

**Zylotech Limited**

# **SmartDVR - H.263**

**User's Manual**

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# Contents

Contents	1
Chapter 1 Installation.....	4
1.1 Software Installation .....	4
1.2 First Startup.....	8
Chapter 2 Monitor .....	10
2.1 Features of Monitor Tool .....	10
2.1.1 Traditional Surveillance Features .....	10
2.1.2 Special Features .....	10
2.2 Application Layout and Functionalities.....	11
2.3 Logging In.....	12
2.3.1 The Root Privilege .....	12
2.3.2 The General User Privilege.....	13
2.4 Camera Configurations .....	13
2.4.1 The Layout of the Configuration .....	14
2.4.2 Local Settings.....	14
2.4.3 Changing the Camera Order in the List .....	16
2.4.4 Motion Window and Alert Settings.....	17
2.4.5 Saving the Changes.....	17
2.5 Global Settings.....	17
2.6 Using Monitor Tool.....	20
2.6.1 Connection of the ST3X01 Series.....	20
2.6.2 The Layout.....	24
2.6.3 Record & Schedule .....	25
2.6.4 PTZ Control .....	26
2.6.5 DI/DO Control .....	26
2.6.6 Telnet Control .....	26
2.6.7 Alert Message .....	27
2.6.8 Backup .....	27
2.6.9 Miscellaneous Functions.....	28
Chapter 3 Scheduling.....	29
3.1 Invoke Scheduling Tool .....	29

---

3.1.1	Before Start .....	29
3.2	The Layout and Functionalities .....	29
3.2.1	Introduction.....	29
3.2.2	The Functionalities of Each Components.....	31
3.2.2.1	In This Section .....	31
3.2.2.2	Current Year Settings And Camera Selector .....	31
3.2.3	The Schedule-Record-File operations.....	32
3.3	Schedule with Time Lines.....	32
3.3.1	Basic Controlling Skill of Time-Line .....	33
3.3.1.1	Scheduling Concept .....	33
3.3.1.2	Click.....	35
3.3.1.3	Make Serial Selection .....	35
3.3.1.4	Scroll .....	37
3.3.2	Month Time-Line .....	37
3.3.3	Week Time-Line.....	38
3.3.3.1	Marking/Unmarking the Recoding Time.....	39
3.3.3.2	Scrolling and Switch Date in the Week Time-Line.....	39
3.3.4	Day Time-Line .....	39
3.3.4.1	Marking/Unmarking the Recoding Time.....	40
3.3.4.2	Scrolling and Switch Date in Day Time-Line.....	40
3.3.5	Hour Time-Line .....	40
3.3.5.1	Marking/Unmarking the Recording Time.....	40
3.4	Schedule with Time Picker .....	41
3.4.1	Begin and End Time.....	41
3.4.2	Add and Erase Buttons.....	41
3.4.3	Select period.....	42
Chapter 4	Playback.....	47
4.1	Features of Playback .....	47
4.2	Logging In.....	48
4.3	Layout .....	48
4.3.1	Areas .....	49
4.3.1.1	Display Area.....	49
4.3.1.2	Histogram Area .....	49
4.3.1.3	Control Area.....	49
4.3.1.4	Status Area .....	50

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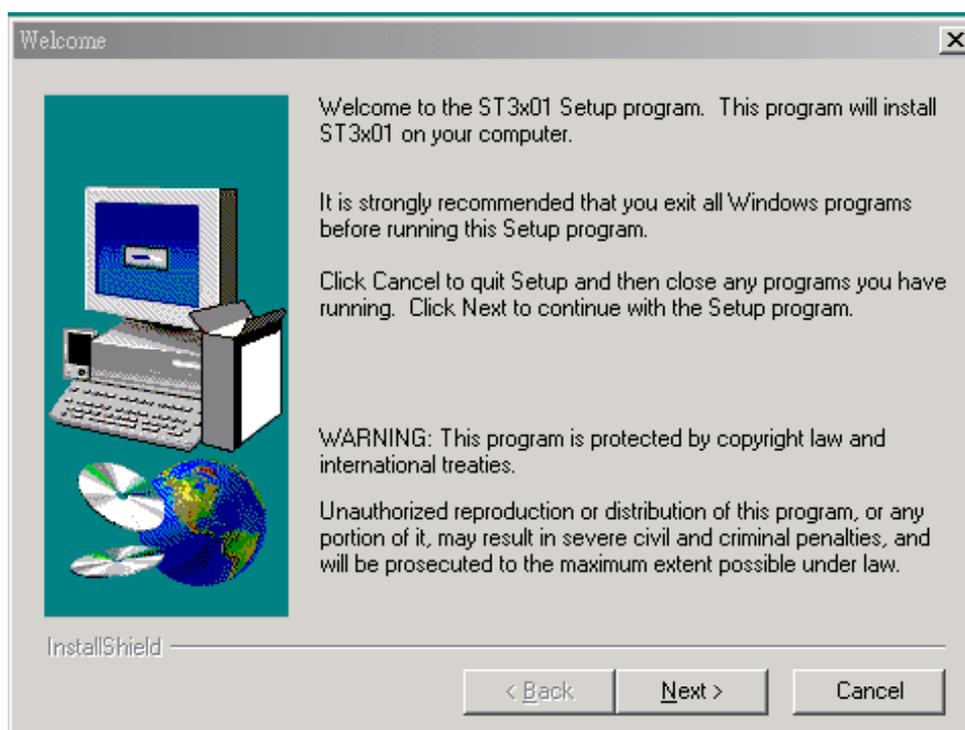
4.3.2	Indicators.....	50
4.3.2.1	Area Selection Indicator .....	50
4.3.2.2	Frame Selection Indicator .....	50
4.3.3	Pull Bar .....	50
4.4	Settings.....	51
4.5	Normal (Single Frame) Mode.....	53
4.5.1	Histogram Area .....	54
4.6	Preview (Multiple Frame) Mode .....	54
4.6.1	Histogram Area .....	55
4.7	Using Tools .....	56
4.7.1	Selector Tools.....	56
4.7.1.1	Location Selector .....	56
4.7.1.2	Period Selector .....	57
4.7.1.3	Playback Method Selector .....	57
4.7.1.4	Alert Area Selector.....	58
4.7.2	Play Control .....	58
4.7.3	Display Adjustment Toolbox .....	59
4.7.3.1	Zoom In.....	59
4.7.3.2	Zoom Out.....	60
4.7.3.3	Full Screen .....	60
4.7.4	Searching Range Adjustment Toolbox.....	60
4.7.4.1	Zoom In.....	60
4.7.4.2	Zoom Out.....	61
4.7.4.3	Full Range.....	61
4.7.5	Exporting Toolbox .....	61
4.7.5.1	Transducer.....	62
4.7.5.2	Snapshot.....	62
4.7.5.3	Print.....	62
4.7.6	System Control Toolbox .....	63
4.7.6.1	Lock Window.....	63
4.7.6.2	Settings.....	63
4.7.6.3	Exit.....	63

# Chapter 1 Installation

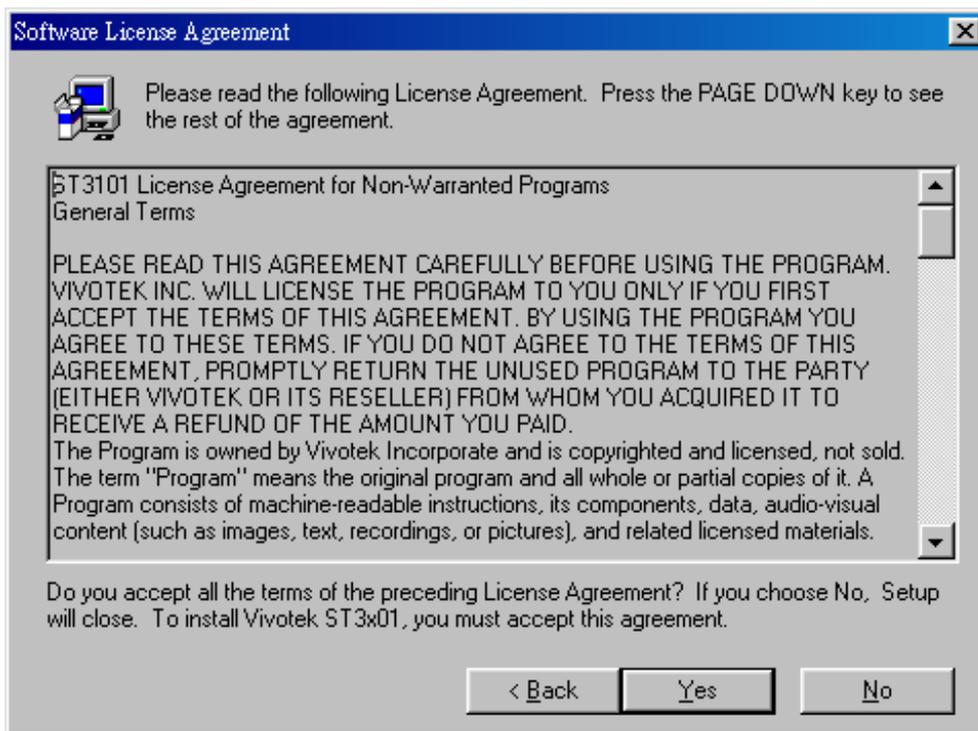
## 1.1 Software Installation

This software can be installed according to the following steps:

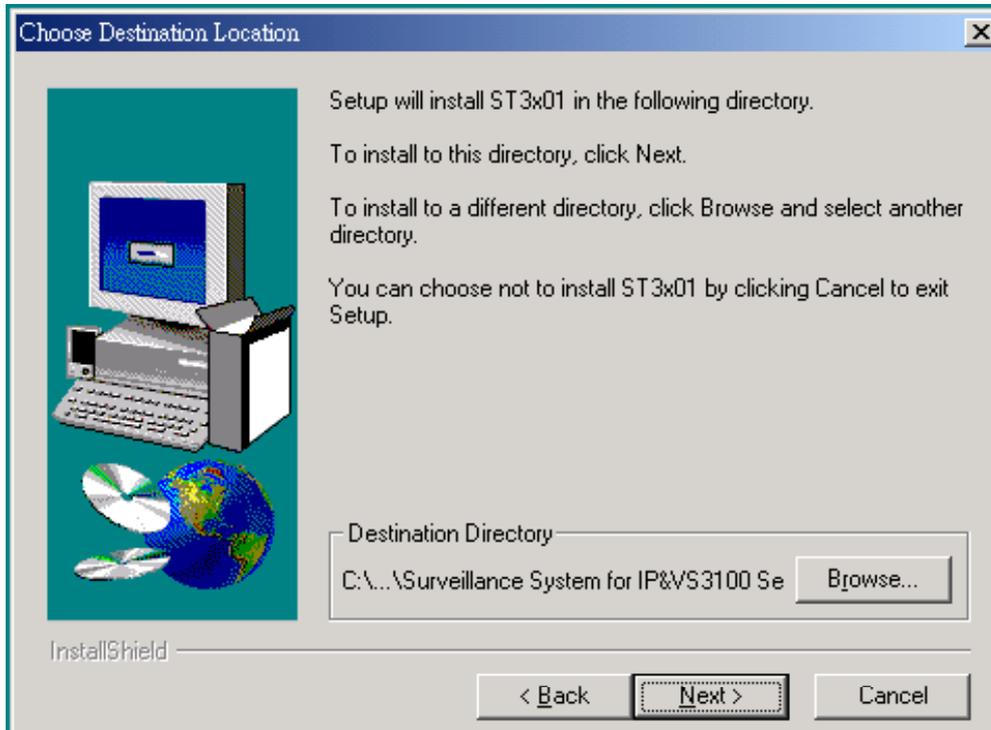
1. Put the installation disk into your CD-ROM, and it shall run automatically. If it does not, open “My Computer” and double click on CD-ROM icon. Then ST3X01 Installer window will show up.
2. There are some information in this page, including this manual, product information and the surveillance system roadmap. Click “Install” to launch install shield.



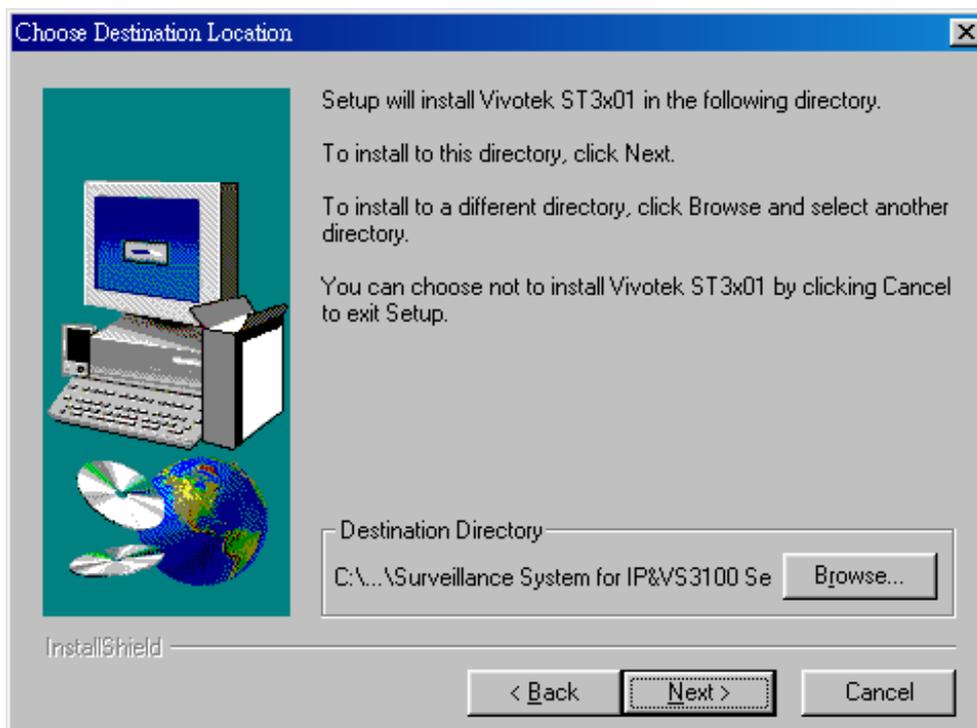
3. Click “Next”, the “Software License Agreement” window will show up.



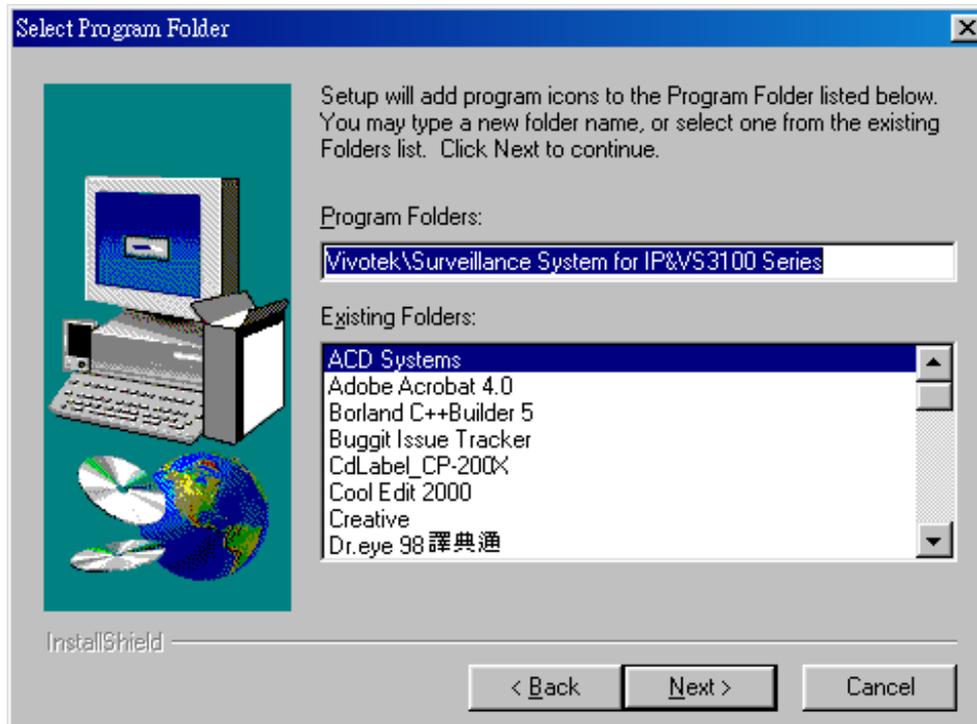
4. Please read the “License Agreement”. If you agree, press “Yes” to continue, else press “No” to exit.



