 or 9 viewing mode button.



Left click on any camera numbers to switch with desired camera number. Click “Reset” to bring the default camera numbers.

: Change screen size in Single-Search mode.

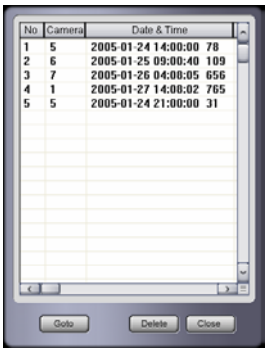
: The camera number(s) will be displayed on the right side. Hours are displayed on the bottom and minutes are displayed on the top. The green blocks indicate the hour time frame at which a recording exists. The associated white blocks indicate the minutes within that hour that contain these recordings. The red dots in both blocks indicate the current frame that is being displayed.

: Scroll through the cameras with use of the arrow tabs.

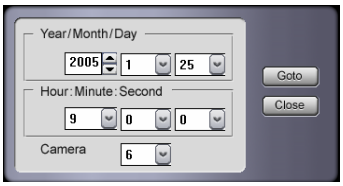
: The camera icon indicates camera mode. Clicking the icon will toggle to sound mode searching for sound data is performed in the same way as searching for image data.

: Remarks current searching point. (Bookmark)

List : Displays list of Bookmarked searching point. Move to the listed point by Double click or “Goto” button.



Goto : Select time and date to search directly and click “GOTO”.



: The calendar allows the user to choose the specific date in which to search through. If the calendar is not displayed, click the “Date” button to activate. Days with stored recorded data will be highlighted red.

: Click Search to use the Search menus. Image Tool button opens the image tool menus.

: Search menu appears when the "Search" button is pressed. You can playback the images normally or in reverse, and also search through frames one by one.

: Fast search by frame and Speed is adjustable.

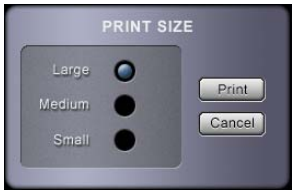
: Normal search by second and Speed is fixed.

: Image Tools menu appears when "Image tool" button is pressed. Use the various options (Zoom I/O, Sharpen, Soften, B&W) to adjust the images.

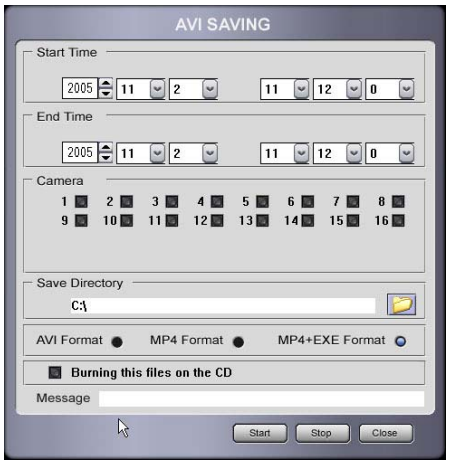
Zoom Search: It is possible to zoom in, up to x3, to the desired area using right click of the mouse while, or before searching (Available only at single channel search)

: Click "Save As" to save the current image. The image is watermarked.

: Print image to desired size.



: save images as a movie clip.



Make movie clips for desired cameras and time period.

AVI Format: Normal AVI (.avi) format file which can be played with Windows Media Player.

MP4 Format: VC DVR AVI file (.mp4) format which only can be viewed by VC DVR AVI Viewer.

MP4+EXE Format: Self executable VC DVR AVI file (.exe) format. (No Player needed)

Burning this files on the CD: If selected, executes CD Burn Program automatically after making image files. (Windows XP required)

*** When saving in AVI Format, Audio data is not included.**

: Change Search mode to Common Search, Panorama Search or, Icon Search.

Common Search: Normal Search with Single and Multi-Search.

Panorama Search: Divide 1 camera recording into 16 multi view mode to search it frame by frame.

Icon Search: Based on time, divide 1 camera recording into multi section. Each screen represents specific time and it can be divided into even smaller time period. This search is useful when user is not aware of time information of desired data. (24hour->10minute-> 1minute, Use double click on left and right mouse button to navigate)

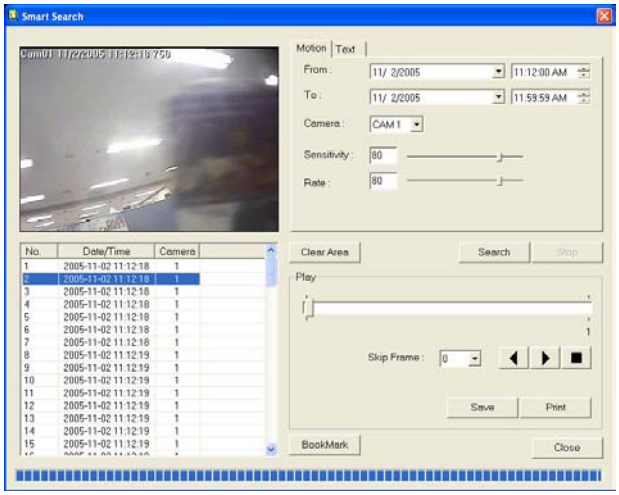
1~24hour

10~60minute

1~10minute

Final data search

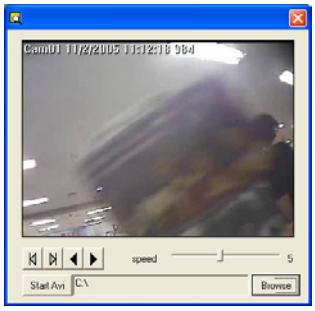
Smart Search : Smart Search allows searching data by detecting motion in the data.



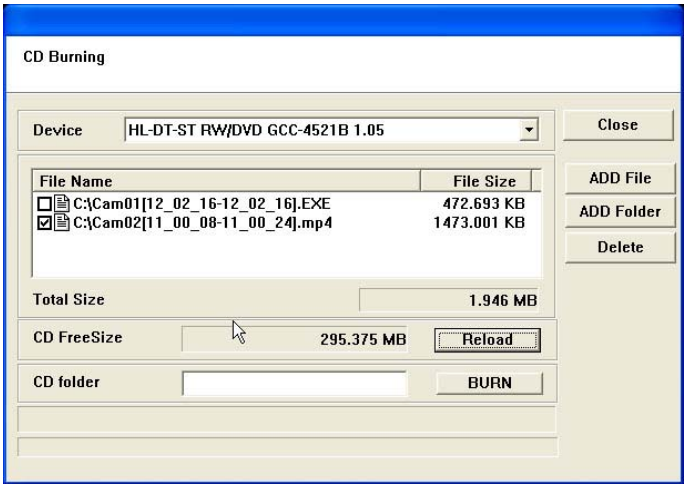
This feature allows rapid searching for images by specified time, date, camera, and limiting the searching parameter to specific levels of motion. Specific regions within the video can be selected to search through. For example, if the rate of motion is high, only images captured during a certain time frame and associated motion rate will be selected.

- From: Beginning time for searching
- To: End time for searching.
- Camera: The camera in which to search
- Sensitive: Sensitivity level of motion: only images that meets this level will be found and displayed
- Rate: Setup the motion ratio.
- Search: Searches for images by designated date, time period, camera, and rate of motion
- Stop: Stops the searching.
- Clear Area: It deletes the designated area.
- Skip Frame: If it is inconvenient to shift through the data, it is possible to compress the file by skipping through frames.
- Save: Saves selected data found by smart search function. When JPEG compression is used, its file format will be .JPG. However, if it is MPEG compression, its file format will be .BMP.
- Print: Prints the data found by smart search.
- Bookmark: Able to bookmark for wanted data. Search the data from bookmark list from Search Menu.
- Close: Close the smart searching process.

A new window pops up to search the data on the time period by double clicking the searched data (The list on the bottom left hand side).



CD Burn : When you choose Internal CD Burn from setting program, the following CD burning program in DVR System will be executed. Otherwise, the linked CD burning program will be executed.



- ADD File: Select files to save on CD.
- ADD Folder: Select folder to save on CD.
- Delete: Delete the selected file from the list.
- Reload: Show free space size on CD.
- BURN: Start copy files to CD.

Note: 1. If a folder name is assigned on "CD folder", the files on the list will be saved into the assigned folder.

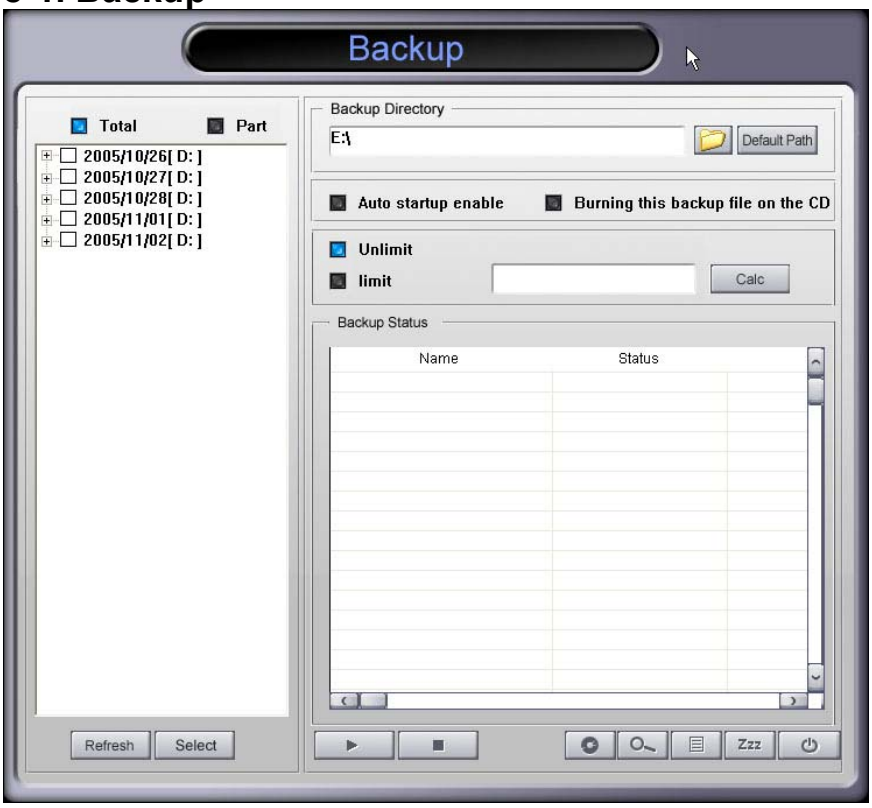
2. Uncheck the check box if you don't want to copy files on the list.

3. Internal CD Burn Program dose not support DVD.

: Click this tab to Exit "DVR Search".

8. Utility

8-1. Backup



Data can be backed up manually through this program simply by selecting the desired folders and subfolders. This type of backup process allows selected data to be backed up. On the left window, choose the desired camera, date, hour, and minute to backup. The progress is monitored at the right window.

If you setup backup schedule from the DVR Configuration, it automatically executes Backup from the configured schedule.

- **Total**: Able to backup by choosing Volume Files directly from the list based on date and hour. It is very fast backup for large volume of data although it can't select the partial cameras.
- **Part**: Able to backup desired camera, date, hour, and minute from the list. Able to choose desired camera and minute, but it is much slower than Total backup for large volume of data.
- **Backup Directory**: Destination of backed up files. CD, DVD, Network drive can be used. (Some equipment needs to setup their driver or utility program to operate).
- **Default Path:** Click this to set the folder to the default back up folder. Scheduled Backup will store data into the folder assigned here.

• **Auto startup enable**: If selected, backup.exe will be automatically initiated upon the system restart. This option is also connected to the “Start Backup Timer” option under Backup setting at DVR Setting. (Chap. 5-6)

• **Burning this backup file on the CD**: Executes CD Burn program automatically after backup. Unable to backup if the data size is bigger than the CD capacity.

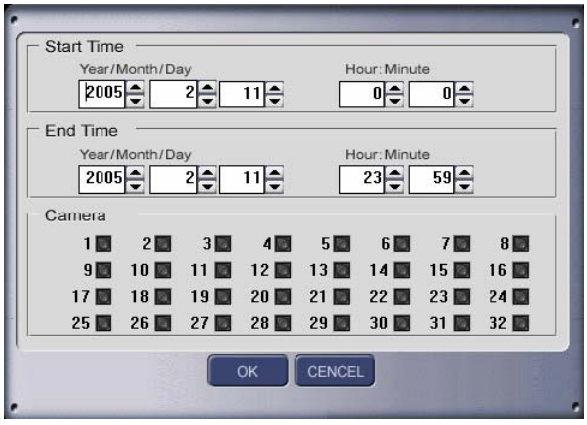
• **Unlimit**: Backup in one folder at the assigned location.

• **limit**: Assign the size (unit:: MB) of Backup folder. Backup data will be stored into separated folder(s), which is automatically created with assigned size value. (Backup Viewer searches from each backup folder).

• **Calc**: Calculate the data size of selected items from the list (Able to use if you select Total, not Part).