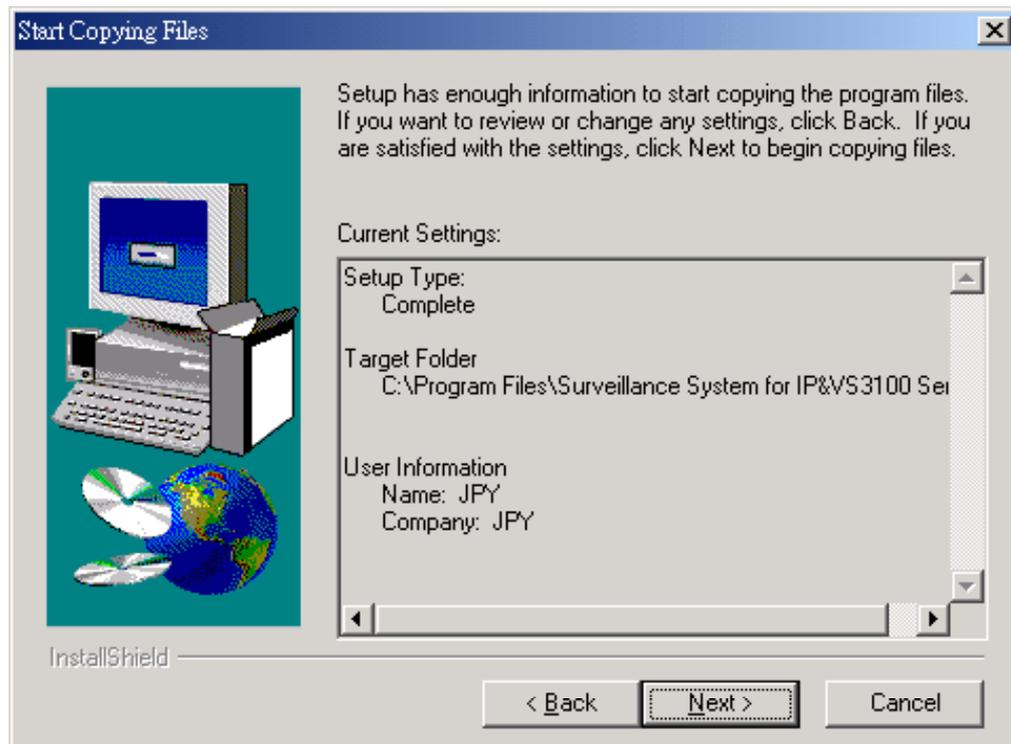
5. Enter user name and company name; then click “Next”.



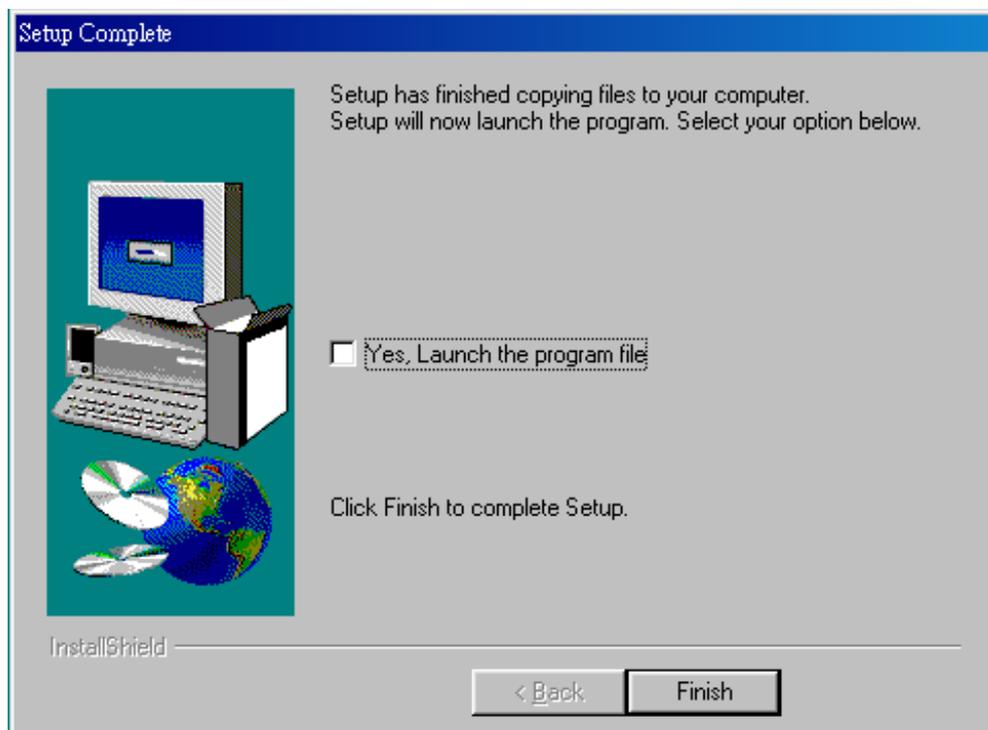
6. Select destination directory and click “Next”.



7. Select program folder to install, the “Start Copying Files” window will show up.



8. Click “Next”, and the program will start to install.



9. Click “Finish” to end installation, and now the program is installed in your computer.

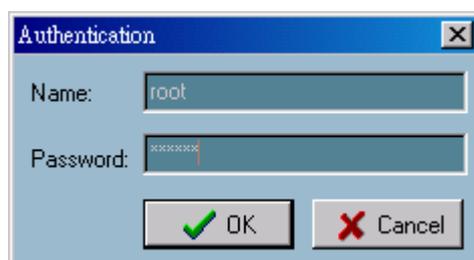
## 1.2 First Startup

After you finish the installation, you can run the monitor program from “Start\Program Files\Surveillance System for IP/VS3100 Series\Monitor”.

1. You will be asked to set the root password first, and the password should be at least 6 characters.



2. Press “OK” after you type the root password. A successful message box will show if you set the root password successfully.
3. Press “OK”. An Authentication dialog will appear. You shall use the name “root” to login for the first time.



4. Press “OK”. You will see the monitor program.



5. From “Function Menu”, select “Global Settings” to configure the general settings for all cameras you connect (see “2.5 Global Settings” for more information).
6. From “Function Menu”, select “Camera Configurations” to setup the configurations for each of your cameras (see “2.4 Camera Configurations” for more information).
7. After you finish these settings, here you go! Now you can run the Monitor program.

# Chapter 2 Monitor

## 2.1 Features of Monitor Tool

### 2.1.1 Traditional Surveillance Features

The traditional surveillance features includes the features as follows:

- ✓ Real-time monitor
- ✓ PTZ control
- ✓ Recording

### 2.1.2 Special Features

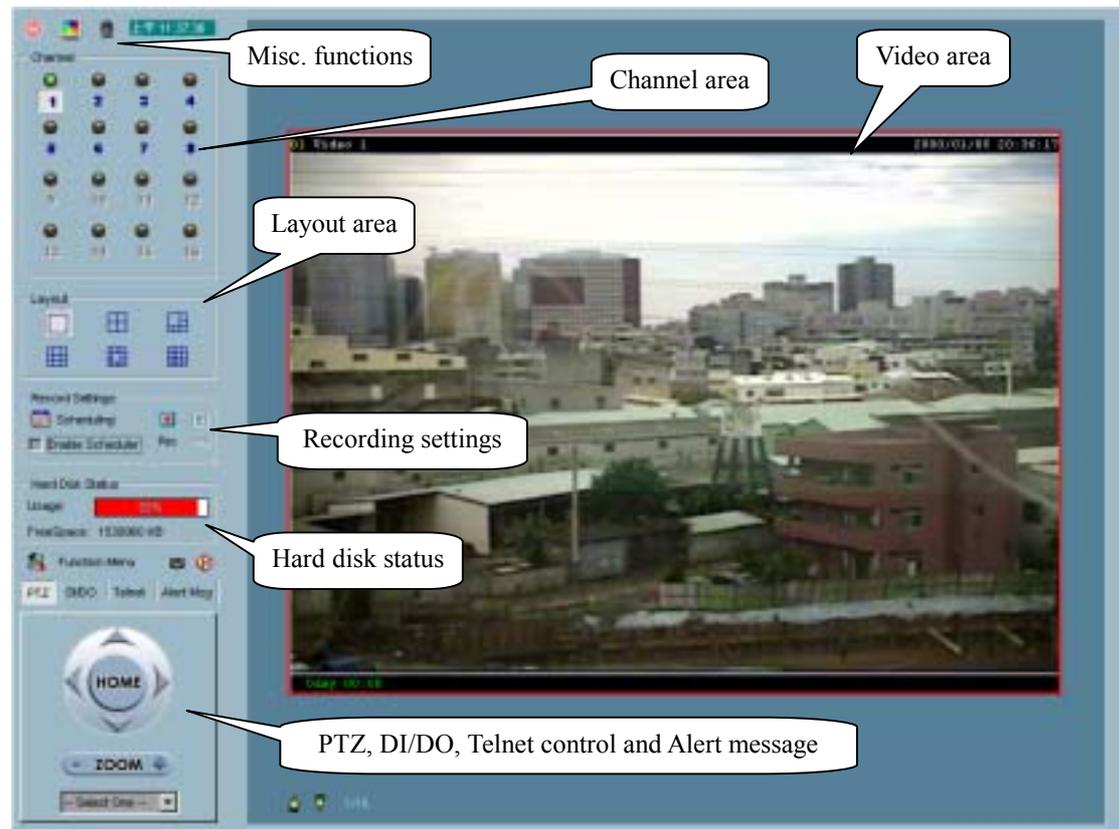
In our digital surveillance system, we support not only the features as above but also the following features, which make the system more powerful and convenient:

- ✓ High quality video
- ✓ High compression ratio
- ✓ Maximum to 16 cameras with different monitor layouts
- ✓ Smart playback
- ✓ Triggered event browsing
- ✓ Fast database searching
- ✓ Auto alarm in different ways
- ✓ Account-password protection
- ✓ Scheduled recording for each camera
- ✓ Just-in-time snapshot
- ✓ AVI export
- ✓ Motion detection for each camera

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## 2.2 Application Layout and Functionalities

This section demonstrates a global view of the monitor tool; we'll introduce the components of the monitor tool in the following sections.



There are several parts in the monitor tool:

- ✓ Misc. functions:  
Including application exit, snapshot, full screen monitoring, and function menu for calling global settings, configuration, and backup. The tips are provided on-line when you move the mouse cursor on them.
- ✓ Channel area  
This area displays the status of each video channel including: connection, recording, selected, and alert information.
- ✓ Video area  
In this area, you can see the video of accessible channel, and some convenient

controls.

✓ Layout area

You can change monitoring layout in the layout area.

✓ Recording settings

The monitor tool can record the video into hard disks. And the recording schedule is controlled with the scheduling tools.

✓ Hard disk status

In this area, you can get the hard disk status. This reminds you to arrange the recorded video database.

✓ PTZ control

In the area, you can do the PTZ control of selected camera.

✓ DI/DO control

Receive the digital input signal and send digital output signal.

✓ Telnet control

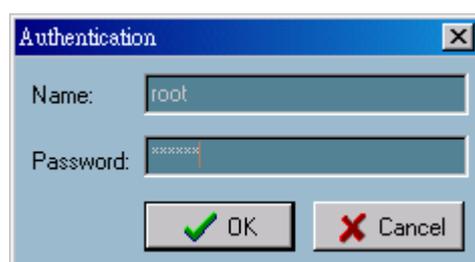
Telnet to remote camera to do low level control

✓ Alert Message

Display the last alert messages

## 2.3 Logging In

You need to login our system once you start the monitor program. If you did not get an account, the monitor tool won't be executed. There are two privileges in our account-password system: the root (administrator) and the general user.



### 2.3.1 The Root Privilege

In the monitor tool system, the root privilege can access and configure the ST3X01 Series and change the local settings as well. But the root privilege is not the same as the root privilege of the ST3X01 Series. Only if you have got the root privilege of

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the remote ST3X01 Series, you can change the settings of it.

If you get the root privilege, you have the right to do the following items:

- ✓ Running the configuration tool
- ✓ Changing the recording schedule
- ✓ Change the local settings

## 2.3.2 The General User Privilege

The general user privilege is concurrent with the general user privilege of ST3X01 Series. That is if you login the monitor tool as the general user, you have the right of general user of ST3X01 Series. General users can only monitor the surveillance videos and change the layout of monitor, but you do not have the right to change any configuration including recording schedule and local settings.

If you login our system with an account that does not exist in ST3X01 Series, then you can't get any privilege with that camera.

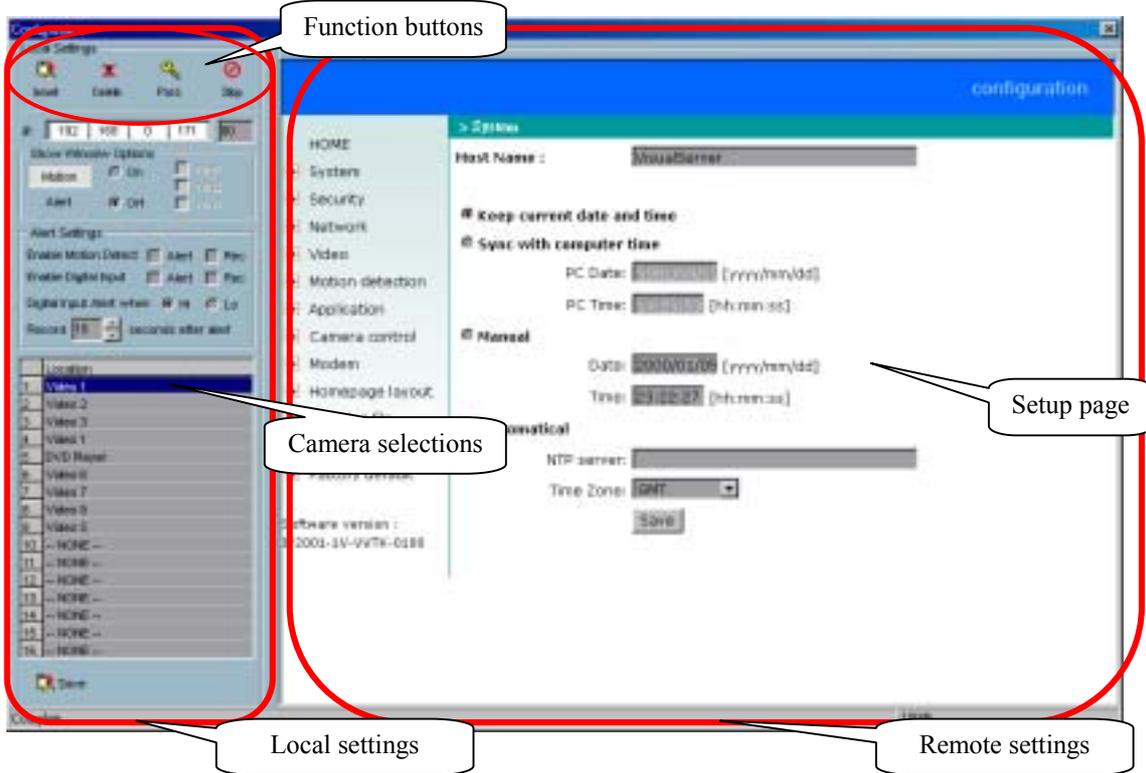
## 2.4 Camera Configurations

When you first login, you should configure the IP camera in “Camera Configurations”. Once you get the root (administrator) privilege, you can run the configuration.



**Attention: Before configuration, all recordings will be stopped.**

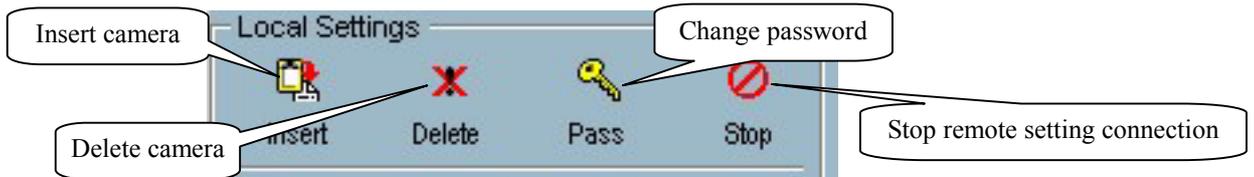
## 2.4.1 The Layout of the Configuration



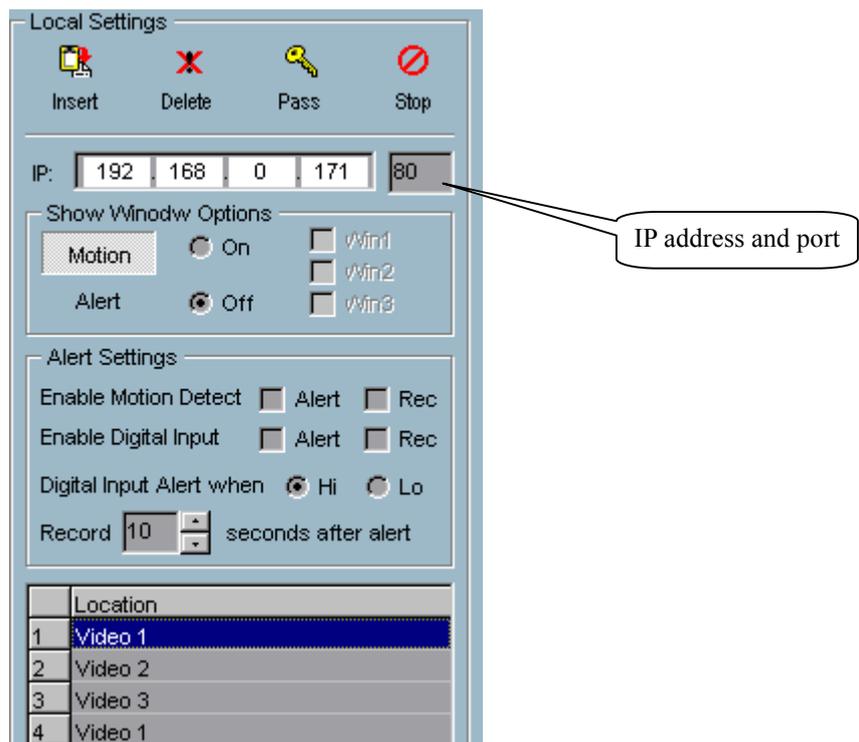
In this section, we talk about the local settings only. If you are interested in the remote settings for each camera, you can refer to ST3X01 Series user’s guide.

## 2.4.2 Local Settings

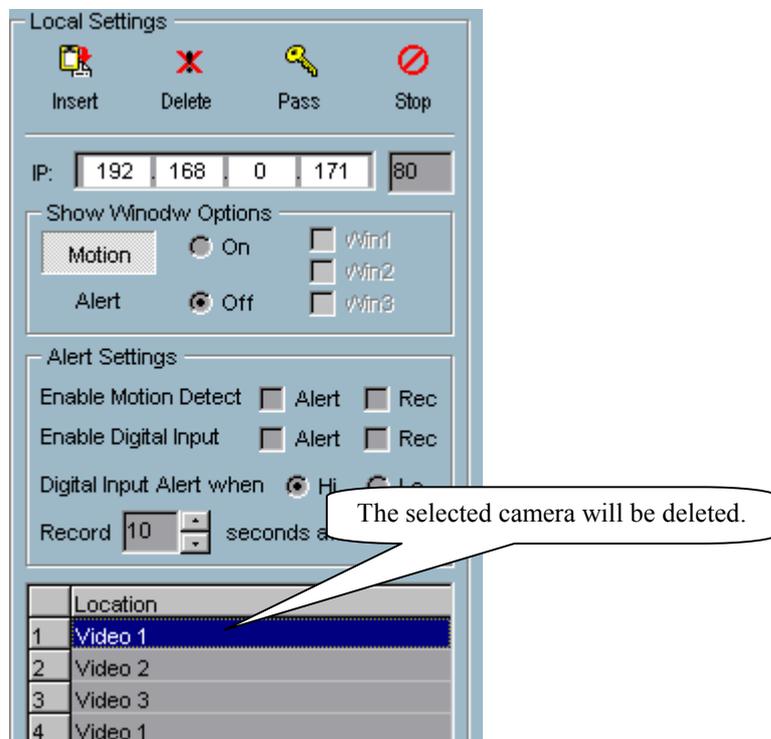
In the local settings, we provide four main functionalities:



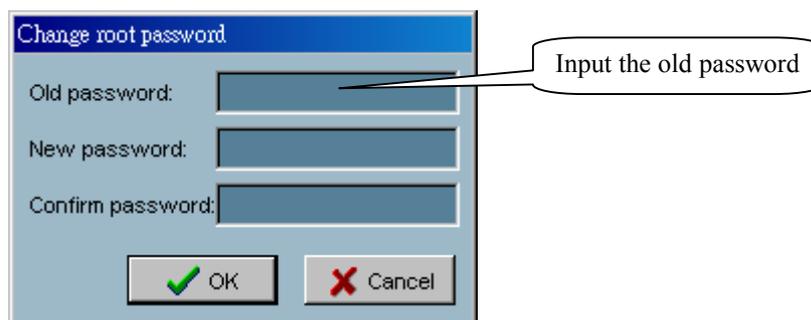
- ✓ **Insert** – to insert a camera in to the camera list. After you specify the IP address and port, click the “Insert” button. Then the system will try to connect to the remote dedicated ST3X01 Series. If the connection succeeds, the root password of the remote ST3X01 Series is required. If you provide the correct password, the camera will be inserted to the list.



- ✓ Delete – the deletion is an easy operation compared to “insertion”. This operation deletes the camera from the camera list.



- ✓ Password – for changing the local “root” password.



You must type the old password for changing to the new password.

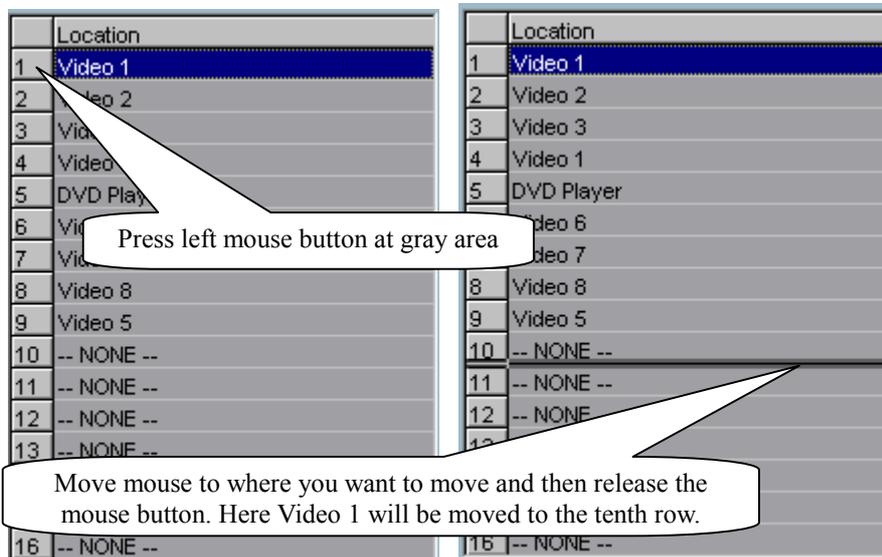
- ✓ Stop – the button provides a way to stop the network connection when the connection elapses for a long time.

## 2.4.3 Changing the Camera Order in the List

You can drag and drop the gray area (fixed area) of the camera list grid to change the arrangement of cameras. It gives great help when you want to rearrange the cameras.

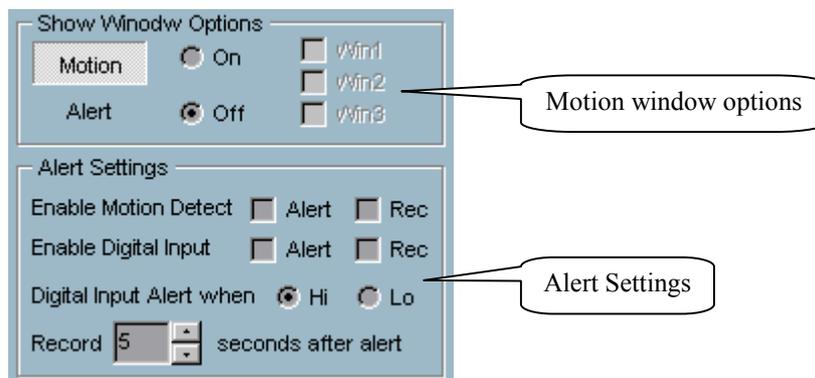
Step 1:

Step 2:



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## 2.4.4 Motion Window and Alert Settings



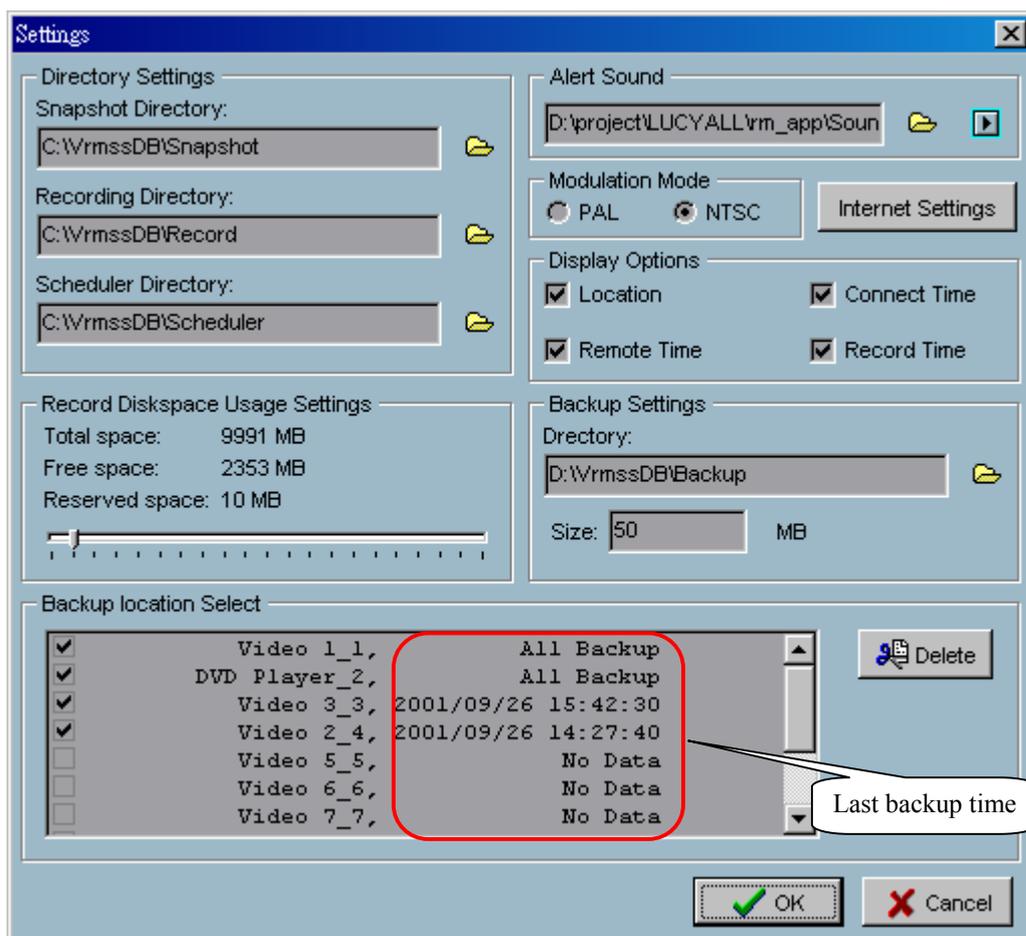
- ✓ Show Window Options – If motion detection is enabled in the selected ST3X01 Series, each motion window can be turned on in “Show Window Options”. Once the motion window is turned on, it will be shown as a green rectangle in monitoring screen. Furthermore, if you just want to see motion window when alert, you can also turn on alert window separately. The alert window will be shown in red rectangle when alert occurs.
- ✓ Alert Settings – Some special actions can be performed such as generating an alert sound or starting recording when motion is detected or digital input is triggered. The digital input can be high-triggered or low-triggered. It depends on your setting. You can also specify the period to record after alert-triggered.

## 2.4.5 Saving the Changes

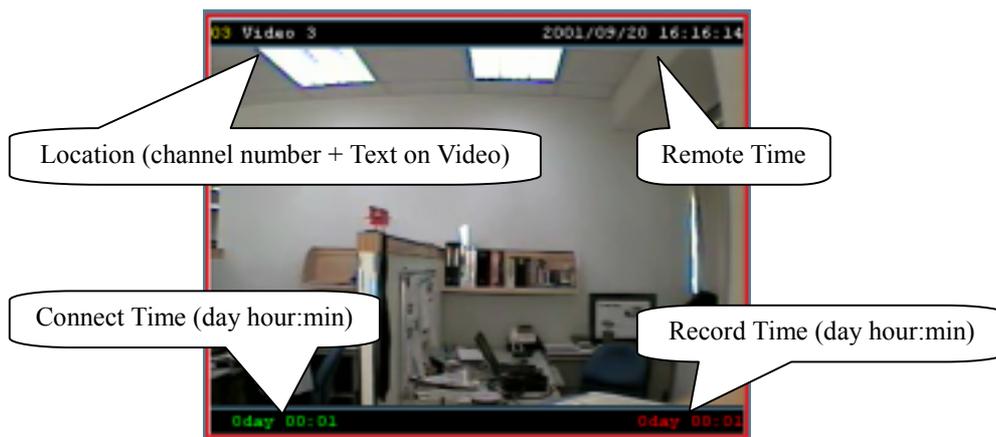
Once you click the “Save” button, the changes in the configuration will be saved and will validate immediately in our system.