: Retrieves updated recording data and resets all settings.

: Able to select desired date, hour, and camera number (Unable to use with Total).
Following screen will appear and works similar to AVI saving in search.



: Start backup.

: Stop backup.

: Execute CD Burn program based on Setting (Internal CD Burn or external CD Burn).

: Run Backup Viewer.

: Log for backup history.

: Standby mode for backup program (hide the backup program) – setup this mode for auto backup to take place. It is able to show the program by double clicking the icon on the right hand side of system tray.

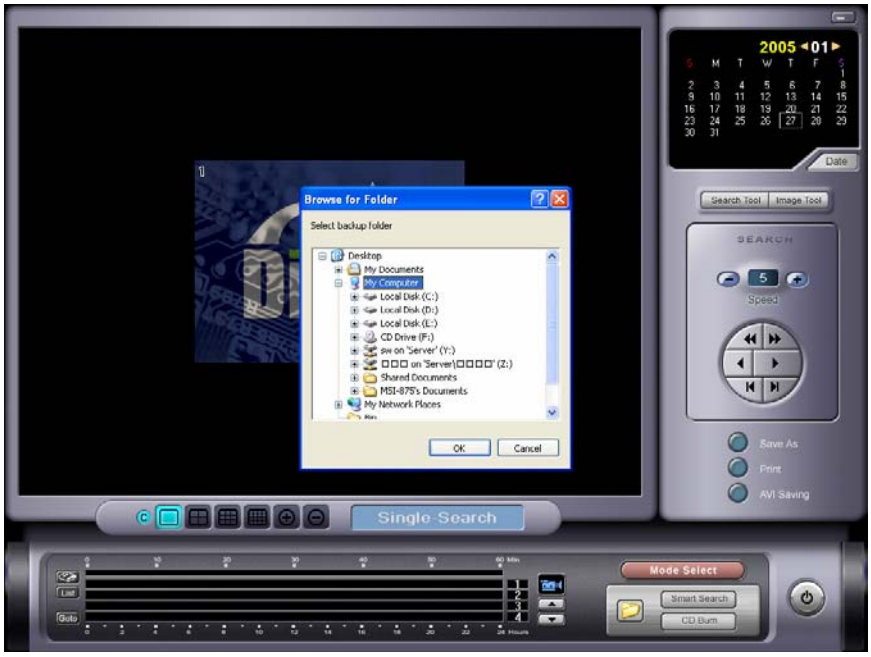
: Exit from the backup program.

• The Folder name of backup data is “MB+ start backup date” ex) MB20041206_xxxx

• Setting – The folder name for Auto Backup Schedule is “**AB**xxxxxx”. ex) AB20041206_xxxx

• To retrieve backup data from other PC, copy the backup folder, install Utility to the PC. Then run Backup Viewer and search the data.

8-2. Backup Viewer



Backup data can be viewed only by using the **Backup Viewer** program.

All functions in Backup Viewer Program are as same as the Search Program, except data path must be assigned before searching.

: Browse through existing backup data (Backup folder name starts MB or AB + “time backup started”

i.e - MB20041206_xxxx or ABxxxxxx)

8-3. Auth Tool

This program is used to decipher images saved by the 'Search' or 'Backup Viewer' programs and can distinguish between original and altered images.

: Select "JPEG" or "AVI" and press this button to load a corresponding file format. If the image or AVI file has not been altered, it will display corresponding file information as above screenshot – otherwise, no information will be shown.

8-4. AVI Viewer

: Go to beginning of the clip.

: Play by 1 frame at a time (back).

: Play (with sound if exist).

: Pause.

: Play by 1 frame at a time (forth).

: End.

: Open file.

: Display Windows type Menu and frame.

: Adjust image size. Double click on the screen for Full screen mode.

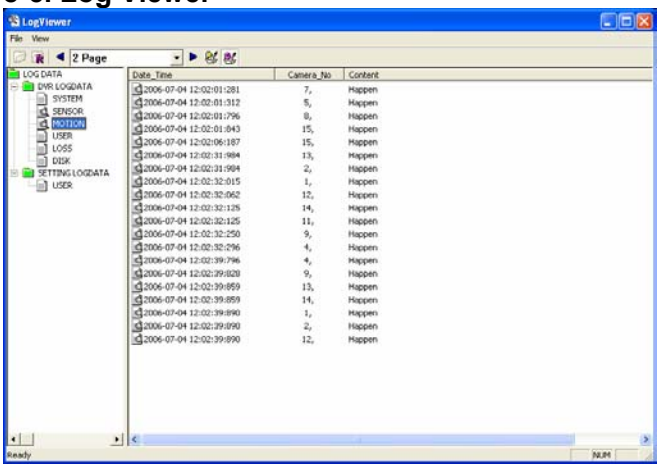
: When there is sound, click this button and then click play back button

: Sound volume

: Click to perform faster search (Revival by frame unit.)

: Speed control

8-5. Log Viewer



This program interprets Log file that is created during operation. The log file contains start and end of program (Main, Search, and setting), motion and sensor log (time and camera number), user login and logout record, disk warning message (DB overwrite warning message), and video loss log.

: reload log data.

: Popup Search software when double clicked on Sensor and Motion log

: Runs Popup-search software when double clicked on Sensor and Motion log

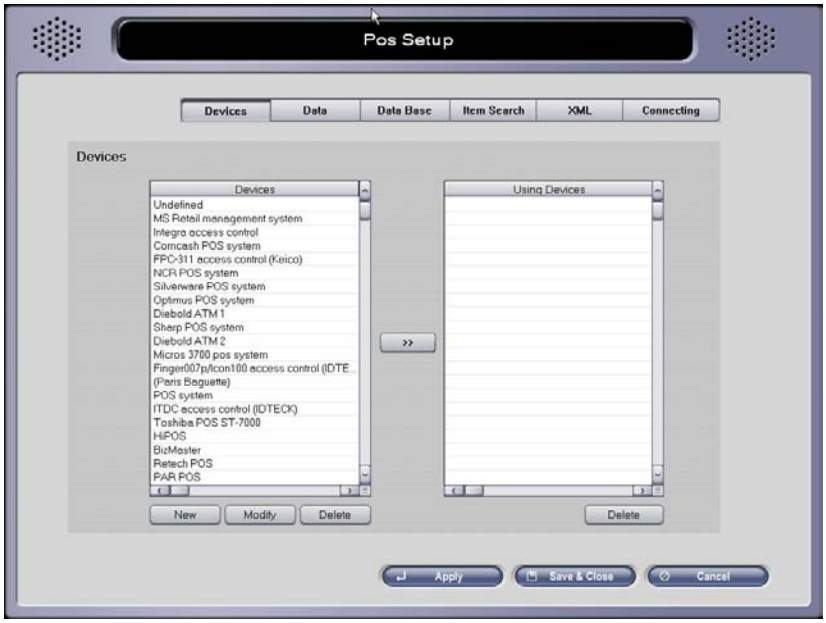
9. POS, Access Control External Device Setup

POS feature can be enabled by installing “POS.exe” file that is provided with the software.

After installation, POS menu will be added to the DVR Setting after the installation.

9-1. Device Setup

9-1-1. Device Selection



Select an appropriate POS devices and/or access controls and click “>>” button to register to the Map.

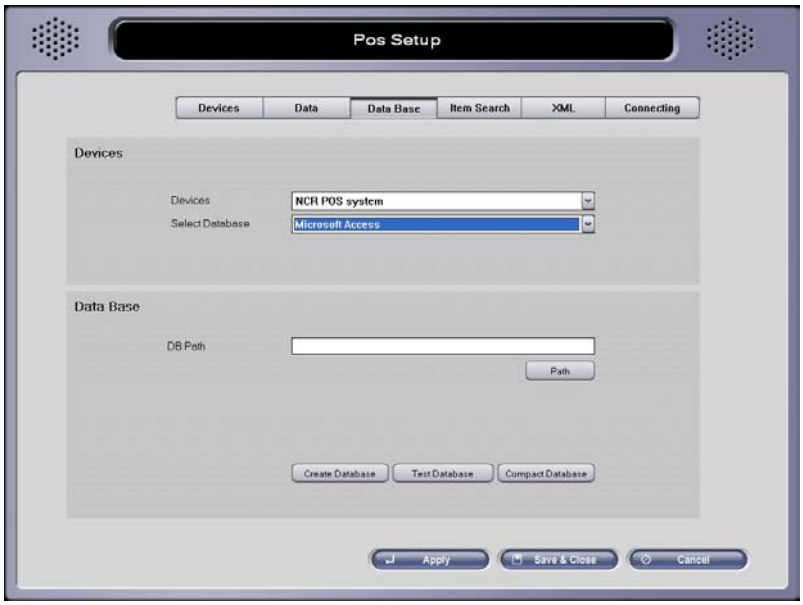
Devices can be connected and used up to the number available cameras.

9-1-2 Create Database

Database has to be created for every registered device.

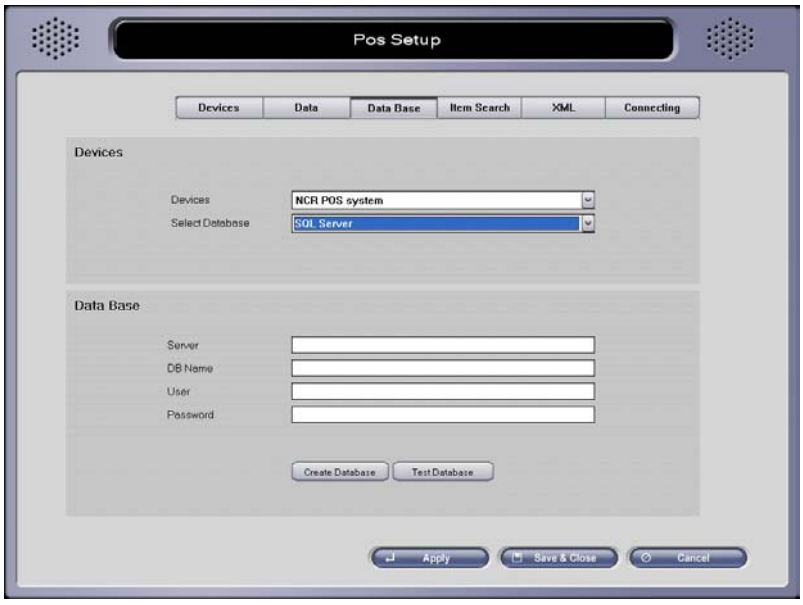
Supports Microsoft Access, SQL Server, and SQL Server 2005.

- Microsoft Access -



After selecting the directory where the Database will be stored, click “Create Database”, “Test Database”, and “Compact Database” buttons in sequence to create and test the database.

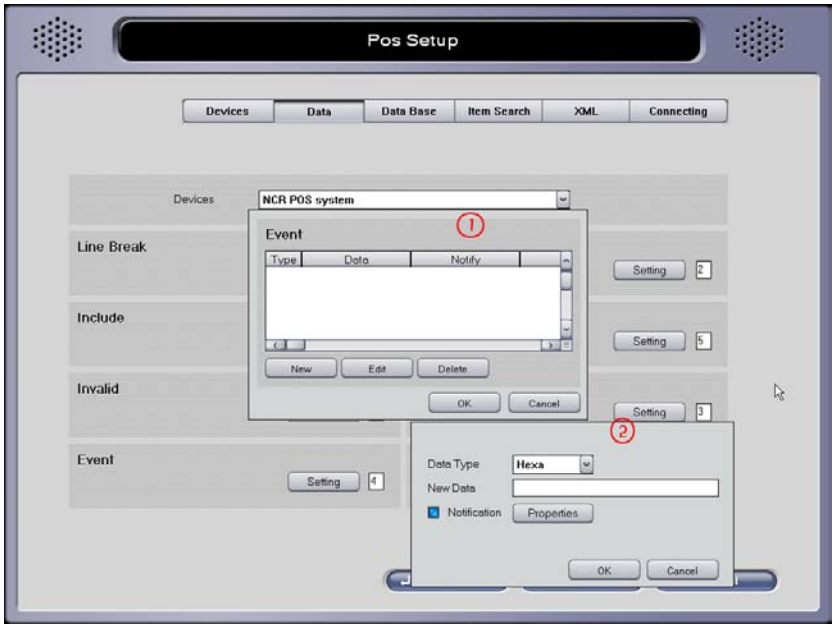
- SQL Server / SQL Server 2005-



Enter the name of the specific SQL Server and Database and the corresponding user name and password to establish connection to the specific SQL Server. Click “Create Database” and “Test Database” buttons in sequence to create and test the database.

9-1-3. Events Setting

Select the Data Tab



. Select a desired device.