## 2.5 Global Settings

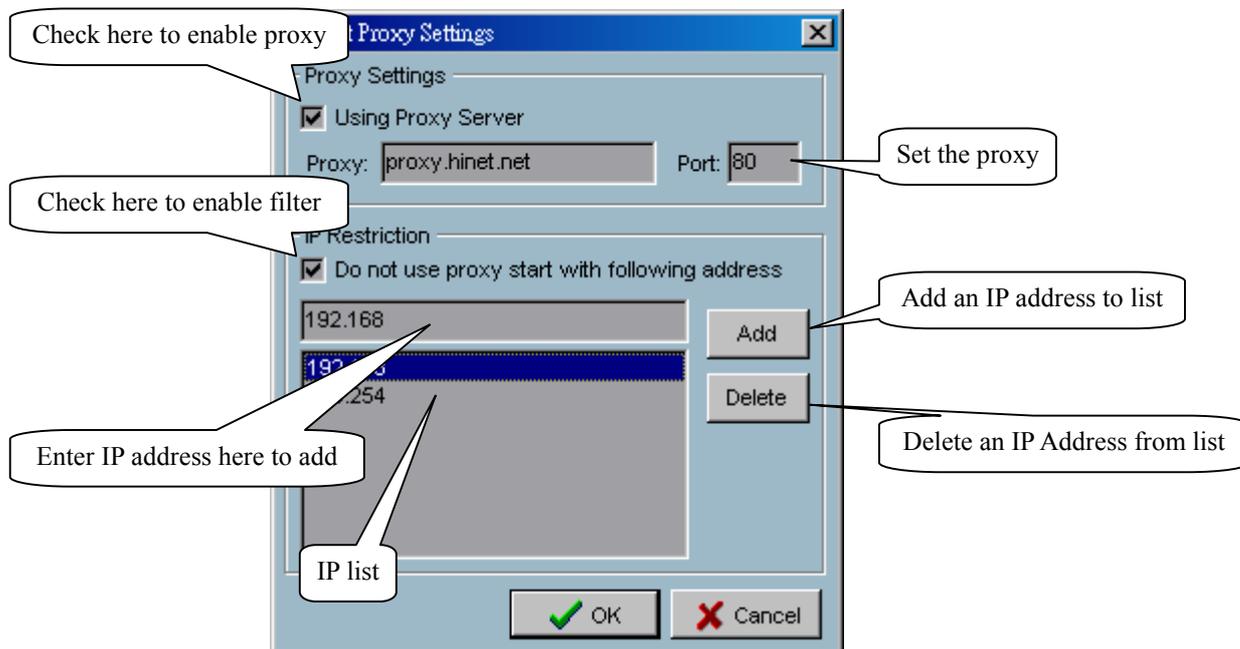




- ✓ Snapshot directory – the directory for storing the snapshot data.
- ✓ Recording directory – the directory for storing the recorded video data.
- ✓ Reserved space – Indicate how many bytes should be reserved in the recording disk. If the recording data exceed, the new data will replace the oldest data.
- ✓ Modulation Mode – for selecting the input signal format (NTSC or PAL).
- ✓ Alert Sound – Select sound to play when alert.
- ✓ Display options – In each video frame, there are two status bars, which contain “Camera location”, “Connect time”, “Remote time” and “Record time”. All of them can be enabled here individually.



- ✓ Backup Settings – Select the backup directory, the backup size for your backup media, and the backup locations. Also you can delete locations here. The maximum location numbers should not exceed 32.
- ✓ Last Backup Time – This field indicates the last remote time you backup. “All Backup” means all the data in this location have been backup, and “No Data” means there is no data stored in this location.
- ✓ Internet Settings – Set the proxy and IP filters.



If you enable proxy server and enable IP restriction, the listed IP addresses will not use the proxy.

## 2.6 Using Monitor Tool

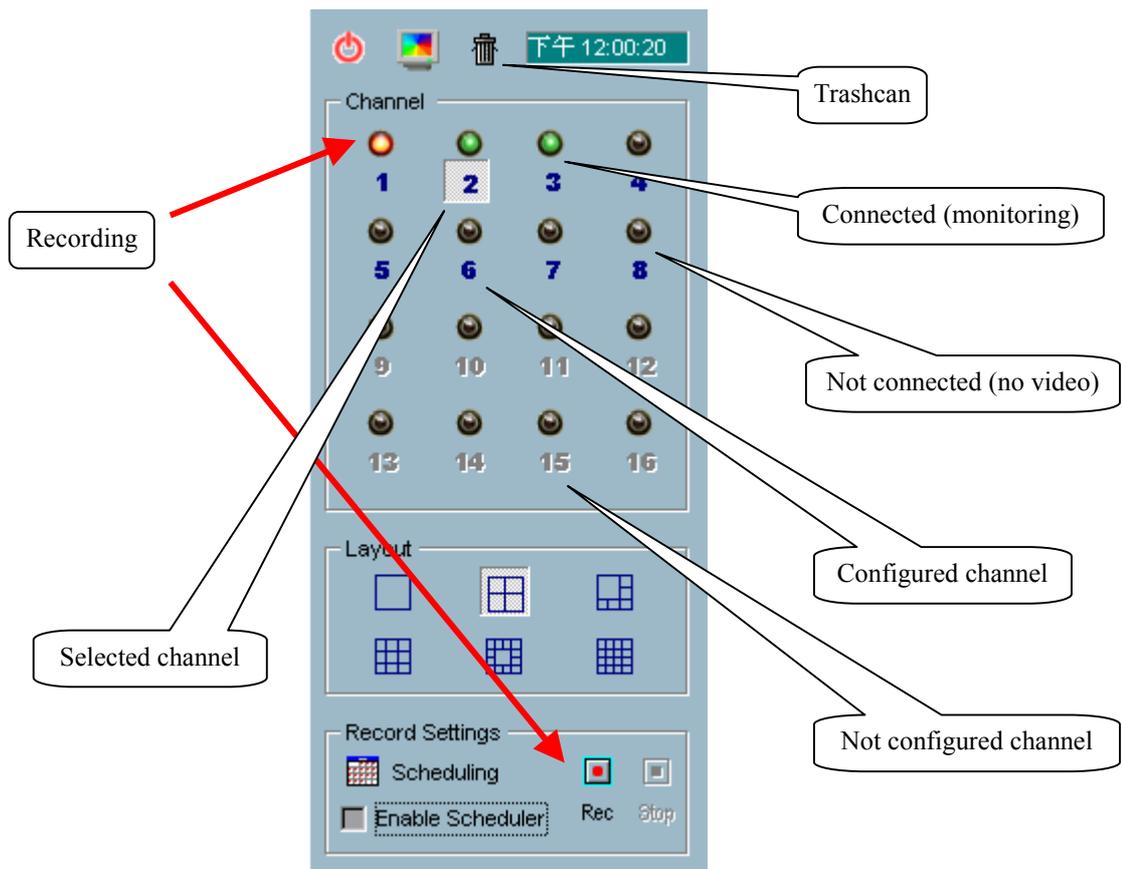
### 2.6.1 Connection of the ST3X01 Series

Once you have the privilege to connect to the ST3X01 Series, you can drag and drop one camera to the video area.

In the channel area, if you do not set up the camera, the color of the camera number will be gray. Once you set up the camera, the color of the camera number will turn into blue. You can drag and drop the camera to the video area, and apply other features if you have the privileges.

There is a unique light signal above each camera's number. It indicates the status of the camera:

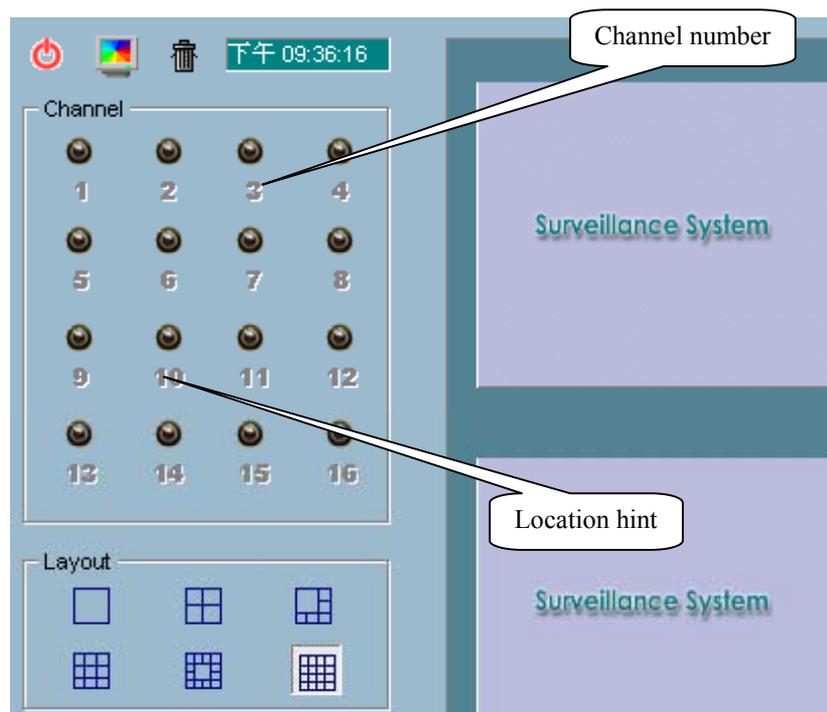
- ✓ Off – ST3X01 Series is not connected.
- ✓ Green – The green light means the ST3X01 Series is connected.
- ✓ Red – The red light indicates the camera is both connected and in recording mode.
- ✓ Blink – If the motion detection is enabled and there is an alert occurred, the light will blink.



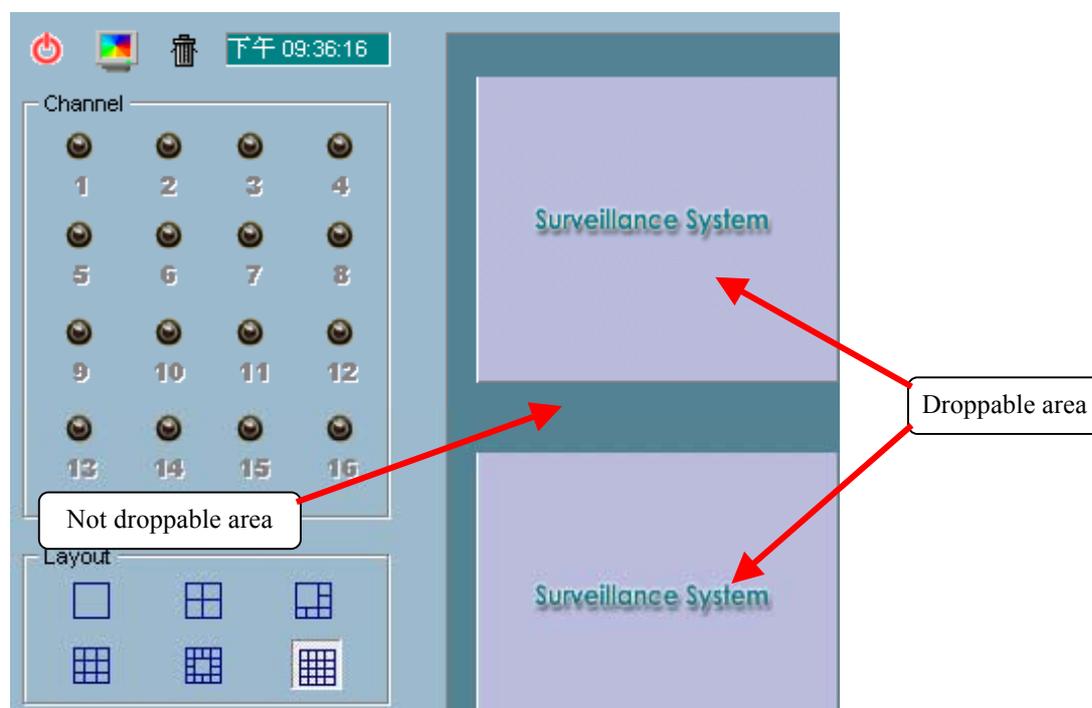
If you don't want to monitor one video, you can drag and drop the video (in the video area) to the trashcan. Here we'll shown the drag and drop step by step:

- ✓ Show the video of the channel

Step 1: move the mouse cursor to the channel number.

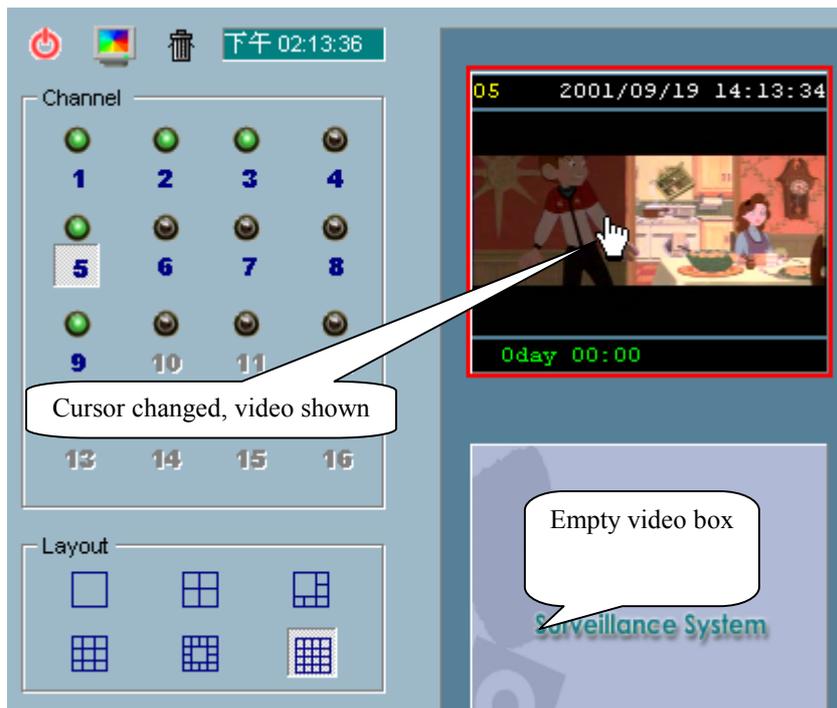


Step 2: Press and hold the left mouse button, the cursor will change according to the area where it is droppable or not.



Step 3: move the mouse cursor to the droppable area (in this case, it should be the video area), and then release the mouse button. In each layout, one video

channel is corresponding to one and only one video box in the video area. Therefore, the drag and drop from channel number to video box also can be treat as “exchange of videos in video box”, that is, if the video of channel 1 is displayed at video box A, and the video of channel 2 is displayed at video box B, when you drag channel 2 to video box A, channel 2 is displayed at video box A and channel 1 is displayed at video box B.



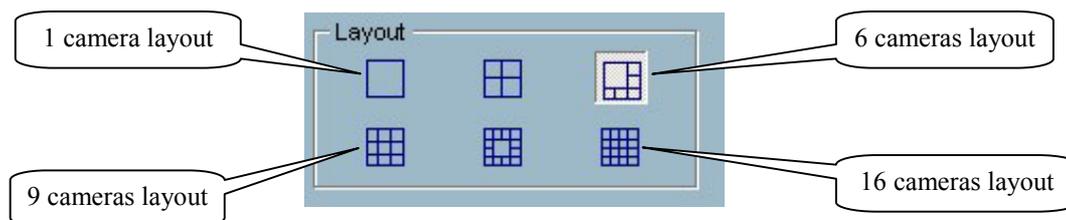
- ✓ The steps for closing the video of the channel are shown in the picture:



- ✓ The drag and drop can also apply to the change of videos. In the video area, if you want to exchange the videos of different channel, you can drag the video and drop to where you want to locate the video. If the destination video box is empty, then video in the source video box will be shown on destination video box, and the source one will be empty. If the destination video box contains video of some channel, then the videos in the source and destination video box will be exchanged.