. Press “Setting” button next to “Event” to open Event window (Figure 1)

. Press “New” Button to open Event registration window (Figure 2)

. Select Data Type (Hexa or ASCII) and enter data into the “New Data” field. (Select ASCII as Data Type to enter text data – note that it is case-sensitive)

. Configure the event that will be triggered when the registered data value is encountered by selecting “Notification” field and pressing “Properties.” (Refer to 5-7. Event Configuration)

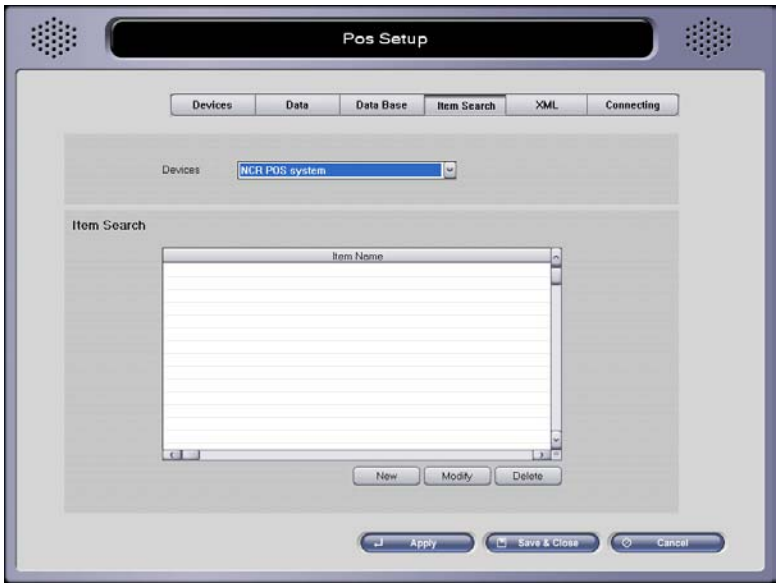
. Press “OK” after finishing the configuration.

. Run DVR Main when finished setting up all configurations including **Connecting Setup**, and you will notice that the feature selected under Notification-Properties is triggered whenever it receives text data registered in Device setting.

Note) if multiple text data registered in Event arrive at the same time, then all of them might not be triggered.

9-1-4. Item Search

Item Search allows users to register keywords ahead of time and use these keywords to search recorded text data transmitted from POS. When searching for a specific item, the range of the quantity and the cost of the item can be usted. (It might not be available depending on the type of the POS.)



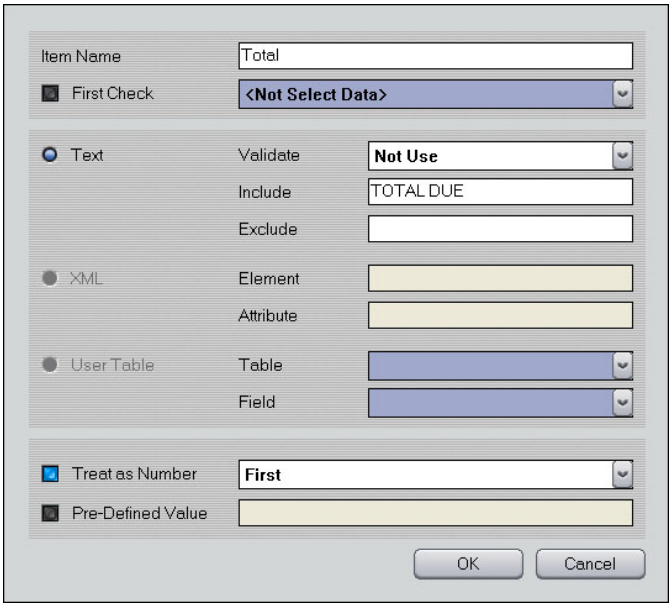
. **Devices** : Select a POS Device.

. **New** : Click to register an item.

. **Modify** : Click to modify selected item.

. **Delete** : Click to delete selected item.

The item registration window will appear as follows.



. **Item Name**: Enter the name of the item that will be used from Item Search.

. First Check : Select to perform the search using previously registered Item before searching for the Item. However, if the type of the search is XML or User Table, then First Check Item must have a Pre-Defined Value.

. **Text** : Select to search item from text data input.

- Validate : Determines the validity of the text data input before searching for an item by checking whether the input data begins or ends with a specific character or number
  - -- Not Use : Select to disable this feature.
  - -- Start with Character : Select if the text data input starts with a character (including special characters.)
  - -- End with Character : Select if the text data input ends with a character (including special characters.)
  - -- Start with Number : Select if the text data input starts with a digit.
  - -- End with Number : Select if the text data input ends with a digit.
- Include : Enter the name of the item which will be searched.
- Exclude : If the text data contains the item, but it also contains undesired item, then enter the undesired item in order to exclude the text data from the search.

* The order in which items are searched is as follows: Validate -> Include -> Exclude.

. **XML**: XML can only work if data transmitted from POS is in **XML format and uses SQL Server 2005**.

- Element : Enter an element of XML data.
- Attribute : Enter the attribute of the element.

. **User Table** : User Table can only work if the data transmitted from POS is in **XML format** , and Microsoft Access, SQL Server, or SQL Server 2005 can be used as the database. Note that “User Defined Table” from XML setting must be defined before using this feature.

- Table : Select a table that has been defined from XML setting.
- Field : Select a field of the selected table in which the search will look for the text data registered as Item Name.

. **Treat as Number** : If a text data that contains the searching item also contains numerical data, then use the numerical data as a number.

- First : Select to use the first numerical data of the text line.
- Last : Select to use the last numerical data of the text line.

* Only Items that are registered as “Treat as Number” can be searched using a range of values.

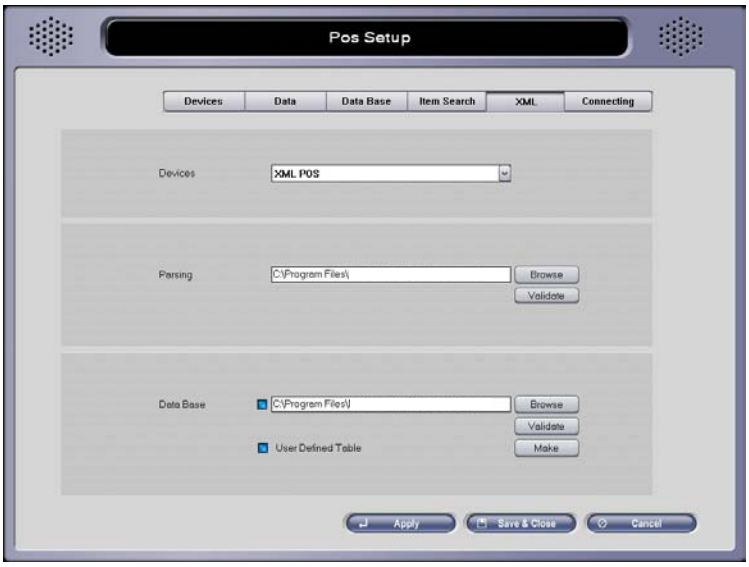
* XML search does not support “First” and “Last”. It recognizes the value of fields as a numerical data.

Pre-Defined Value : Select to define a searching condition ahead of time.

The system will perform another search for another Item from the search result under the Text search method.

9-1-5. XML Configuration

XML configuration is used to receive XML data from POS or Access Control.



. **Devices** : Select a POS Device (Only devices that support XML will be listed.)

. **Parsing** : Select a XSL Transformation file which will be usted to display only a desired field from the received XML data (Parsing is required for XML Equipments.)

- Validate : Checks to see if selected XSL Transformation file is valid.

. **Data Base** : Select an XSL Transformation file, which will be used to handle XML data as desired. (If database is disabled, the contents of received data will stay the same as it was parsed by “Parsing”.)

. **User Defined Table** : Allows users to create a user-defined table from a desired XML formatted data that makes Item Search easier and faster.

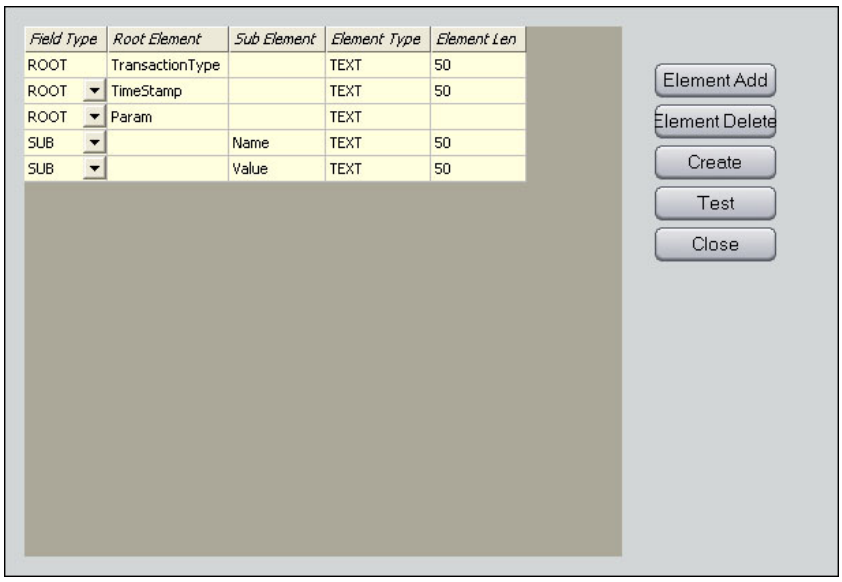
- Make : Creates a Table.

e.g.) Users can create a User-Table as the following screen-shot if the data can be formatted as below using Parsing or Data Base

---------- Data formatted by Parsing ----------

```
<html>
        <TransactionType>...</TransactionType>
        <TimeStamp>...</TimeStamp>

        <Param Name="..."  Value="...">
        <Param Name="..."  Value="...">
        <Param Name="..."  Value="...">
         <Param Name="..."  Value="...">
</html>
```



-- Element Add : Adds an element.

-- Element Delete : Deletes an element.

-- Create : When finished defining a Table, click “Create” button to create the User Table on the database.

-- Test : Tests the validity of the selected table.

9-2. Connecting Setup

Comunication with external devices can be performed using serial or TCP/IP ports. **Port converter** can be used to allow the communication with RS-422/485 and parallel communication methods.

"Com Setup" and "Lan Setup" cannot be accessed while the Main Application is running.

9-2-1. Com Setup

The list of the COM ports that can be used under the system will be listed on the left portion of the screen. COM Port Expansion Cards can be purchased separately if extra COM ports are accessory.

. Select either COM1 or COM2 to which the external device is connected.

. **Devices** : Select a device that will be linked to.

. **Port Setting** : Configure them the same way as the configuration of the external device. The following is a common configuration:

(Speed: 9600, Data bit: 8, Parity: None, Stop bit: 1, Flow Control: None)

- Device ID : Set the range of the ID in case that identical Access Controls are bundled together. (Only available with specific Access Controls) e.g.) 1 – 5, 3 – 10, etc

. **Connect Test** : When all configurations are made, "Test Data Capturing" button can be used to check the data transmitted from the external device. If you are unable to check the transition of date, make sure that the connection with external device and Port Setting are made correctly. (Test cannot be performed with Access Controls. The only way to verify the data is by running the Main Application.)

9-2-2. Lan Setup

The connection with multiple external devices that support TCP/IP is possible using a single TCP/IP connection. Each external device must use different port number in case that multiple devices are connected to the system at the same time. Select an entry from LAN 1 to 16(32) from the list

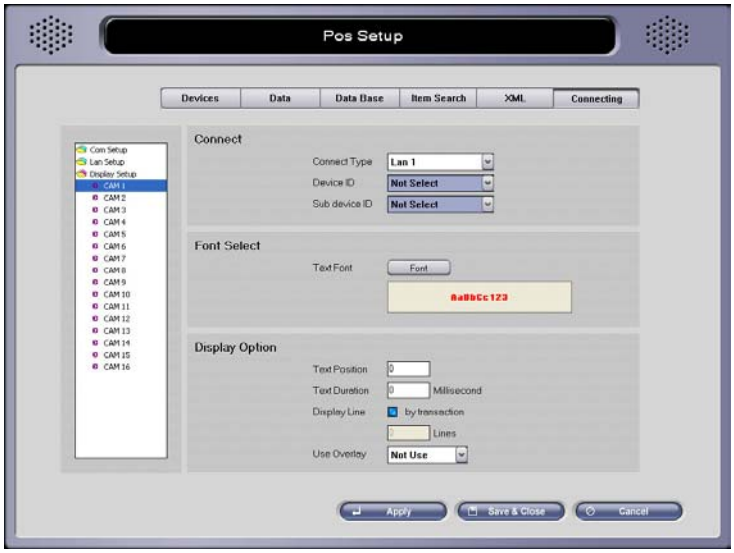
. **Devices** : Select a device that will be linked to.

. **Port Setting** : Set Port Setting the same as the external device's configuration.

- Device ID : Set the range of the ID in case that identical Access Controls are bundled together. (Only available with specific Access Controls) e.g.) 1 – 5, 3 – 10, etc
- Protocol Type: Supports either TCP or UDP (if the external device supports both protocol types, then UDP is recommended) Choose TCP Client for Access Controls, otherwise choose TCP Server.
- Port : Select the same port as the external device. If multiple external devices are connected through a LAN, then each device must use different ports.
- Address : Enter the IP address of the external device if TCP Client is selected.