## 2.6.2 The Layout

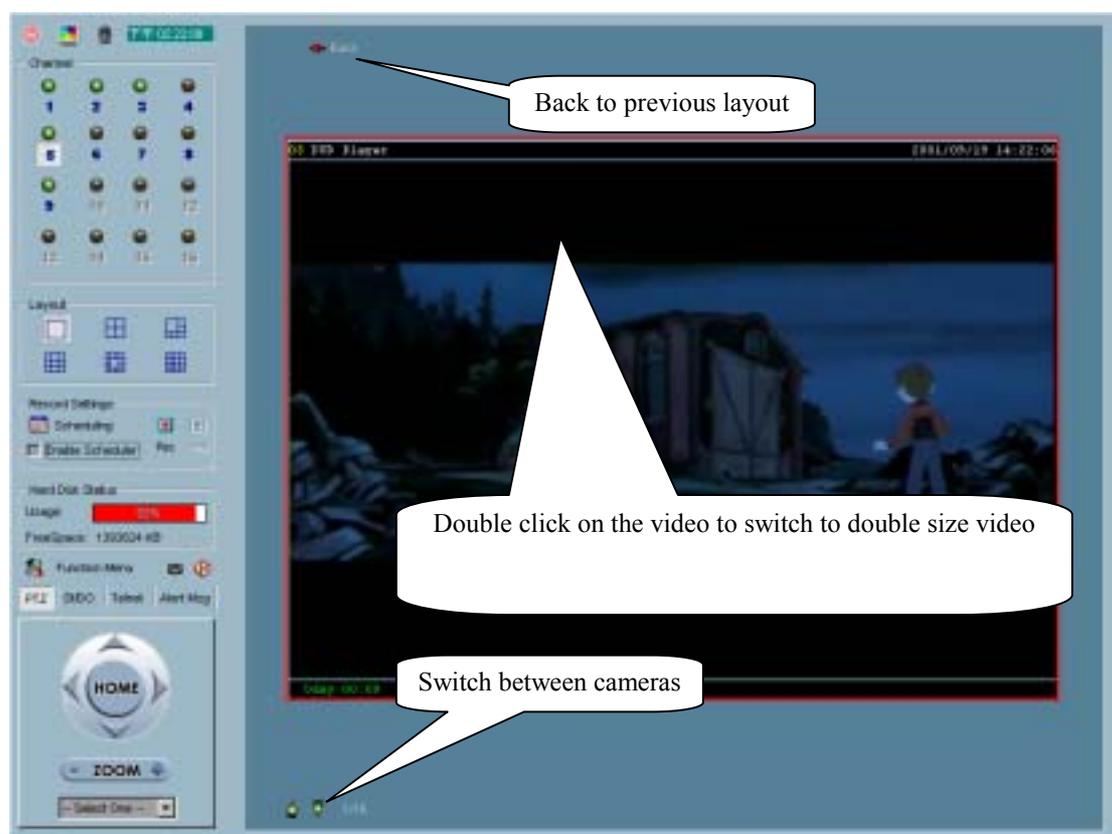
There are six layouts in the monitor tool. You can select (by click left mouse button on the icon) what you want to monitor the videos. In each layout, you can drag and drop the “channel number” to any video box in the video area. If all conditions are okay, then the video will be shown up in the video box, and the old video is replaced.



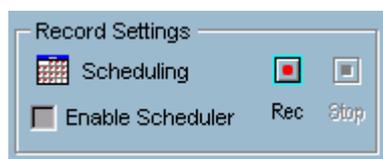
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The video positions in each layout are kept for the next time the layout is selected for monitoring.

When you want to view one individual camera, you can double-click on the video in the video area. And then the layout is changed to the view of single video whose size is twice as the original one. You can click the “up” or “down” button to view different cameras, and click the “Back” button will switch to the previous selected layout.



## 2.6.3 Record & Schedule

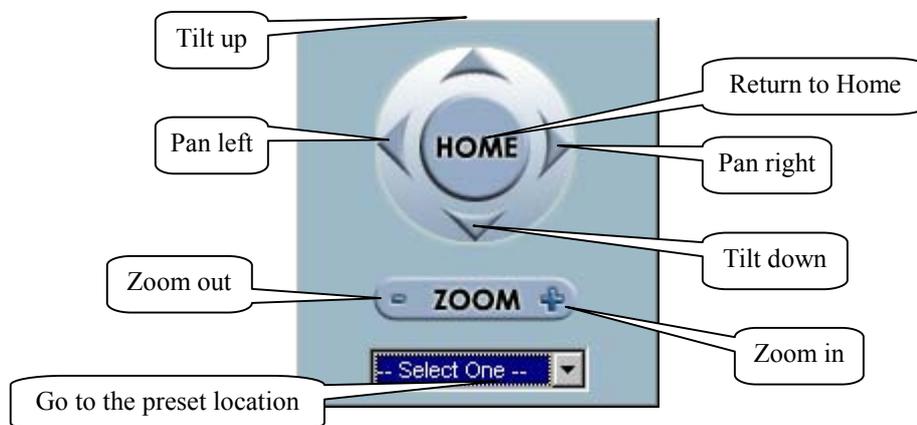


-  Record – Allow you to record the selected channel manually.
-  Stop – Allow you to stop recording the selected channel manually.
-  Scheduling – Allow you to arrange recording schedule (see “Chapter 3

Scheduling” for details).

Enable Scheduler – Allow you to record according to the scheduler settings.

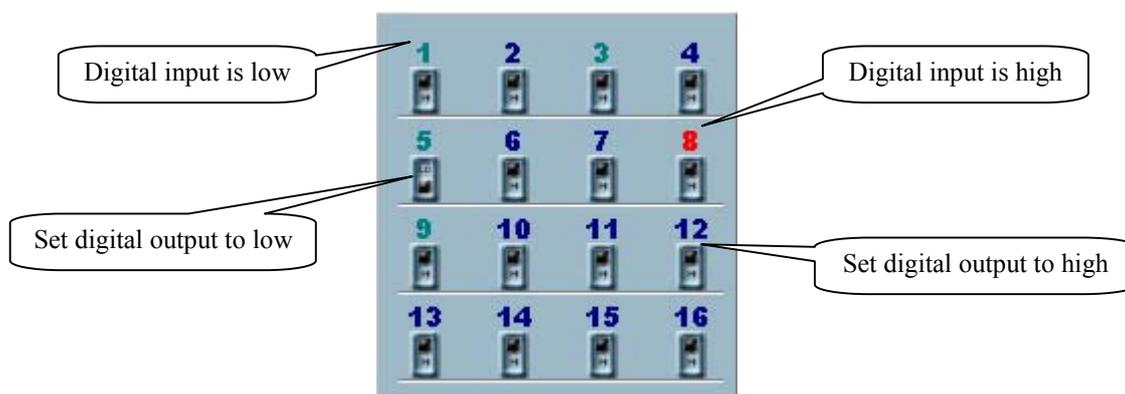
## 2.6.4 PTZ Control



The PTZ (Pan/Tilt/Zoom) control can control the selected ST3X01 Series to pan, tilt, or zoom if it has connected to a PTZ enabled camera.

## 2.6.5 DI/DO Control

Only one user with root privilege can access the DI/DO control at the same time. Refer to the following figure to control.

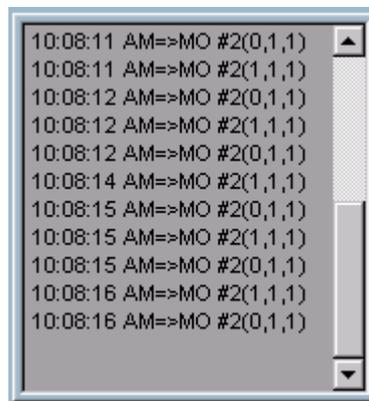


## 2.6.6 Telnet Control

You can do some low level controls such as manual DI/DO control, update flash etc. Please refer to ST3X01 Series manual for more information.



## 2.6.7 Alert Message

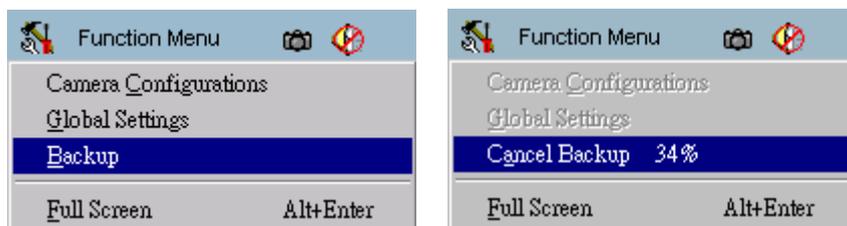


If you turn on alert on the motion detected of digital input triggered in configuration, the alert message will show in this window. The message format is described as follows:

**“time”=>”alert type” #”channel number”(“win1”,”win2”,”win3”)**

For example, the message “03:47:25 PM=>MO #5(0,1,1)” means that motion detection alert occurred at 03:47:25 PM on motion window 2 and motion window 3.

## 2.6.8 Backup



The “Backup” mechanism will help you to copy the recorded data to another place

according to the location and the size you selected in “Global Settings”. You can duplicate the backup-data to any removable device such as CD-ROM, ZIP disk, DVD-RAM or tape manually. After the backup started, you cannot configure the camera and change any settings. You can cancel backup process by simply select “Cancel Backup” option. After the backup completes, a message box will show up to tell you that backup is complete.

## 2.6.9 Miscellaneous Functions



Power – Close the application and save last settings

Full Screen – Switch to full screen, double click screen to return back

Local Time – Display the current time

Snapshot – Snapshot each view in current layout mode, and save them as bitmap file to hard disk. You can set the directory in “global settings”.

Stop Alert Sound – Whenever alert occurs, the alert sound will start to play. You can press this button to stop the alert sound and see the alert messages.

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# Chapter 3 Scheduling

The Scheduling helps you to schedule the recording time of the output from IP-2001. You can easily specify the time of recording via both our graphic user interface and time period selection. We provide many special features:

- ✓ Easy to use user interface
- ✓ One-on-one camera schedule
- ✓ Max to 9 schedule schemes for each camera
- ✓ Automatic period recording

## 3.1 Invoke Scheduling Tool

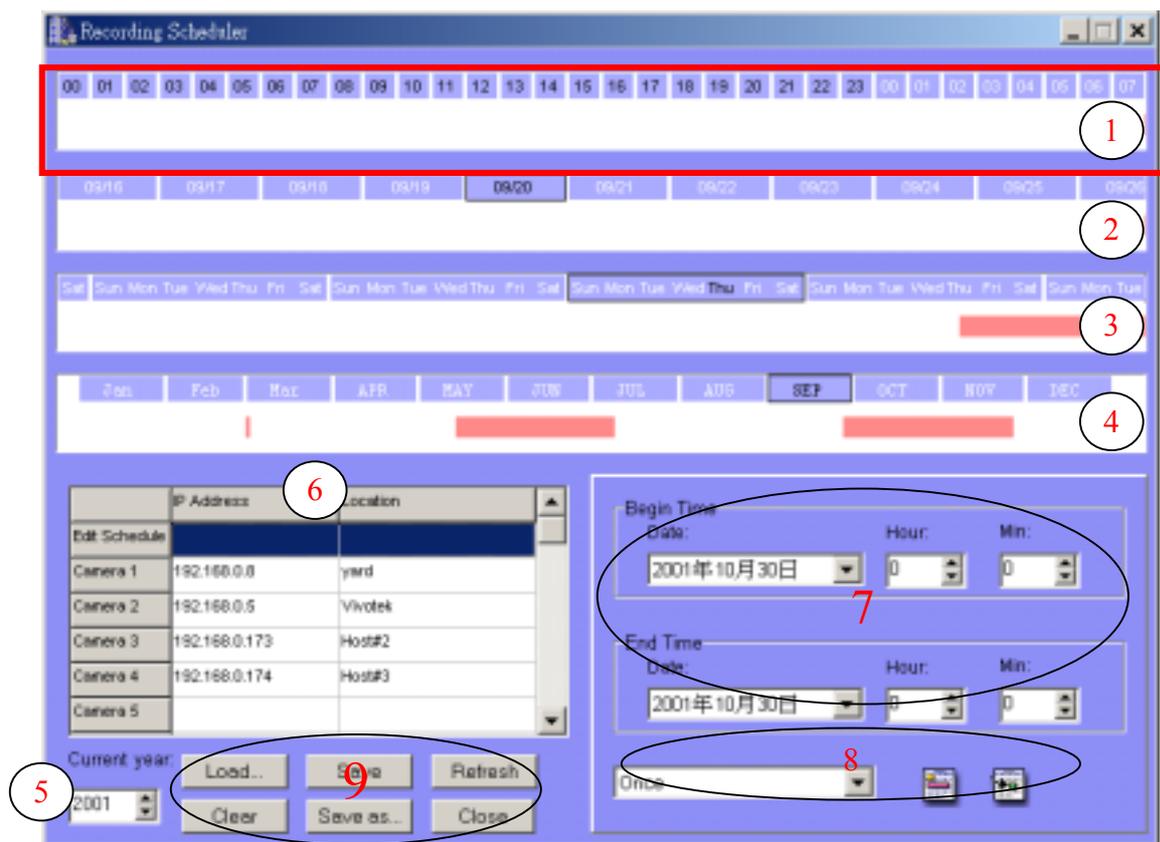
### 3.1.1 Before Start

Remember to run the configuration tool to setup first. You need to specify the database path of the scheduling data files and the location of the camera. Please refer to chapter X for more detailed information.

## 3.2 The Layout and Functionalities

### 3.2.1 Introduction

We'll introduce the layout of the scheduler tool and its components in this section.



The layout of the scheduler tool is roughly divided into 9 parts:

The first part of the scheduler tool is **hour time-line**. It helps you make the minute based schedule. You can refer to 3.3 for more details. Part 2~4 are **day time-line**, **week time-line** and **month time-line**.

Part 5 is the **current year settings**, which consists two components: **year selector** and **set year button**. Their function is changing the year that is being scheduled.

Part 6 is the camera selection area, it also provide the IP addresses and location information for user's reference. We also provide a editing schedule space for saving temporary schedule.

Part 7, 8 consists of "**begin time selector**", "**end time selector**", "**period selector**", "**addition button**", and "**erase button**". These components help you choose a period of time to add or delete records in the schedule.

Part 9 is the operation buttons for the schedule-record-files and close window button.

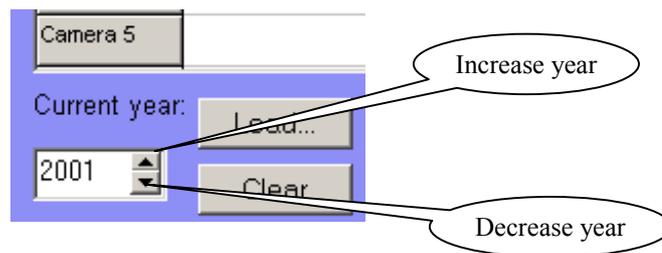
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## 3.2.2 The Functionalities of Each Components

### 3.2.2.1 In This Section

Part 1~4, and part 7~8 will be described in 3.3 and now we'll focus on part 5~6 in section 3.2.2 and part 9 in section 3.2.3.