. **Connect Test** : When all configurations are made, "Test Data Capturing" button can be used to check the data transmitted from the external device. If you are unable to check the transmission of date, make sure that the connection with external device and Port Setting are set correctly. (Test cannot be performed with Access Controls, and the only way to verify the data is by running the Main Application.)

9-2-3. Display Setup



Allows users to set the font and display option of each camera that are linked to an external device.

. **Connect** : Select a device that will be linked to the camera.

- Connect Type : Select a previously configured COM/LAN device number.
- Device ID : Select the ID of the device if there are multiple Access Control devices, and they and bundled together (Only available with specific Access Controls.)
- Sub device ID : Select the ID of the sub-device if multiple sub-devices are connected to the Access Control. (Only available with specific Access Controls.)

. **Font Select** : Click “Font” button to change the font, size, color, etc of the text data.

. **Display Option**

- Text position : Enter the starting position of the output. The basis of this position value is the upper portion of the corresponding camera, and the higher the value, the lower will the texts be displayed (There might be minor difference depending on the current screen partition.)
- Text duration : Enter the the duration of text output in milliseconds (1/1000 second.)
- Display lines : Check “By transaction” to display text data in multiple lines until the transaction data is transferred.

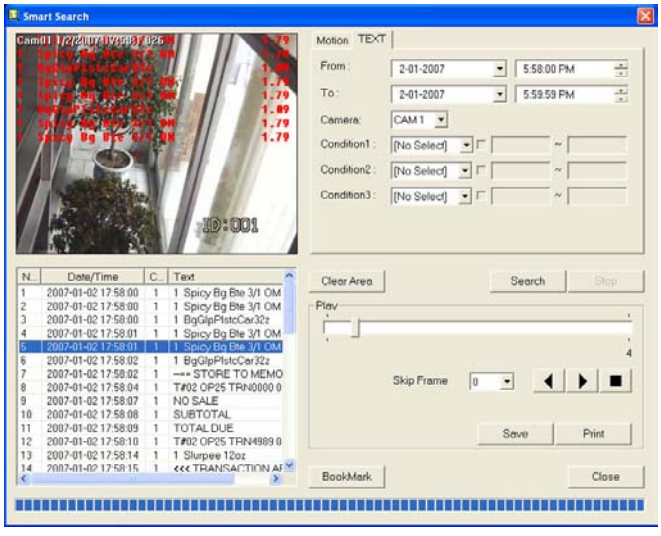
  Unchecking “By transaction” and entering a numerical value in “lines” will force the system to display only given number of lines, and next text output will be displayed after clearing the screen.
- Use overlay :
  -- Not Use : Select to disable this feature (Recommended.)
  -- Use : Select to combine text and video input into one single image. (The text data might be displayed after the overlaying process depending on the product.)
  -- Hidden : Select to hide text data on main screen, but still record text data and make it searcheable.

  * Text outputs look clearer on data that do not use overlay feature.

10. POS, Access Control Data Search

Configure external device setup, and run the Main Application to check that text outputs are being properly transmitted from external devices as the above screenshot. Each video and text data are recorded instantly, and data that are transmitted from external device can be searched directly using Smart Search.

. Run “Smart Search”, and press “Text” Tab.

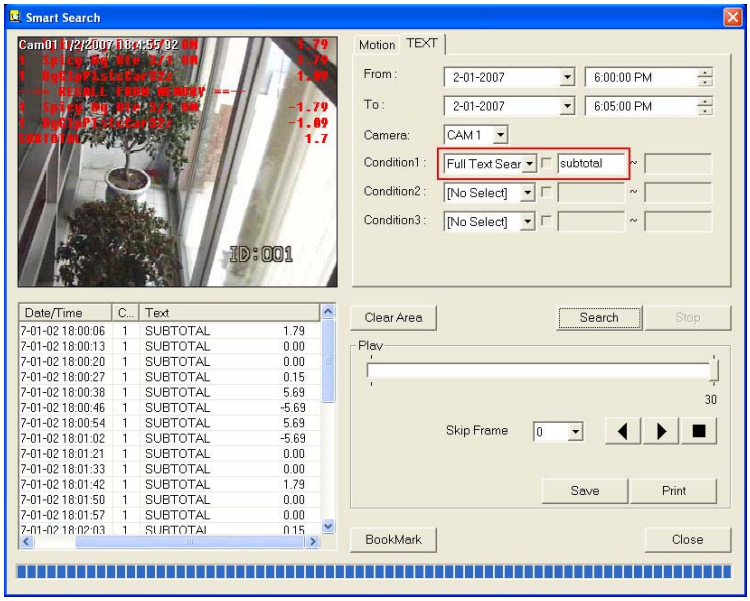


. Select a date, time, and camera to begin the search. (From, To, Camera)

. All data within the given range will be retrieved if search is performed with all conditions set as “No Select”

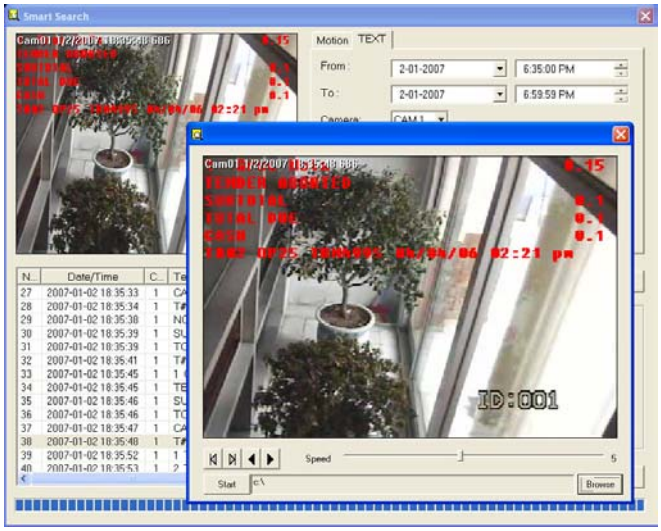
. Images can be saved and and printed.

. Select “Full Text Search” and enter a text string as the following screenshot to search for data that corresponds to the text string.



. Select “Full Text Search” and enter a text string for each condition (Condition1, Condition2, Condition3) to search for data that correspond to all condition text string. (AND Operation)

. Make a double click on an entry of the table that contains item found from the search to display a popup window as follows.



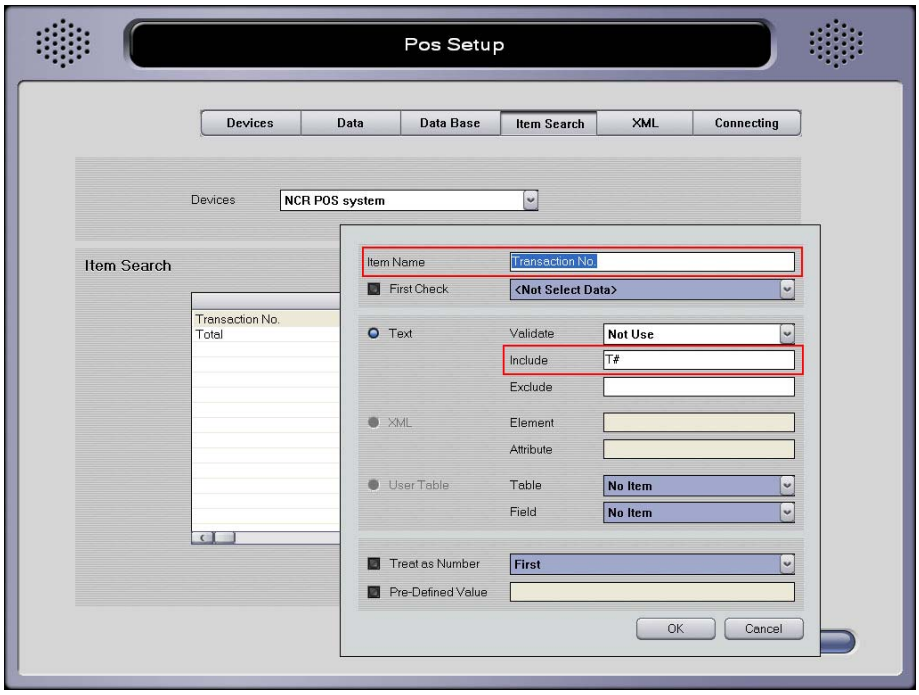
. The window can be resized by clicking and dragging the corner with mouse.

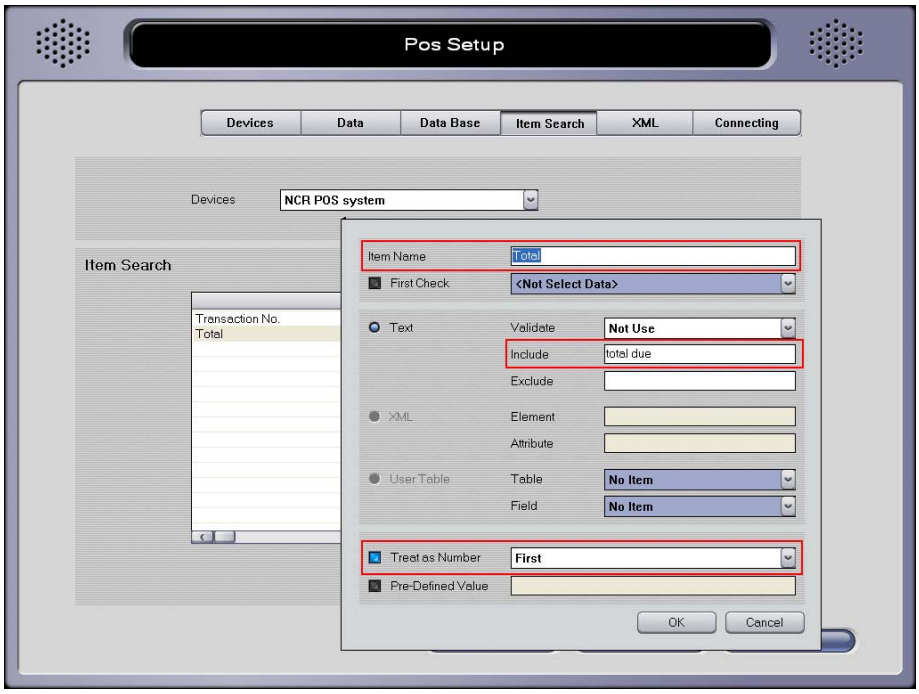
. It suppports searching features like frame by frame, playback, and AVI saving.

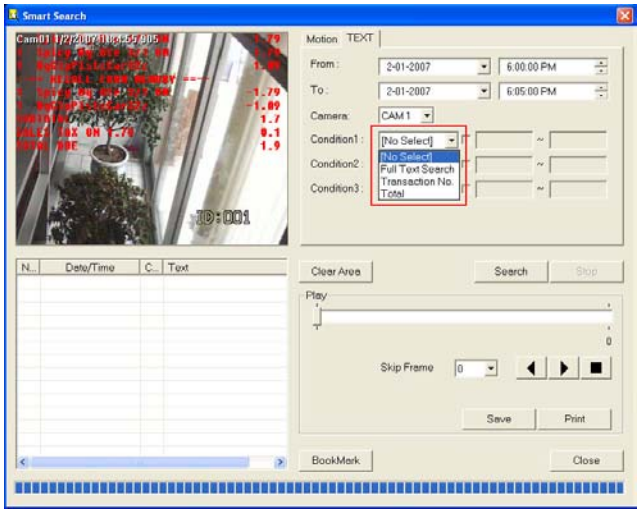
10-1. Item Search

If items were registered from “9-1-4. Item Search Configuration”, then searches can be performed easily and quickly for each item.

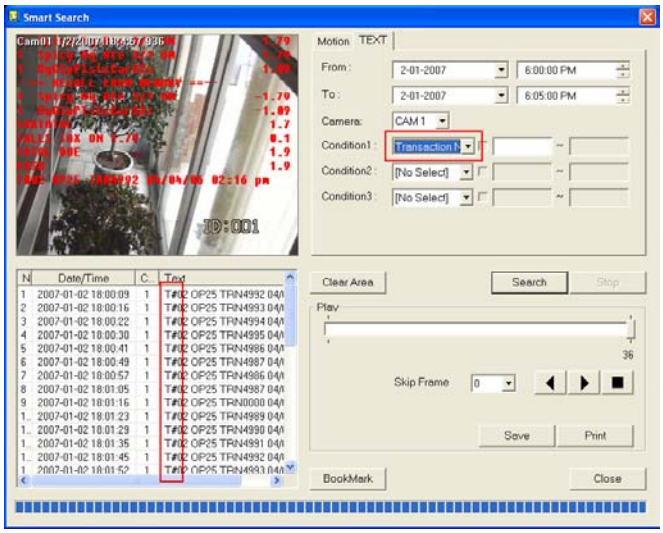
If items are registered as following screenshot.