### 3.2.2.2 Current Year Settings And Camera Selector



By default, the scheduler is running with the current date selected on the time-lines and date-time picker. Therefore, the current scheduling year is the year that you run the scheduler tool. On changing the year setting, you shall follow these steps:

1. Use the up (increase) and down (decrease) arrows to adjust the year setting.
2. The date-time selector in part 7 will change the year concurrently.



If user change the year with date-time selector, the current year setting will also be changed. Although the year selection in the date-time selector is invalid when user apply the schedule change using buttons at part 8, the facility can help more flexible usage.

The following is the camera selector.

	IP Address	Location
Edit Schedule		
Camera 1	192.168.0.8	yard
Camera 2	192.168.0.5	Vivotek
Camera 3	192.168.0.173	Host#2
Camera 4	192.168.0.174	Host#3
Camera 5		

The image shows a table with three columns: an unlabeled column, 'IP Address', and 'Location'. The first row is 'Edit Schedule' and is highlighted in blue. Below it are rows for 'Camera 1' through 'Camera 5'. A callout box points to the 'Edit Schedule' row with the text 'edit space'. Another callout box points to the table with the text 'cameras'.

The camera selector contains two kind of items. The first one is designed for helping editing schedule, it is at row 1 of the selector. If user want to make a schedule that does not belong to any camera, he/she can select this row for editing.

The second is the common camera selectors. When user click on the camera row, the scheduling tool will associate the current editing space to the current selected camera. If users have well configure the system and camera, the IP address and location will show the correct setting. Please note that when users switch between cameras, the changing of the schedule will be saved automatically.

### **3.2.3 The Schedule-Record-File operations**

There are five related buttons. Load, Clear, Save, Save as, Refresh.

- ✓ Load  
This operation allows the users load other schedule from the schedule database for this camera.
- ✓ Clear  
This operation will clean all the schedule markers in the current editing area. Note that users must choose “save” or “refresh” themselves.
- ✓ Save  
The button is for applying the changes for the current schedule.
- ✓ Save As  
If the users want to save the current schedule-record-file to another file name, the button will serve this necessary.
- ✓ Refresh  
When users click on this button, the scheduling tool will load the old data from the schedule-record-file. The current changes will be lost.

## **3.3 Schedule with Time Lines**

There are four time-lines: hour unit time-line, day unit time-line, week unit time-line

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and month unit time-line. You can make your schedule in all time-lines. These four time lines are related to the same database, that is, if you have rescheduled one time-line, the changes will be applied to the other three corresponding time-lines.

### 3.3.1 Basic Controlling Skill of Time-Line

#### 3.3.1.1 Scheduling Concept

✓ Time Unit

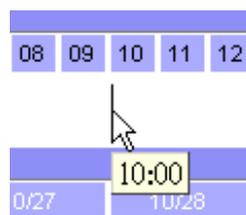
Each time-line has its own basic marking unit, that is, if you make your schedule on different time-line, the result is much different.

The basic design philosophy of the scheduler tool is that one unit means:

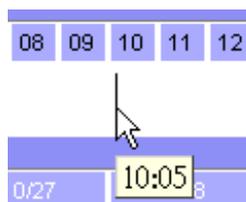
$$X \leq \text{unit} < X + 1 \text{ unit}$$

For example:

When the mouse is at hour time-line, and the time information is 10:00, we take it as X.

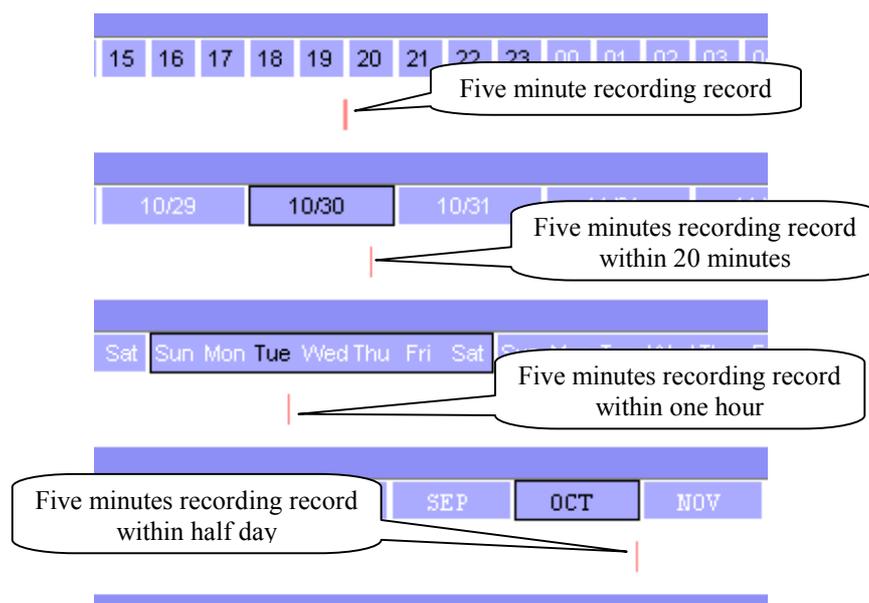


The X + 1 unit is 10:05



If you click the left mouse button on the hour time-line as the time information, 10:00, then the recording time is

$$10:00 \leq \text{recording time} < 10:05$$



The marking concept is that there exists different time unit of each time-line. If there is any smallest time unit, which is marked for recording, then the time unit for each time-line contains the time will be marked.

For example:

In hour time-line, 1:10~1:15(include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is validate.

As situation of point 1, in day time-line, 1:00~1:20(include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is validate.

As situation of point 1, in week time-line, 1:00~2:00 (include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is validate.

As situation of point 1, in month time-line, 00:00~12:00 (include lower bound, exclude upper bound) is marked, although only in 1:10~1:15 the recording is validate.

#### ✓ Mouse buttons

The scheduler tool is designed for **two-button mouse**. In this user's guide, we use **left mouse button** and **right mouse button** to distinguish them.

When you click or double click the left mouse button over the time-line, the time-line will mark the time for the scheme of the schedule; if you click or double click the right mouse button over the time-line, the time-line will

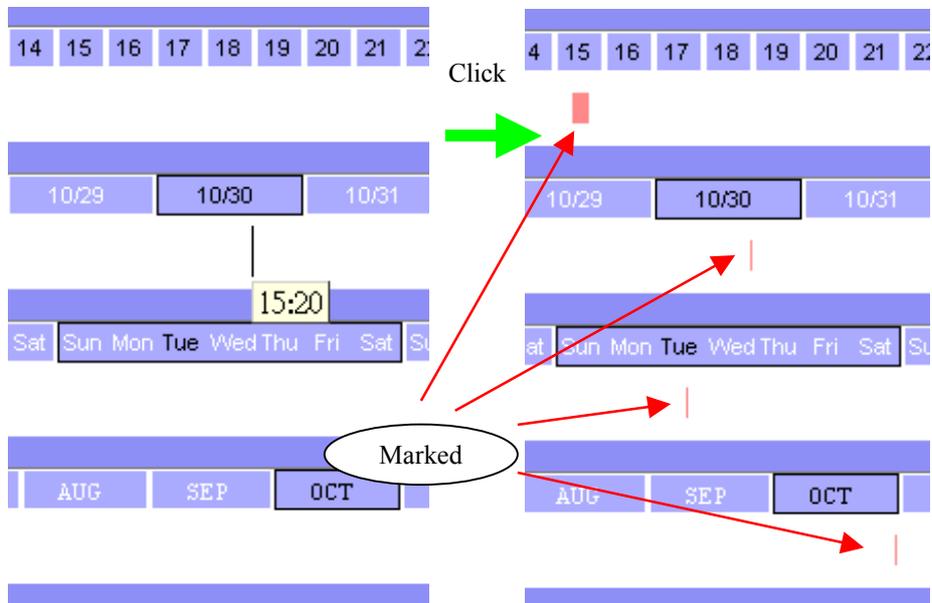
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unmark (clear) the record in the scheme of the schedule.

In other word, operations over time-lines which are left mouse button based are designed for marking the time (make a record, red bars on time-line) in the scheme of schedule, and the operations which are right mouse button based are designed for cancel the record (unmark the time, green bars on time-line) in the scheme of schedule.

### 3.3.1.2 Click

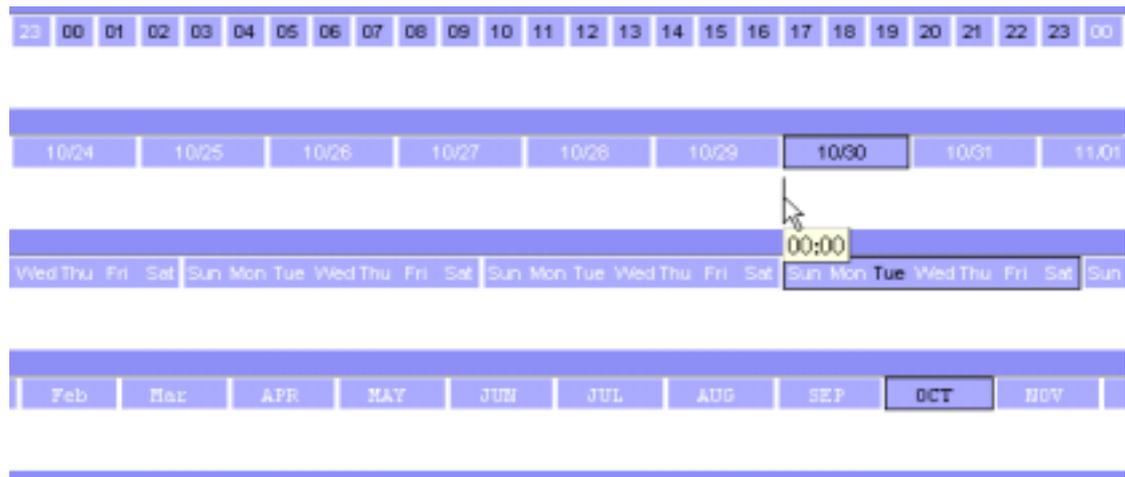
When you move your mouse over the time-lines, the scheduler will show the date/time information under the cursor to remind you of what's the time at the mouse cursor position.



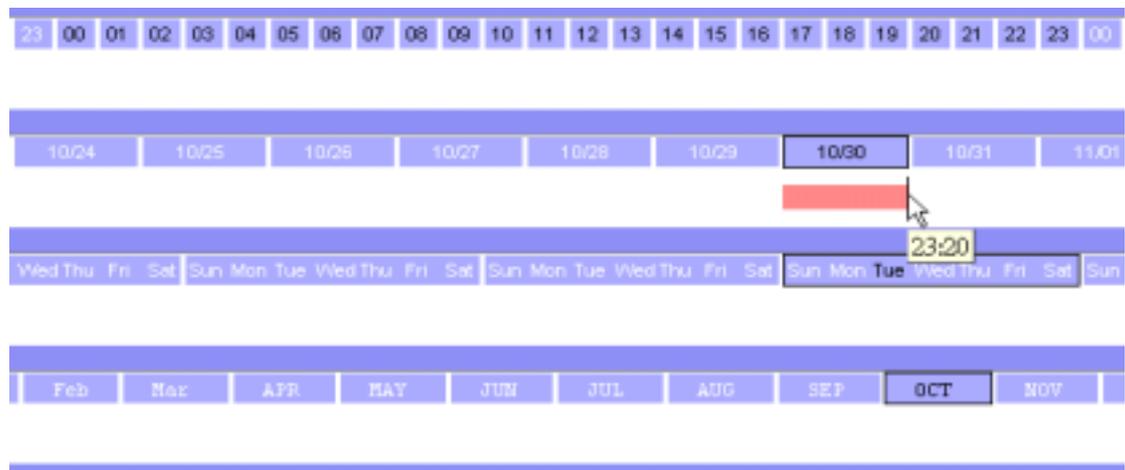
### 3.3.1.3 Make Serial Selection

If you want to mark/unmark a serial of time units, the following steps demonstrate the method.

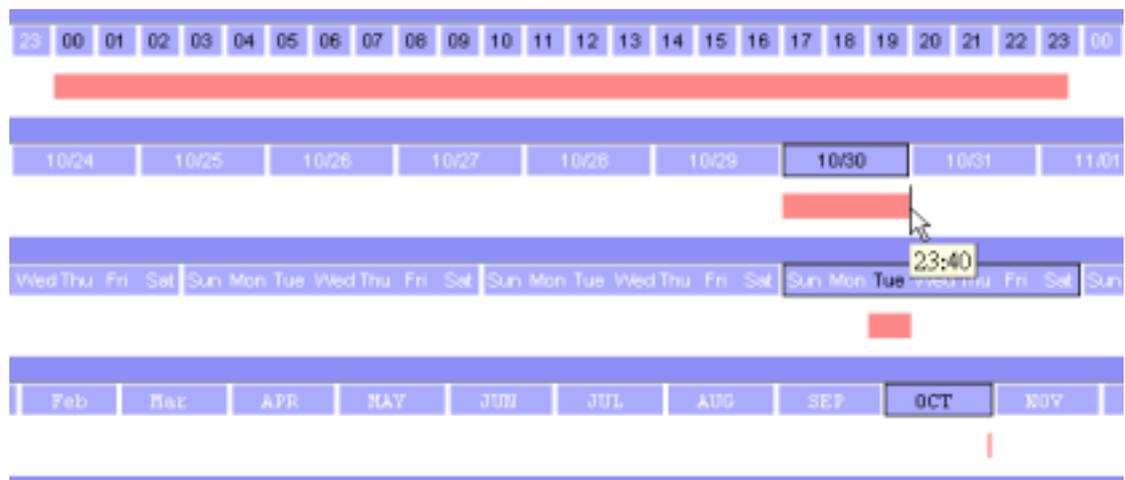
Step 1: Press and hold the left mouse button



Step 2: Note the time information from the tips and move the mouse to the target time



Step 3: Release the left mouse button





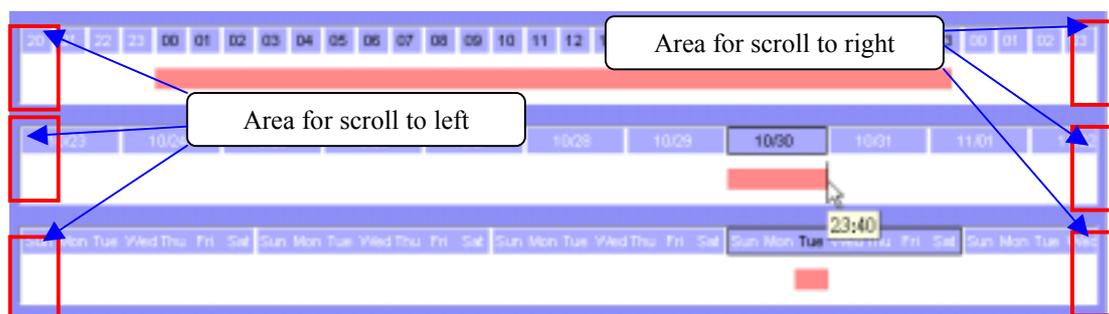
In the example, you mark the time interval from 00:40 to 23:40 that means you had marked the time:

$00:40 \leq \text{the time} < 23:40 + 1 \text{ unit of day time-line} (= 24:00)$

If you press the right mouse button in the above steps, the scheduler tool draw a green bar in the time-line, and finally clear the records in the unmarked region.