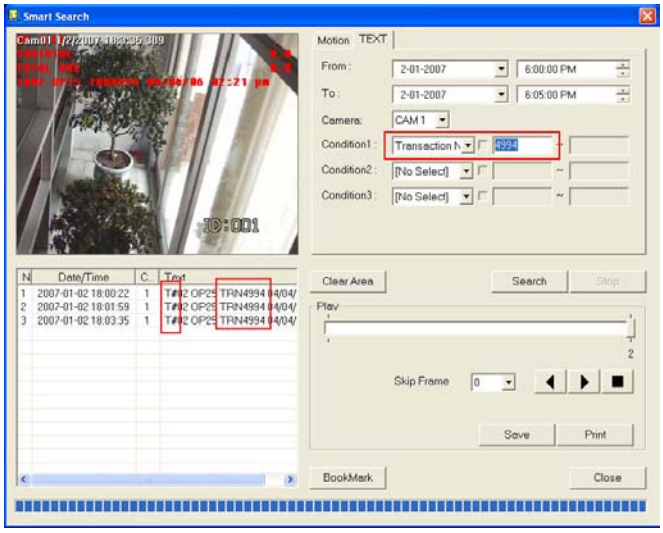




Then the registered item will be listed on the drop-down menu of each condition of the Smart Search.

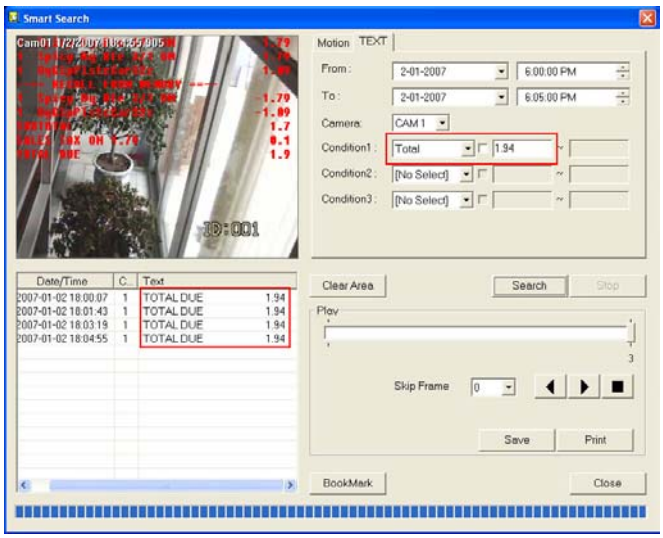


If a search is performed using "**Transaction No.**", then the search will list all data that contains the currently registered T# value.

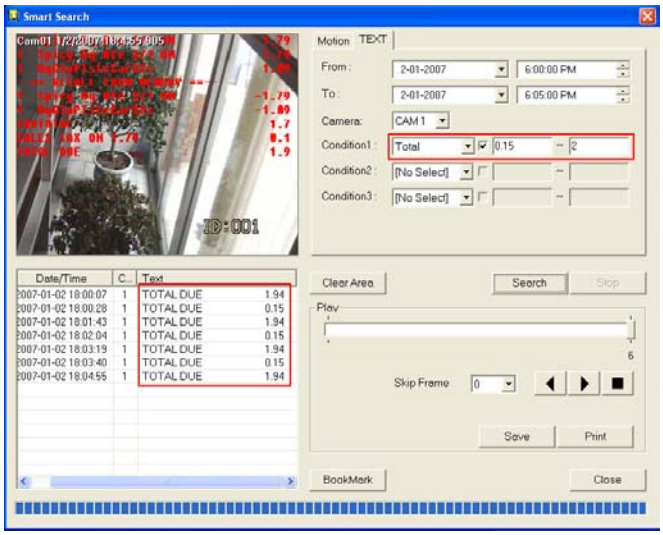


. While performing search using “**Transaction No.**”, a value(e.g. 4994) can be entered which can be used to display data that contain ‘T#’ and ‘4994’

If search is performed using “**Total**”, then the search will list all entries with “Total Due” string.



. While performing search using “**Total**”, a value(e.g. **1.94**) can be entered which can be used to display data that contain “total due” and “1.94”



Check the checkbox that is located next to “Total” to perform a search within a range of values.
(e.g. Entering “0.15~2” will only search data that corresponds to the given range of values.)

If the checkbox, located next to “Total”, is checked, entering only the value of :

a. the first field will search any entries with equal to or higher value than the given value.
b. the last field will search any entries with equal to or lesser value than the given value.

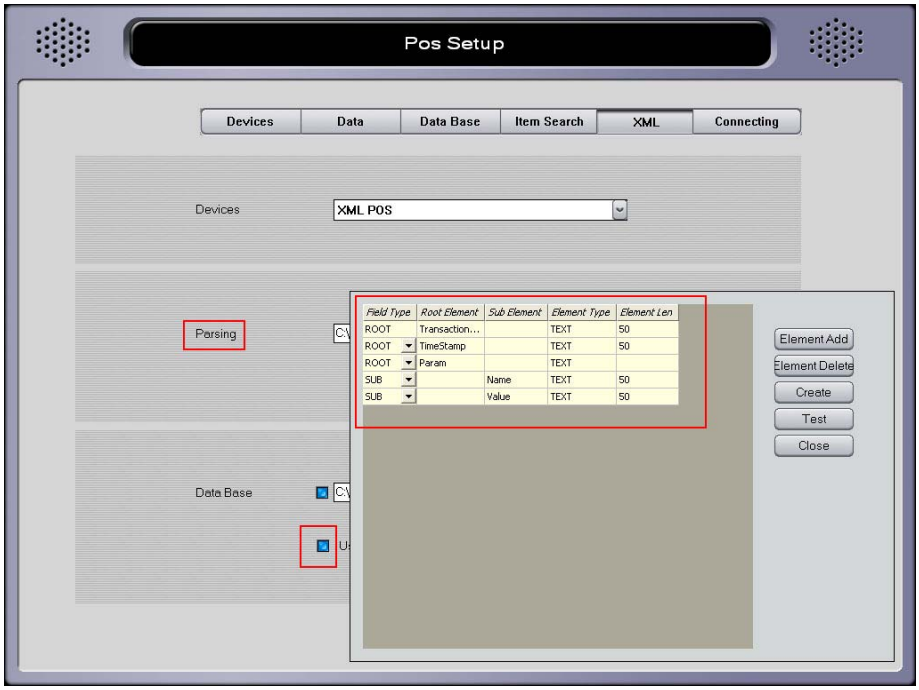
(Net Remote Smart Search requires both values)

***** The search was able to retrieve data from a range of numerical values by recognizing the first text input as a numerical value because “Total” item was registered with “Treat as Number” option enabled and set as “First.” This is why check button is activated in Smart Search.

10-2. Item Search (XML)

POS, which transmitts text based POS and XML data, has many different ways of setting up its behaviors with “Item Registration” and “Smart Search.”
The use of SQL Server 2005 as a database can replace the need for “User Table” by manually entering “Element” and “Attribute” in XML Configuration; however, User Table is required in the absense of the SQL Server 2005.

In case of using XML POS, when User Table is created, and Items are registered as following screenshot:



. **Parsing** : Select a XSL Transformation file to make sure that only desired fields of XML data, transmitted from POS, will be displayed (Parsing is required with the use of XML devices.)

. Data Base is optional.

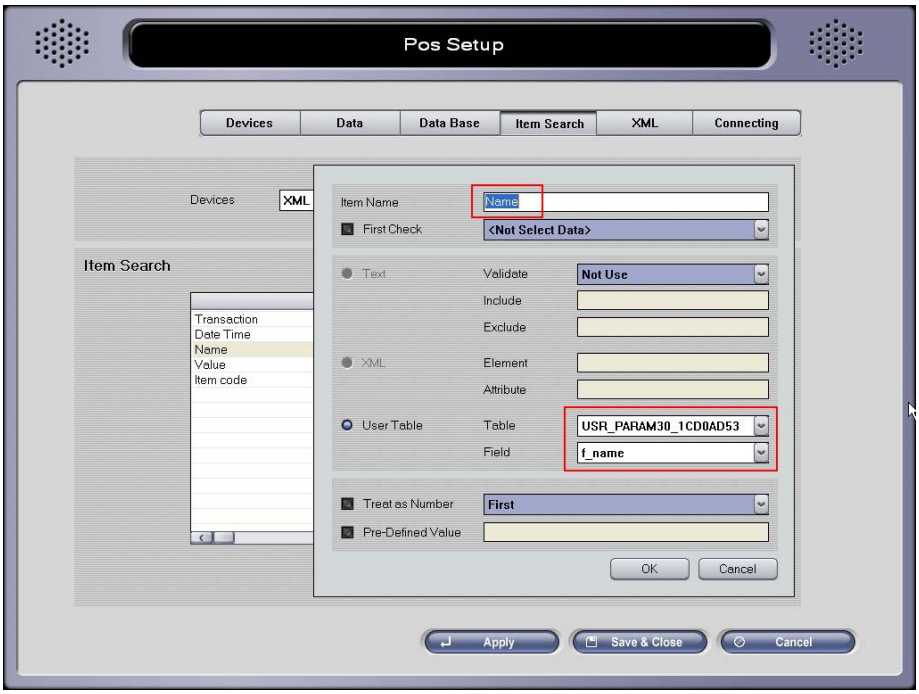
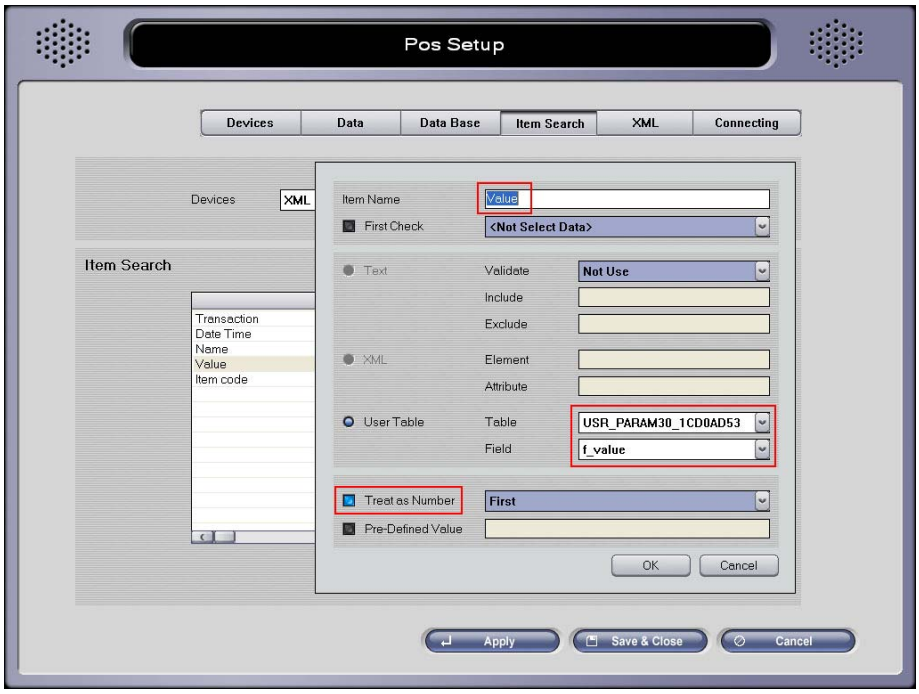
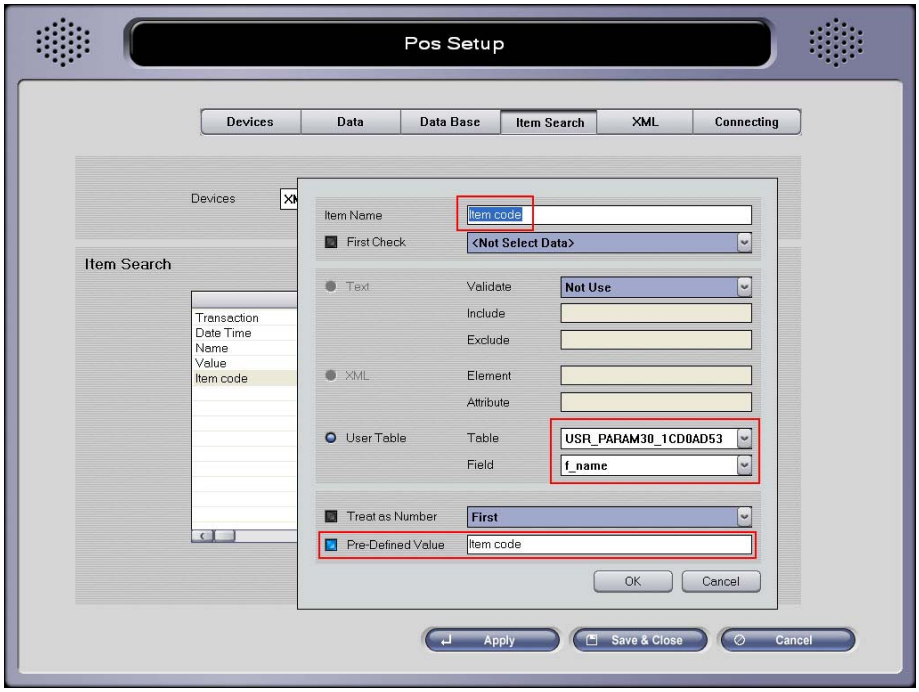


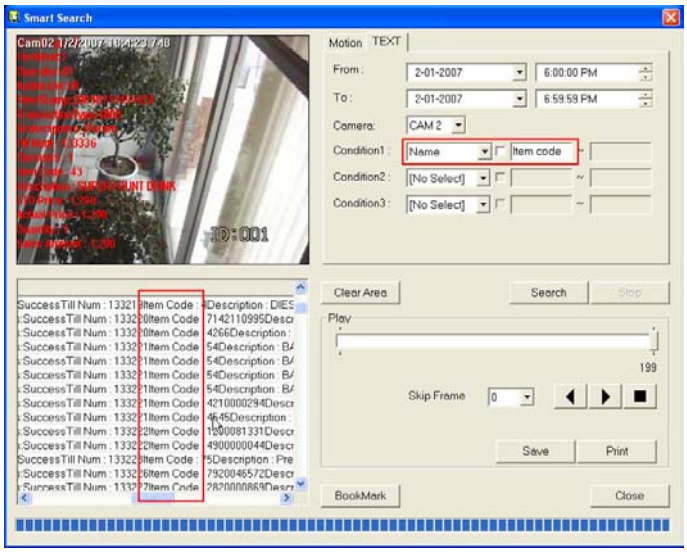
Table and Field will be allocated automatically when “User Table” is created, and “Item Name” will become an alias of “Field.” Data search performed by Smart Search will be retrieved from the given field.