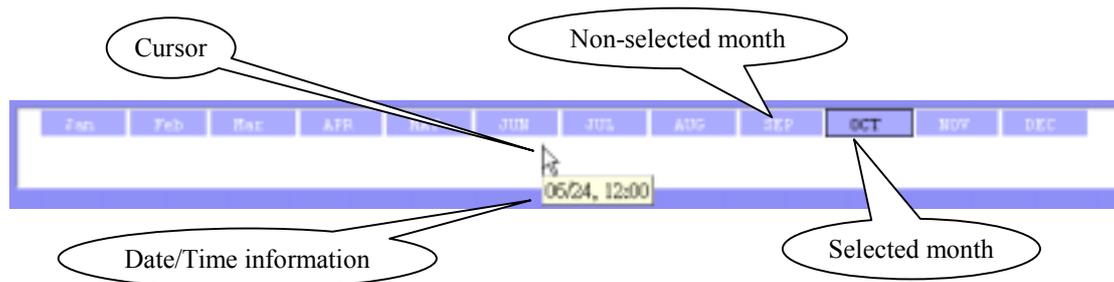
### 3.3.1.4 Scroll

The hour time-line, day time-line and week time-line contain two scrolling area.



Whenever you move the mouse cursor into these areas, the contents of the time-lines will scroll to different time area which is depending on the area where the cursor locates. It does not matter whether the mouse button is pressed or not.

### 3.3.2 Month Time-Line

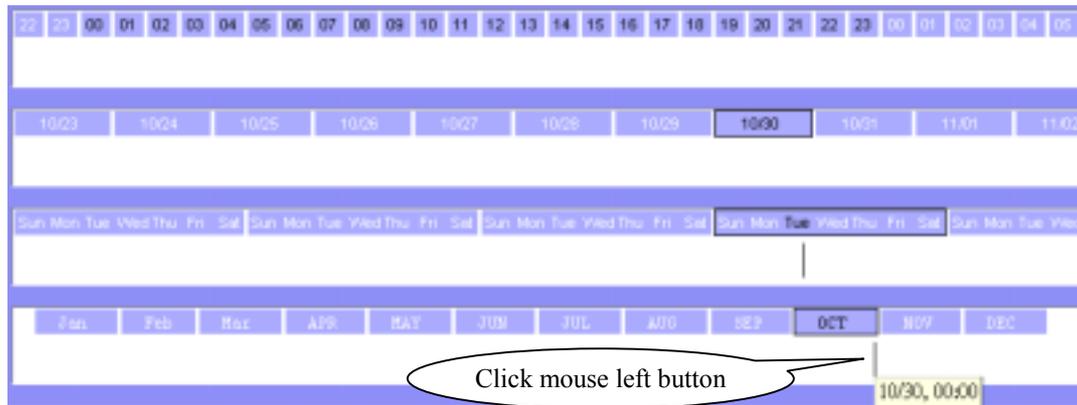


Since the scheduling tool is a year based scheduler, you can't do cross year schedule in the same time. You must schedule each year one by one.

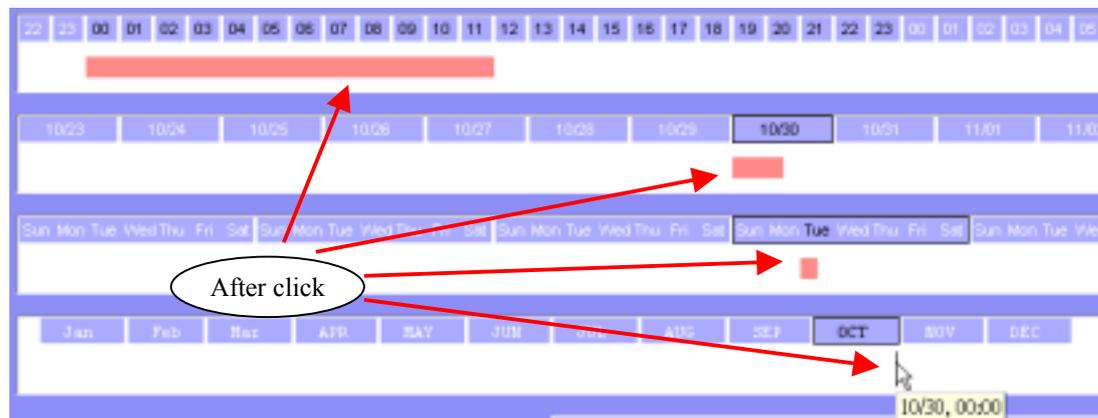
There are different ways to mark/unmark the recording periods:

Click the left button of mouse and a half-day period is marked. That means from 0:00 to 11:59 or from 12:00 to 23:59, the digital video signals will be saved in the hard disk only when you run the monitor software.

Step 1:



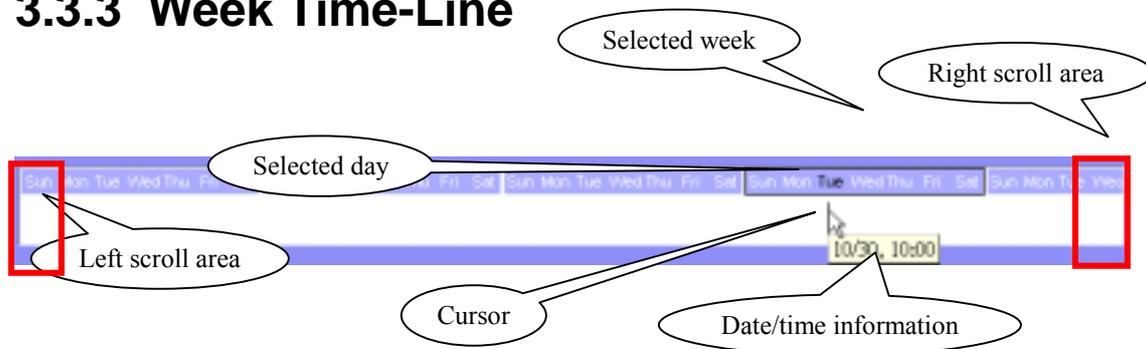
Step 2:



If you press and hold the **left** mouse button and then moving the mouse pointer, a serial of half-day schedule will be marked after you release the left mouse button.

If the **right** mouse button is clicked or pressed, the time-line will help you to unmark the schedule.

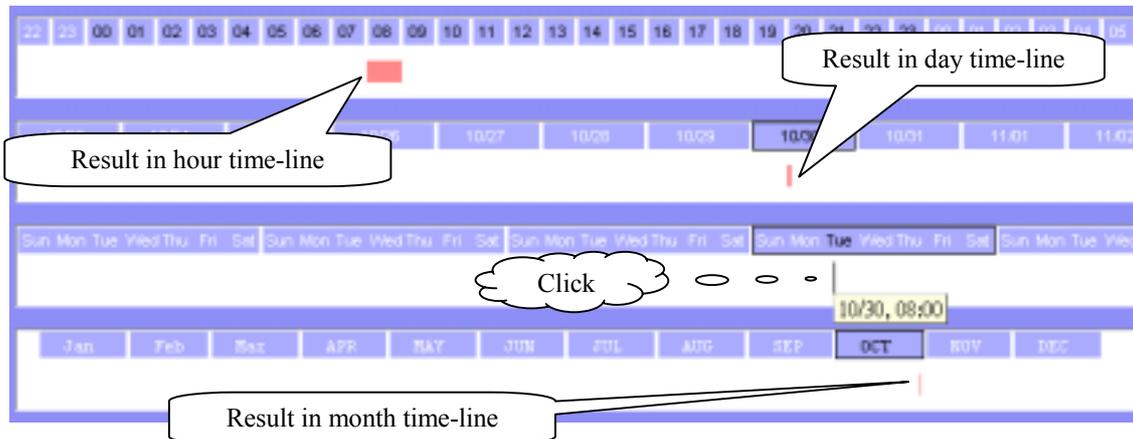
### 3.3.3 Week Time-Line



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### 3.3.3.1 Marking/Unmarking the Recoding Time

The one-click unit of week time-line is one hour. It means a continuous one-hour recording schedule is marked/unmarked if you click the mouse button. You can also press and hold the mouse button to mark/unmark continuous units.

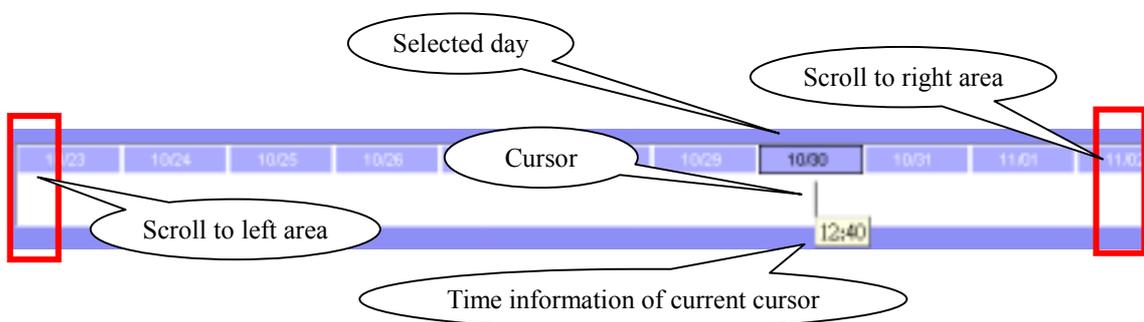


### 3.3.3.2 Scrolling and Switch Date in the Week Time-Line

If you move the mouse cursor to the most left part of the time line, the time-line will scroll one day-unit at a short time, and the earlier date will be shown in the week time-line, and vice versa.

When left mouse button click happens at upper time-line area (the week day indicator), the current date selection is changed, and the change also has its affection in all other time-lines.

### 3.3.4 Day Time-Line



### 3.3.4.1 Marking/Unmarking the Recoding Time

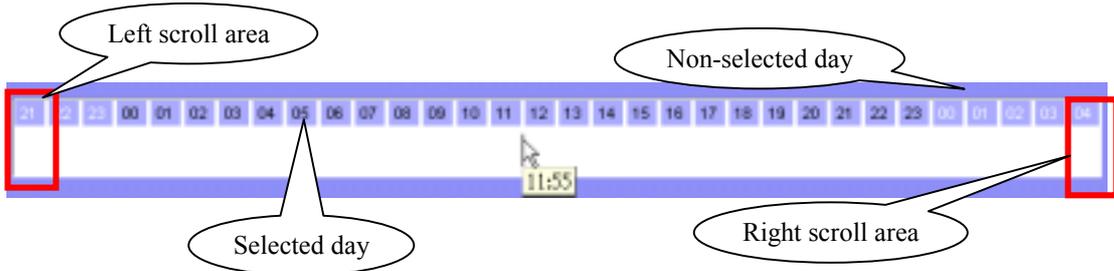
The one-click time unit in day time-line is 20 minutes. The operating method is the same as week time-line and month time-line. Please refer to 2.3.1 and 2.3.2 for more details.

### 3.3.4.2 Scrolling and Switch Date in Day Time-Line

Moving mouse cursor to the most left part of the day time-line will cause the time-line to scroll one day earlier. If you keep the mouse cursor within the same area, the time-line will continue scroll and vice versa.

Click at the day information area of day time-line will cause the selected day to be changed and the change will also take its effect on other time-lines.

## 3.3.5 Hour Time-Line



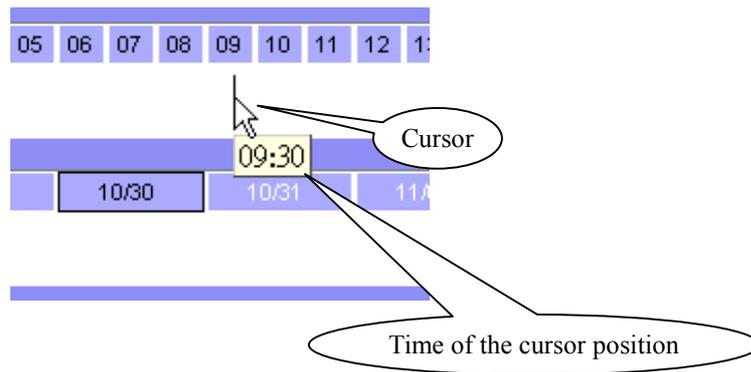
### 3.3.5.1 Marking/Unmarking the Recording Time

The one-click unit in hour time-line is five minutes, and it's also the smallest unit of the scheduling tool. The operating method is the same as the other three time-lines. Please refer to 2.3.1.1 or 2.3.2.1 for more details.

#### Scrolling and Switch Time in Hour Time-Line

The scrolling unit of hour time-line is one hour. Moving the mouse cursor to the left-most part of the time-line will scroll the time-line to earlier time and vice versa. The selection unit of this time-line is one day, that is, when you click on the hour information area in the time-line, the selected day will be changed and the other three time-lines will be changed as well.

When you move your mouse over the hour-line, the scheduler tool will show the time of the current cursor position. It gives a great help to make detailed schedule.



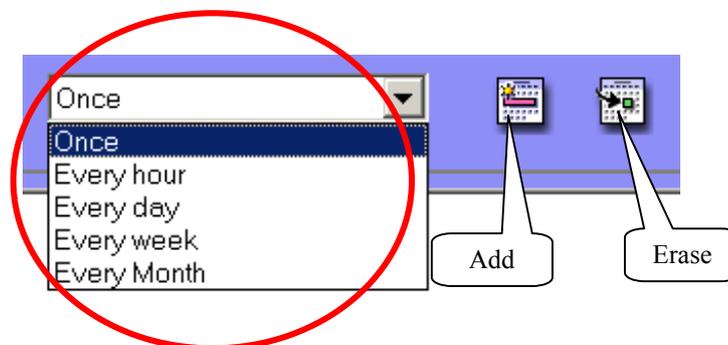
## 3.4 Schedule with Time Picker

### 3.4.1 Begin and End Time

There are three controlling units in both the start and end time selectors. The first controlling unit is the date picker. You can select the year, month and day with it. Once you select the date in different year, the data file will switch automatically. Remember to make the begin time earlier than the end time. Otherwise the add action will be ignored.