"Treat as Number" field is checked to enable the use of numerical data in the "f_value" field for the search.



Enable "**Pre-Defined Value**" to enter the data value directly into the selected field and retrieve result from it.

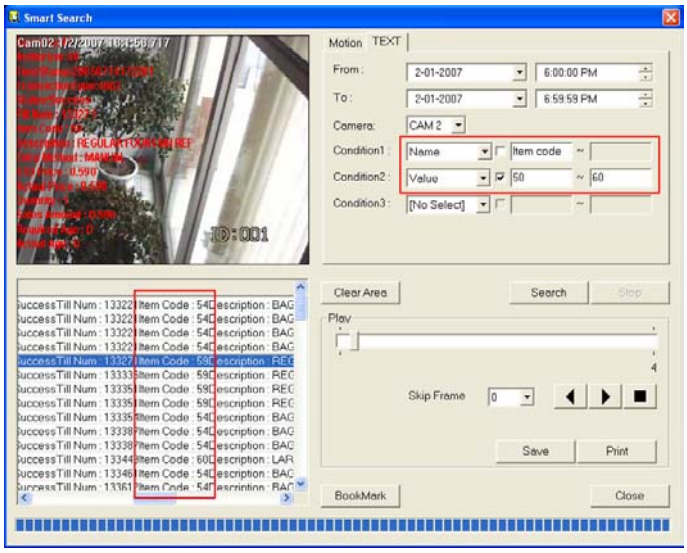


Retrieve “Item Code” from the field that corresponds to “**Name**.”

- **XML Characteriestics** -

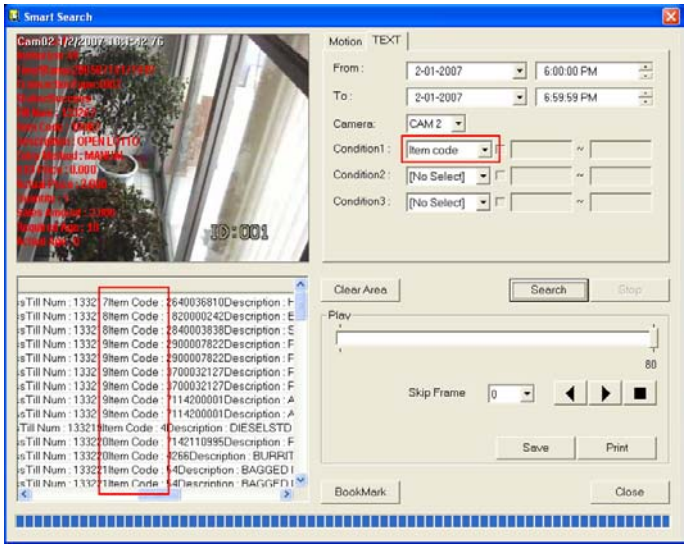
. Search cannot be performed using partial keywords in the field.
(e.g. “Item code” cannot be retrieved using a keyword like “Item”.)

. Even if an Item does not have “Treat as Number” feature enabled, all characters (including numbers) can be retrieved from a range of ASCII Codes.



After retrieving data with “Item Code” from the field that corresponds to “**Name**”, perform a secondary search from the search result using another field that corresponds to “**Value**” to retrieve data that contains a value between 50 and 60. Here, “Value” Item has “Treat as Number” field enabled in order to activate the use of numerical data for the search.

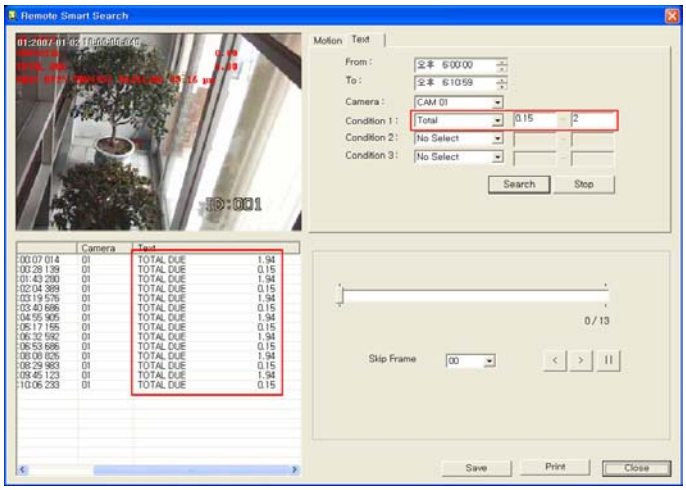
If the field that corresponds to “Value” contains any other characters than numerics, then the search will not find any data and will display “Error, open recordset!” message.



Since “**Item code**” Item was registered with “Item code” string in Pre-Defined Value field, the search will retrieve data with “Item code” string in the corresponding field. And because Pre-Defined Value already contains a value, Smart Search will not accept a value for this particular case.

10-3. VC DVR-Net, VC DVR-Web

Execuse **Smart Search** remotely from **VC DVR-Net** Application.



. All Items registered from VC DVR DVR are available, and its usage is identical to the Smart Search of VC DVR Main.

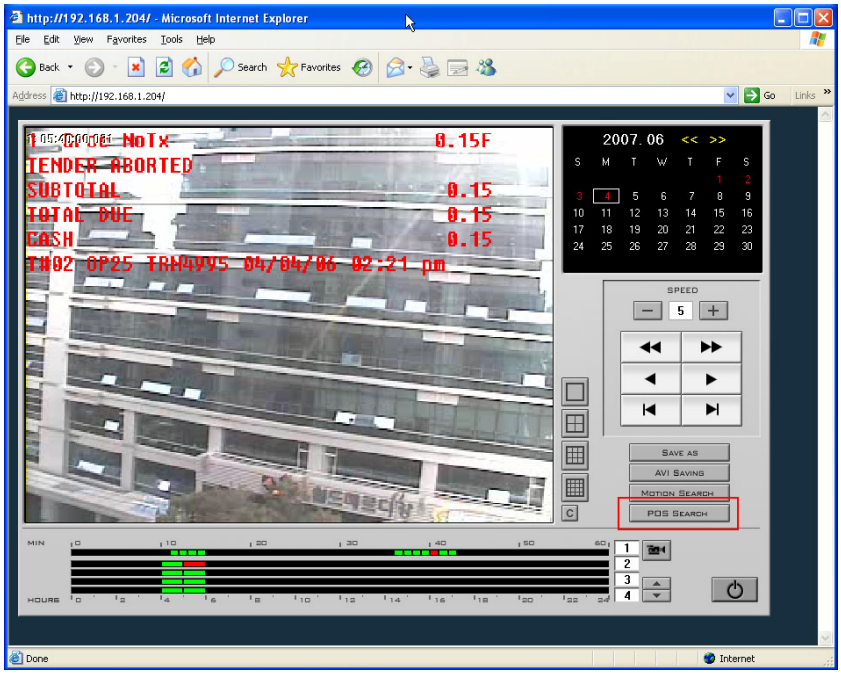
(Except that the Remote Search requires values in both fields (0.15 ~ 2) when searching within a range of data, whereas VC DVR DVR requires only one of them.)

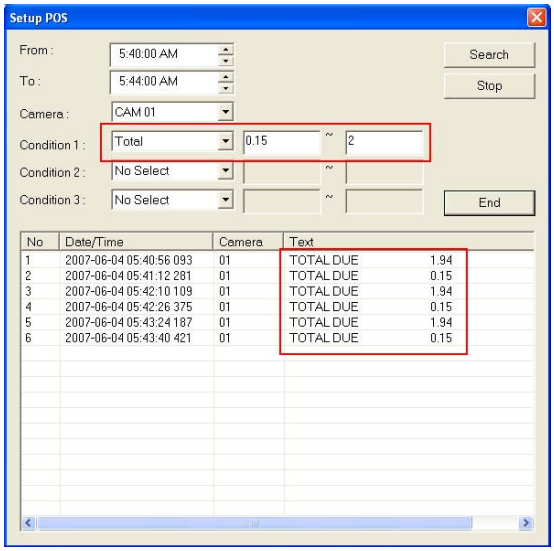
. All data that corresponds to “Total” Item with a between 0.15 and 2 (that is, such data will contain “total due” string and a value between 0.15 and 2) will be retrieved from VC DVR DVR.

. There might be a transmission delay depending on the network status.

Run Search from VC DVR-Web

“POS Search” button will appear is VC DVR DVR system has POS patch installed.



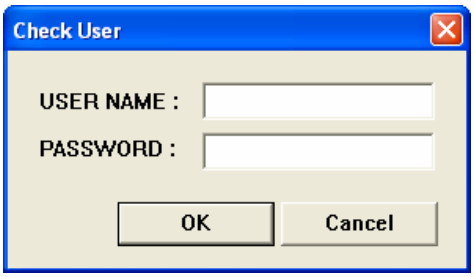


. VC DVR All Items registered from VC DVR DVR are available, and its usage is identical to the Smart Search of VC DVR Main.

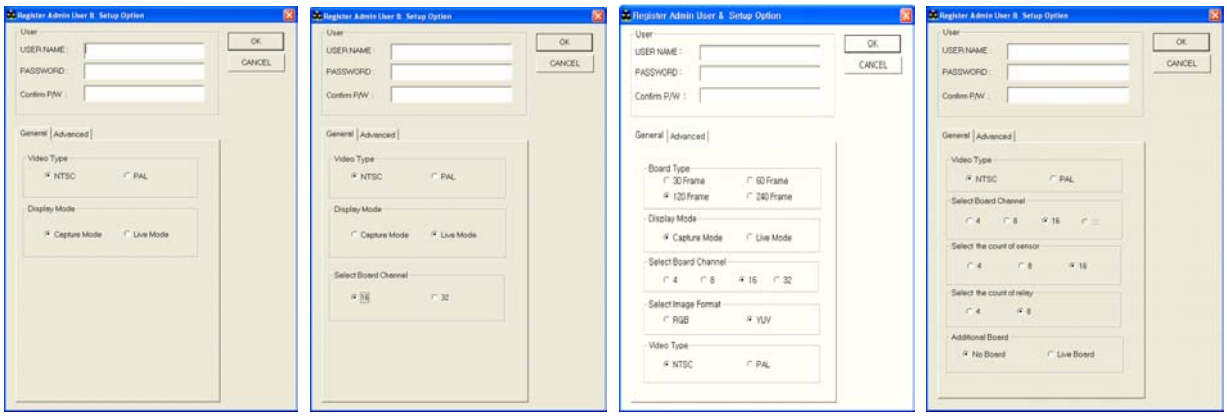
Appendix

1. DVR Management

A system with the DVR software and hardware that upgrades to a different capture card must be reconfigured. This can be done by executing ‘START.exe’. It is located either on the desktop or the directory where DVR software was installed.



• **USER NAME:** User name that was used in installation of the program (Top Admin User).
• **PASSWORD:** Password that was used in installation of the program.



Depending on board type, different window will be displayed.

1. 1 User

Change user name and password for Admin. However, all the other users name and passwords will be deleted.
• **USER NAME:** Input the name of Top Admin.
• **PASSWORD:** Input the password of Top Admin.
• **Confirm P/W:** Confirm password.

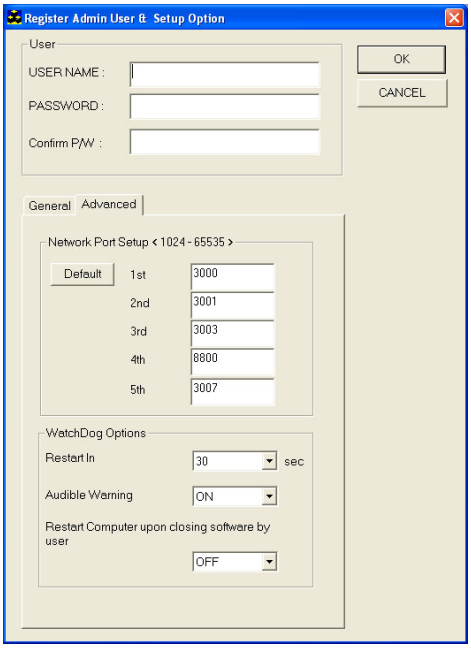
1.2 General

• **Video Type:** Regional video format type. (NTSC or PAL)

• **Display Mode:** Type of video image in Main screen.

• **Select Board Channel**: The number of channels board is capable of displaying.

1. 3 Advanced



•Network Port Setup

- 1st port: Image transmission.
- 2nd port: Command (including PTZ) transmission.
- 3rd port: Setting information transmission.
- 4th port: Audio data transmission.
- 5th port: Network transmission speed and bandwidth control.
- Default: Restore port numbers to the default values show in the figure.

•WatchDog Option

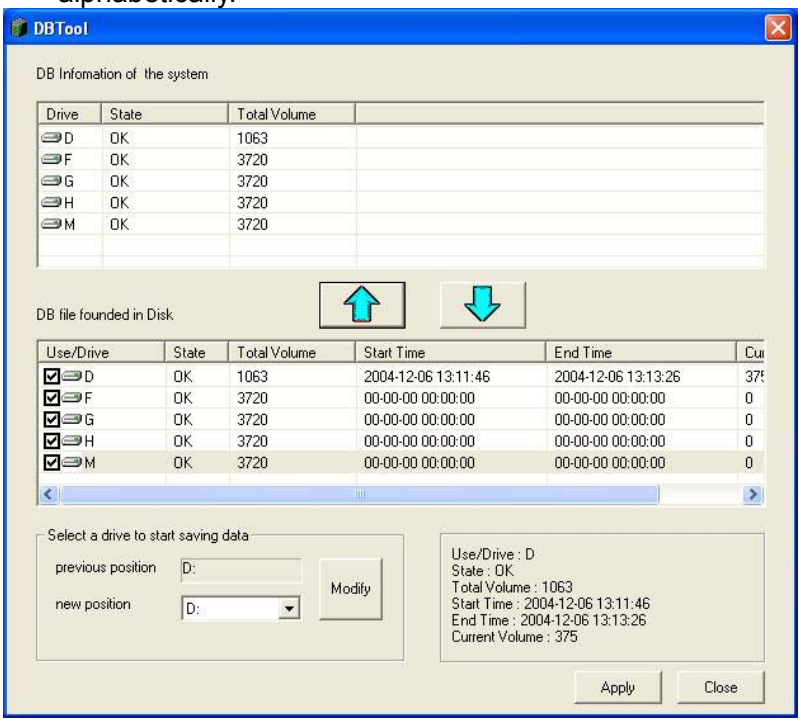
- Restarted: Sets the waiting time to restart the system after Main software is turned off.
- Use Beep Sound: if “on”, computer will beep when DVR Main is off.
- Restart Computer upon closing software by user: if selected, the system will be restarted when DVR Main is closed. It is recommended to use when Auto startup is enabled under system setup.

Once information has been changed, make sure to enter the user login information and click OK to apply changes. Admin level user information must be entered.

2. DBTool

- Note -

1. This procedure applies to program version 5.01.00 or later.
2. This utility is required for disks (that contain a database) that are moved from one machine to another and searched through by that machine.
3. After transferring the disk, the volume data on the disk should be verified by the DBTool.
4. As an added feature, it is possible to search through data in this drive by utilizing the DBTool.
5. If 2 drives have data with the same date, the program will search through each drive alphabetically.



- **DB file found in Disk**
  - Lists all the drives that contain DB files.
  - Check the box next to each drive that will be used and searched.

- **DB Information of the system**
  - Press ↑ button so that the drive names checked in 'DB file found in Disk' can be added on the DB information list. Press ↑ button to transfer the drives checked in 'DB file found in Disk' to 'DB Information of the system'.

    ** Disks that are checked in "DB file found in Disk" must be registered here*

- **Select a drive to start saving (recording) data**
  - Chooses drive at which to start recording data.

Example

- Data searching after transferring one hard drive to another machine

(1) Install hard drives.
(2) Install DVR software.
(3) Run DBTool.exe.
(4) Check drives to use in ‘DB file found in Disk’.
(5) Press ↑ to add the selected drive(s) to ‘DB Information of the system’.
(6) Press ‘Modify’ after selecting a drive from ‘Select a drive to start saving data’.
(7) Press ‘Apply’ to finalize.

Note: Make sure that the drives checked in ‘DB file founded in Disk’ are shown in the list of drives listed in ‘DB Information of the system’ as well.

- After using this tool to reconfigure the drives, it will be possible to search through the files located on imported drives.

- By copying or transferring the ‘MP4DATA’ folder to another machine, it will be possible to search through the saved files immediately as long as the DVR program is installed on that machine.

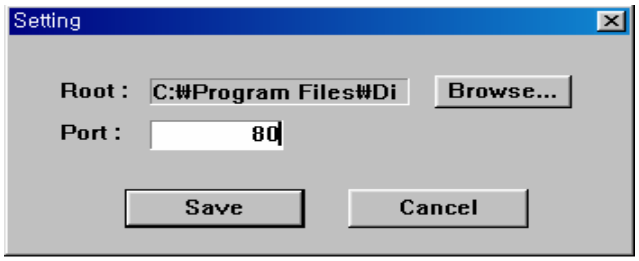
3. Direct Web

3.1 Server

: Once Direct Web is installed, the system tray icon shown should appear. This program was installed automatically, along with VC DVR main program.

Note: When there is a collision against the firewall or port in the server with Direct Web, click the right hand button of the mouse on the tray bar icon and select 'setting'. Select which ports you would like to open to outside connections.

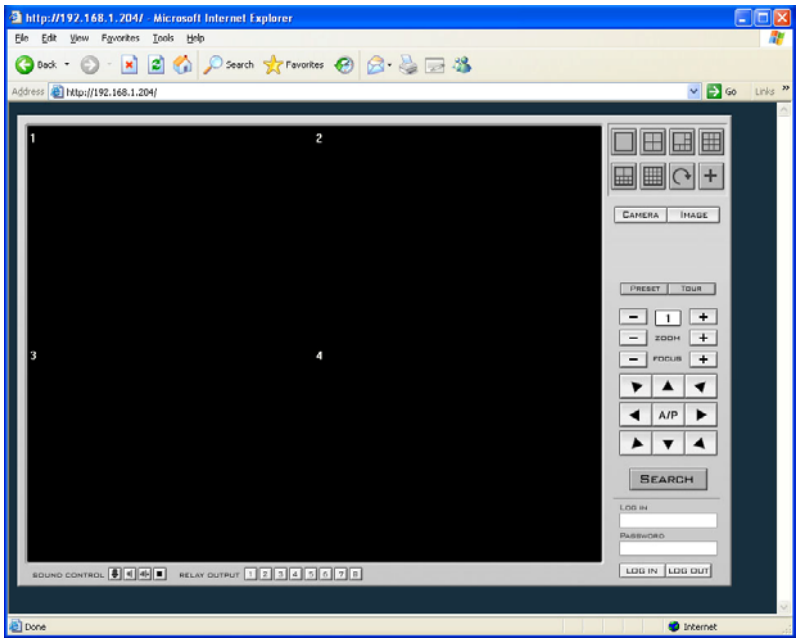
As for the root setting, it is recommended to use the default.



3.2 Client – Main

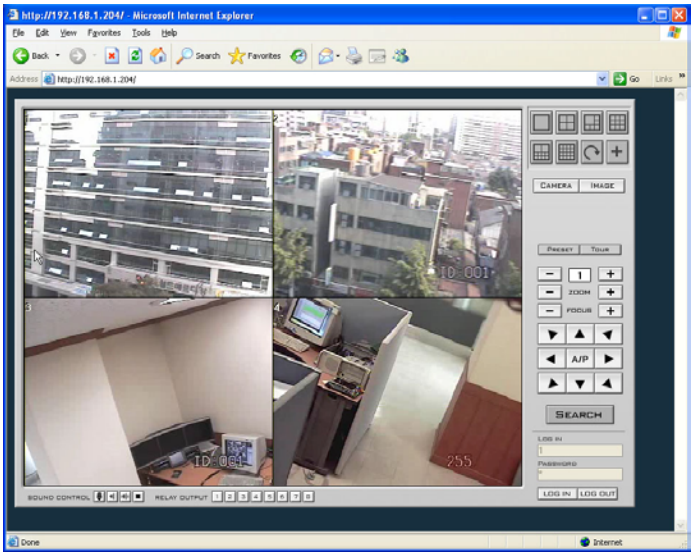
Enter the IP address of an available server in the URL bar of Internet Explorer (version 5 or higher).If this is the first time using Direct Web client, it will take several minutes to load all the necessary files.

Note: After all the files have been loaded, it might be necessary to either reload or open a new browser.



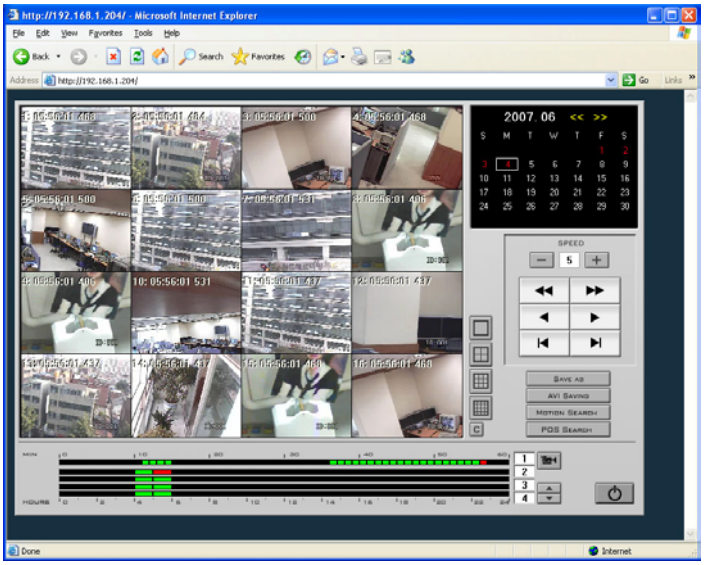
Enter the login and password of an authorized user.

The following picture is an example of the web view after connecting to the server.



These are supporting functionalities; Multiplex view mode, PTZ control, image control, voice communication, relay out, etc.

3.3 Client – Search



Choose desired date, camera, and time to search the video.
SPEED: Changes playback speed.
SAVE AS: Saves single image as image file.

AVI SAVING: Click “AVI SAVING” and play through video, and the video is saved as AVI file. To stop AVI saving, click “AVI SAVING” one more time.
MOTION SEARCH : Allows users to search recorded images with movements. (It might take a while on slow network connections)
SOUND SEARCH: Click speaker icon and the timeline will display sound recording (if sound recording exists) with blue bar as shown in above. Select blue section of timeline to search sound recording. Adjust playback speed and buffering size for better synchronization.

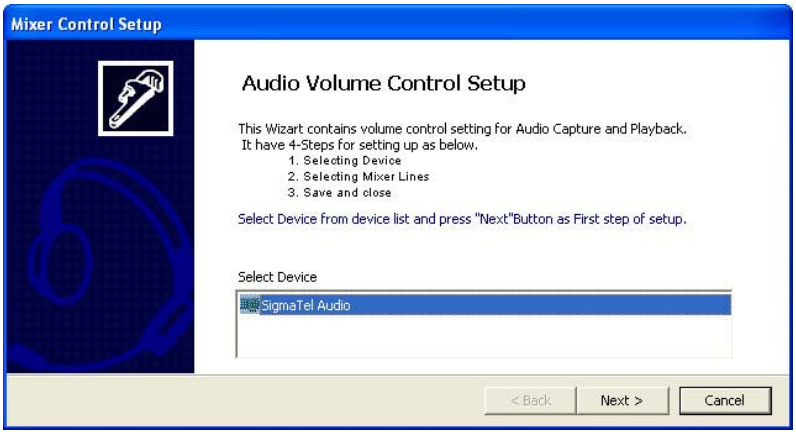
4. MC (Media Control) Setup

This section only corresponds to CAP, LIVCAP, and ACAP series – that is the systems configured for two or four sound input channels.

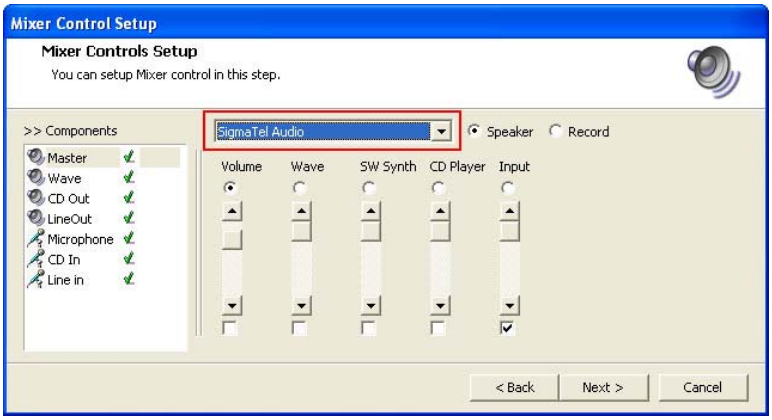
- The configuration of the sound controller installed in the system might differ depending on the motherboard.
- Make sure that the speaker and Line-in/Microphone are connected properly and verify the connection using the Sound Utility, provided with the motherboard driver (refer to the audio installation guide on the motherboard manual.)

NOTE- The color set of the audio ports might differ depending on the motherboard. Howerver, most motherboards generally use blue for Line In, red for Microphone, and green for Speaker.

. Run **MCSetup.exe** which is located on the folder where DVR software is installed (VC DVR DVR Folder.)



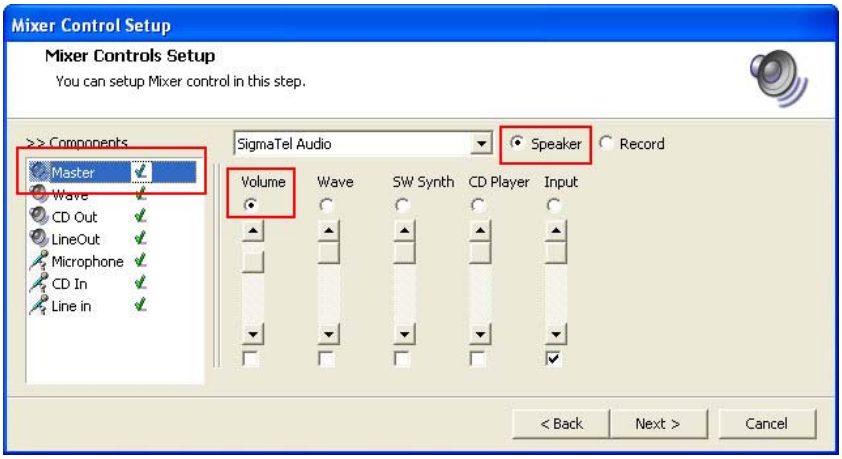
Select a device from the Devise List and click on "**Next**" button.



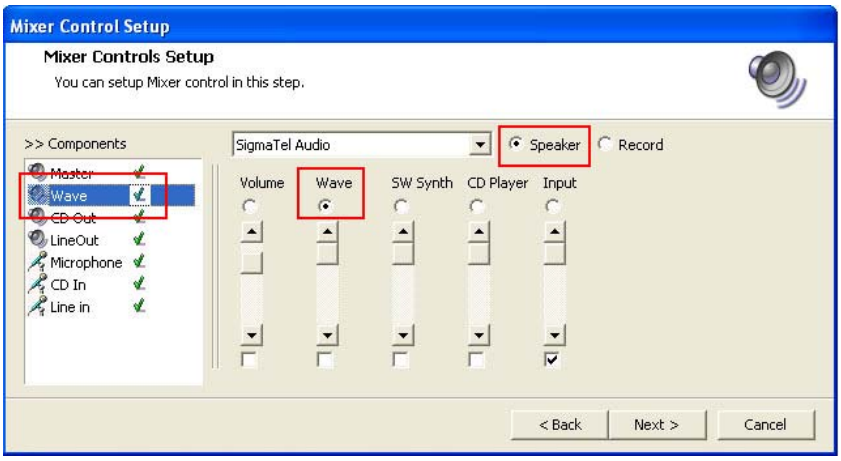
Select a Sound Device Type (Multiple Device Type might appear depending on the type of the sound controller.)

The appearance of the Volume control differs for each Device Types.

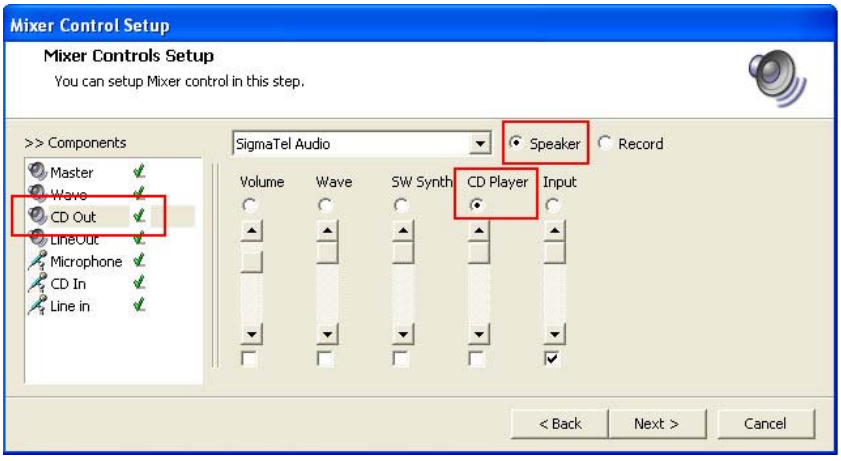
Before selecting a component, select either **Speaker Type** or **Record Type** (this option might not be available depending on the sound controller.)



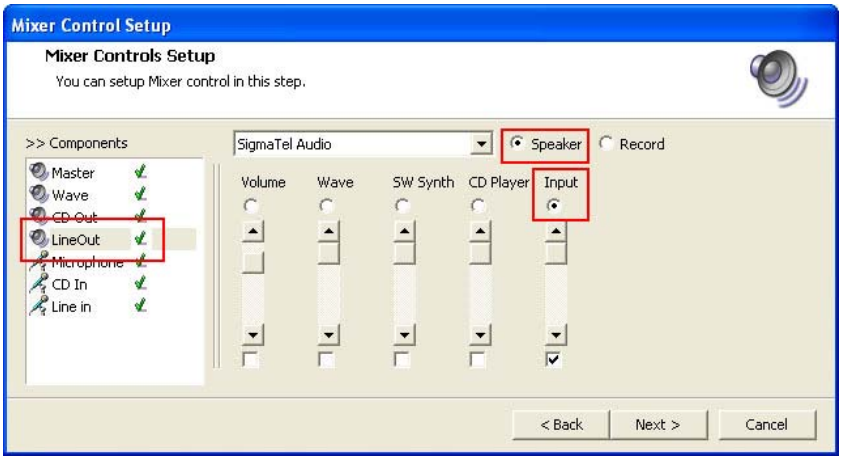
Select Master from the List of Components and choose an appropriate controller.



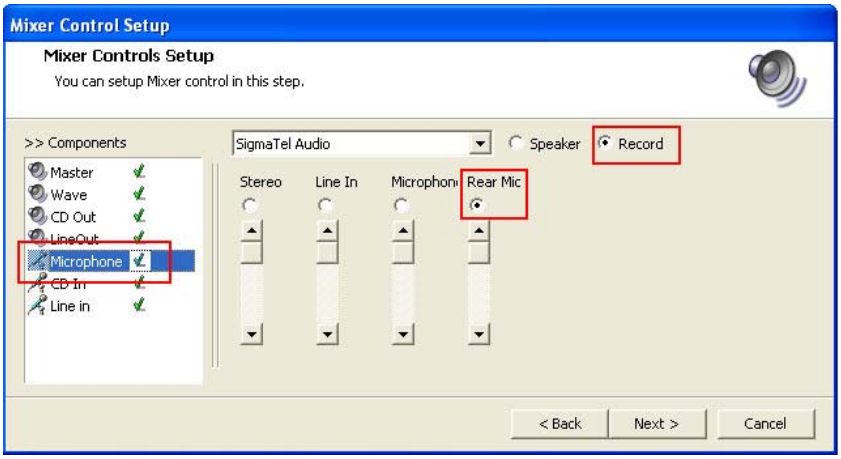
Select Wave from the List of Components and choose an appropriate controller.



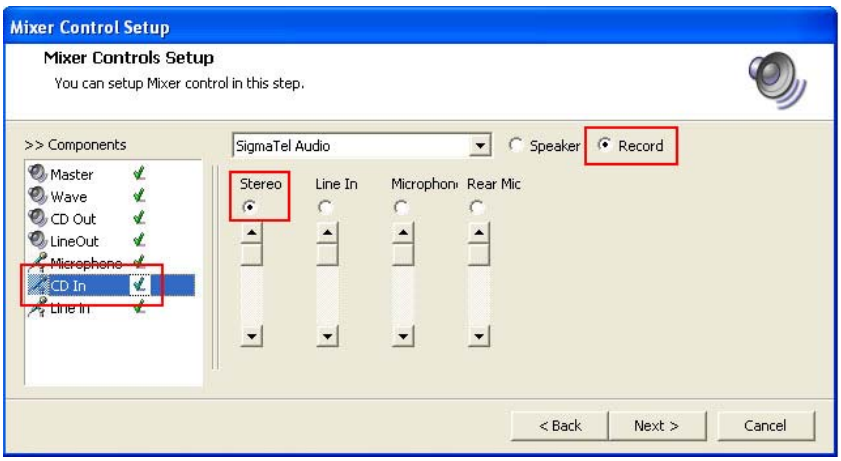
Select CD Out from the List of Components and choose an appropriate controller.



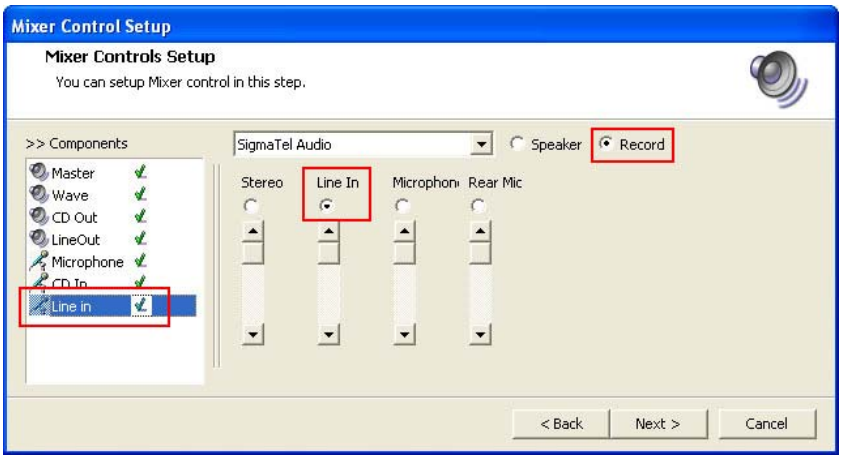
Select Line Out from the List of Components and choose an appropriate controller.



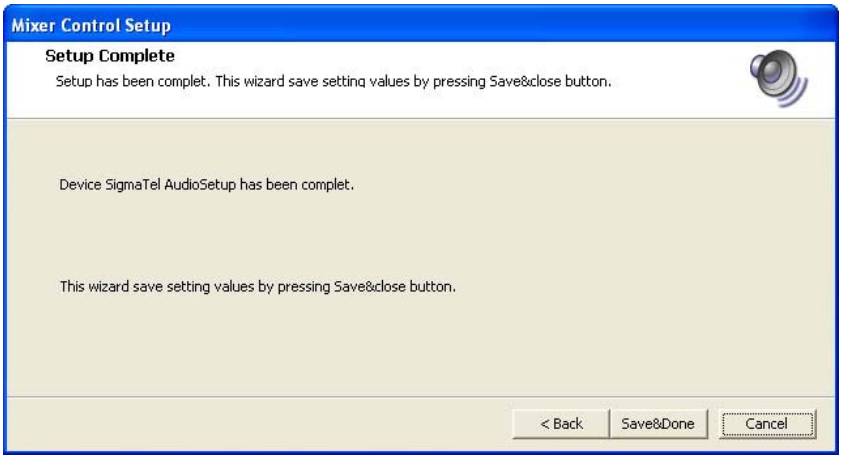
Select Microphone from the list of Components and choose and appropriate controller.



Select CD In from the list of Components and choose and appropriate controller.



Select Line In from the list of Components and choose an appropriate controller.
Click on “**Next**” button if all components are configured.



Click on “**Save&Done”** to finish the MCSetup.

. If there is another sound card installed in the system, run the MCSetup again and repeat the above procedure to configure the corresponding device (to enable 4 channel sound input)

. Once Media Control Setup is complete, DVR Main application will use configured information to operate with sound input.

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