### 3.4.2 Add and Erase Buttons

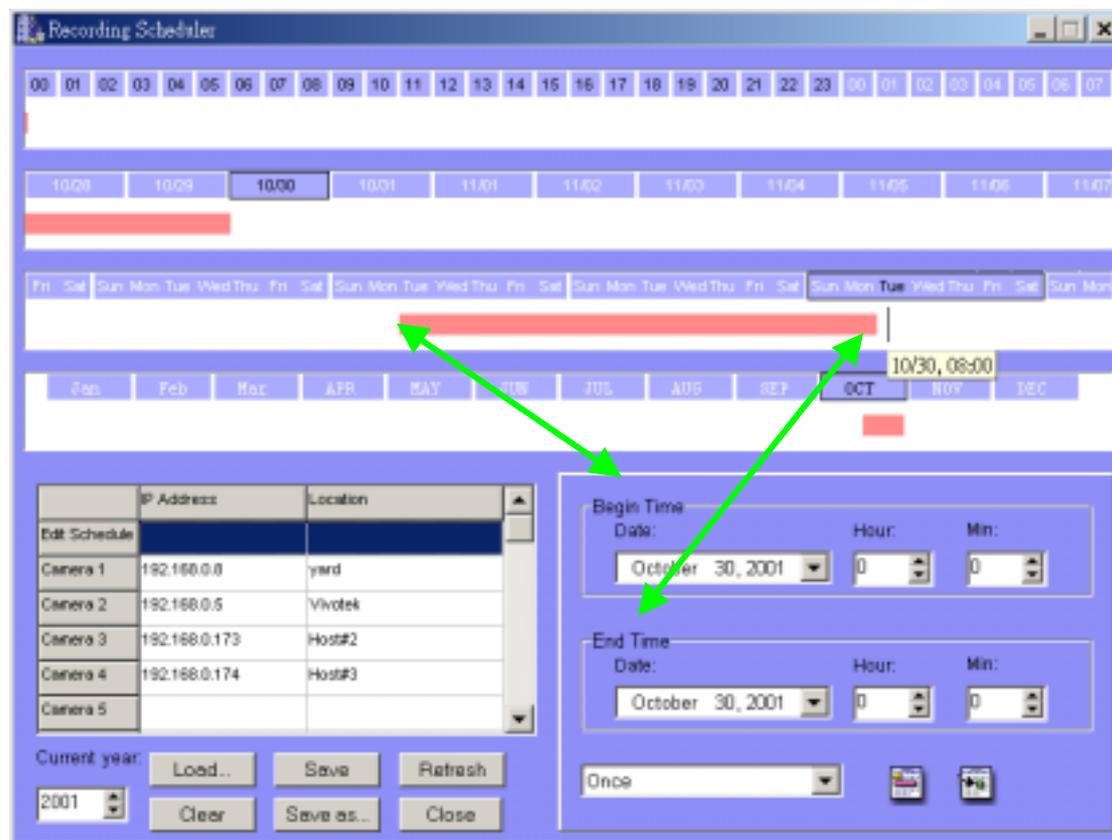
After you have selected time period with the begin time and the end time picker, you can click the “Add” button or “Erase” button to add or clear the scheduling information within the time period. Remember that only if you click on the “Apply” button, the scheduling changes will be written back to the data file. It means the scheduling is valid only if you “Apply” the changes.



### 3.4.3 Select period

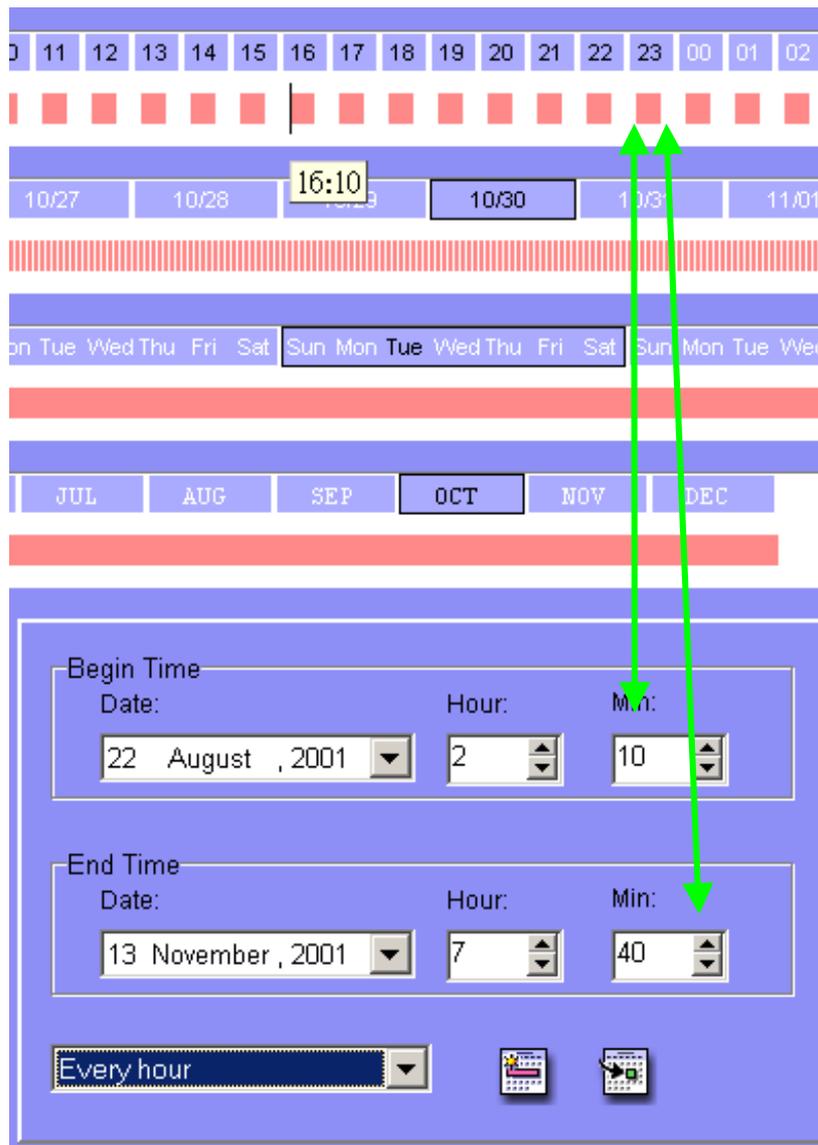
✓ Once

If you select “once” option, the scheduler tool will mark the time according to the begin time and end time. It includes year, month, day, hour, and minute selections. The following picture illustrates this situation.

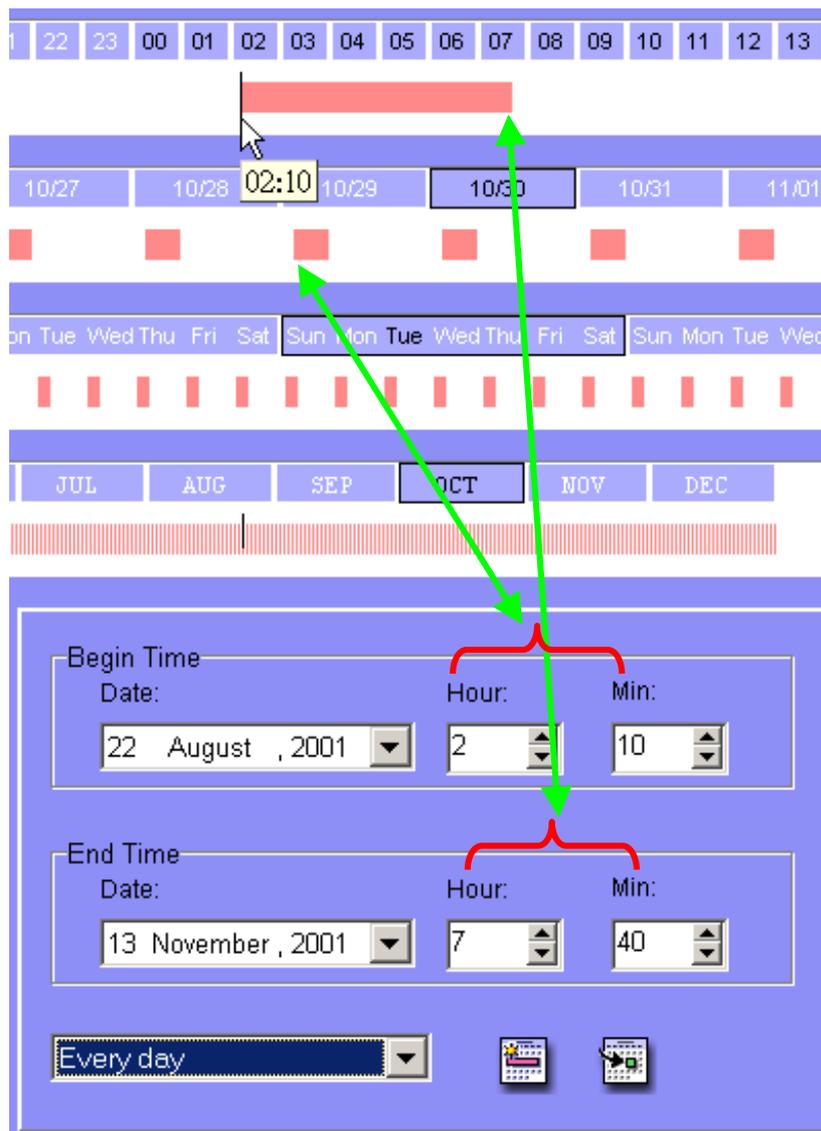


✓ Every hour

If this option is selected, only the selection of minutes is valid. And within the whole year, every minute that meet the setting will be marked. The situation is shown below:



- ✓ Every day  
If you select this option, only the selections of hour and minute is validate. And the time that meets the selection will be marked within the year. Take the result shown below as an example.



✓ Every week

The functionality is similar to other options. The scheduler tool will check the dates for their day of week, and apply the time mark to every week within the year. Remember one thing – only the day of week, hour and minute are valid.

The image shows a multi-step date and time selection process. At the top, a calendar grid displays dates from 5 to 07. Below this, another grid shows dates from 10/28 to 11/02, with 10/30 highlighted. A third grid shows days of the week from Wed to Fri. Below these is a month selector with 'OCT' selected. The bottom section contains two time selection boxes. The 'Begin Time' box has a date of '22 August, 2001', an hour of '2', and minutes of '10'. A callout bubble labeled 'Wednesday' points to the date. The 'End Time' box has a date of '13 September, 2001', an hour of '7', and minutes of '40'. A callout bubble labeled 'Thursday' points to the date. Below the time boxes is a dropdown menu set to 'Every week' and two calendar icons.

- ✓ Every month  
In this option, only the date (exclude the month and year), hour and minute are valid. Therefore the result is as follows:

The image shows a scheduling interface with a blue background. At the top, there are two rows of date boxes. The first row contains boxes for days 12 through 08. The second row contains boxes for dates 10/22 through 10/28. Below these is a calendar grid with days of the week (Mon, Tue, Wed, Thu, Fri, Sat, Sun) and a red bar highlighting a specific period. Below the calendar is a row of month boxes (MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC) with a red square under each. At the bottom, there are two time selection sections: 'Begin Time' and 'End Time'. Each section has a 'Date:' field, 'Hour:' and 'Min:' dropdown menus. The 'Begin Time' section shows '22 August, 2001', '2' for hours, and '10' for minutes. The 'End Time' section shows '27 September, 2001', '7' for hours, and '40' for minutes. Below these are 'Refresh' and 'Close' buttons, a frequency dropdown set to 'Every Month', and two calendar icons. Green arrows point from the 'Begin Time' date field to the 22nd of August in the calendar, and from the 'End Time' date field to the 27th of September. Red circles highlight the date, hour, and minute fields in both time sections.

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# Chapter 4 Playback

## 4.1 Features of Playback

The playback program we provide here is a very powerful, convenient, and easy using tool to assist you in browsing the recorded video database. It has two display modes (normal display mode, preview mode) and three playback methods (full range, time period, events preview). The main tools it provides include:

- ✓ Powerful play control tool:
  - ✧ Play
  - ✧ Stop
  - ✧ Pause
  - ✧ Step forward
  - ✧ Fast play (from x1 to x16)
  - ✧ Slow play (from /1 to /16)
- ✓ Convenient display adjustment tool:
  - ✧ Zoom in (from 1:1 to 2.25:1)
  - ✧ Zoom out (from 1:1 to 1:2)
  - ✧ Full screen
- ✓ Flexible searching range adjustment tool:
  - ✧ User input (from full range to 1 second)
  - ✧ Zoom in (from full range to 10 seconds)
  - ✧ Zoom out (up to full range)
  - ✧ Page searching
  - ✧ Full range
- ✓ Various exporting tool:
  - ✧ AVI file transducer
  - ✧ BMP file snapshot
  - ✧ Output to printer directly

## 4.2 Logging In

Before you start the playback program, it is necessary for you to login our system. Figure 4-1 shows the login dialog. For the security concern, only the root account can login this program. To change the password of root account, please refer to “2.3 Logging In”.

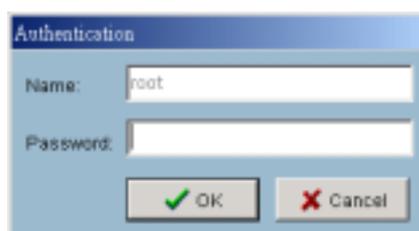


Figure 4-1 Login dialog

## 4.3 Layout

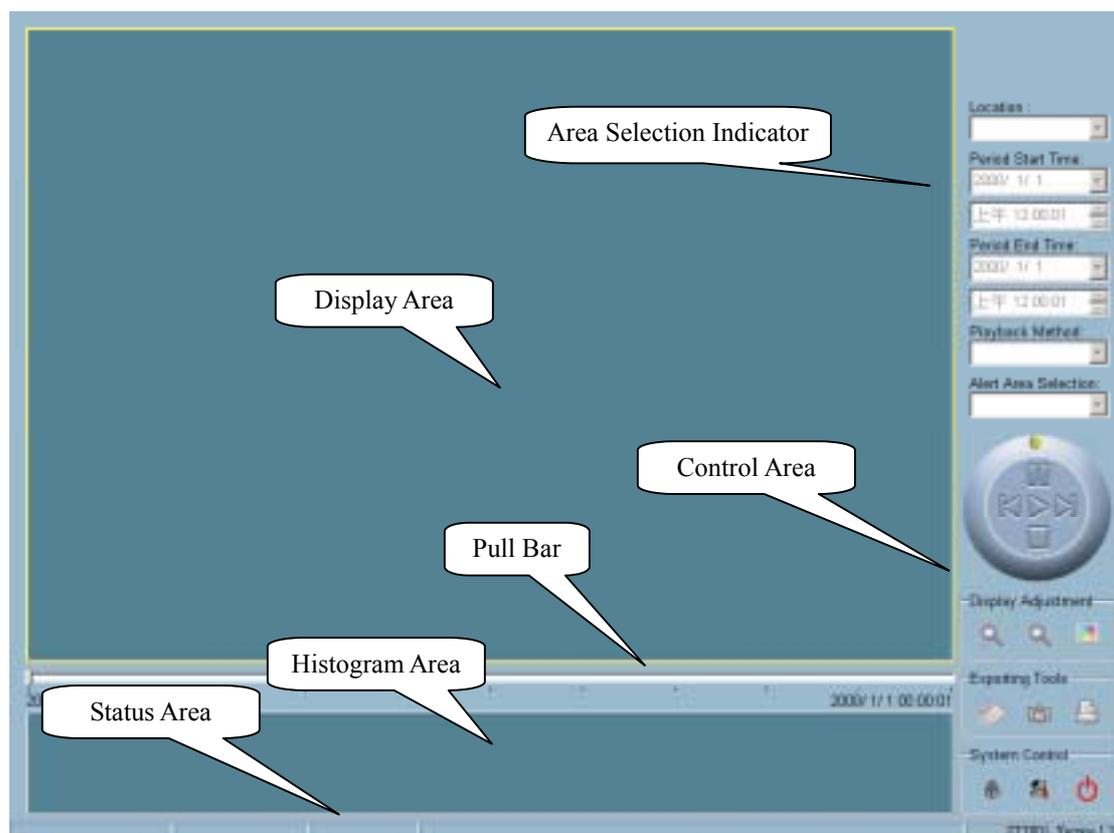


Figure 4-2 Playback main window

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Once you login the playback system successfully, the main window will be shown on the top of the screen and the display resolution will change to 1024x768 automatically (Figure 4-2). There are four main areas in that window, i.e. display area, histogram area, control area, and status area. There are also three visualized control in it, i.e. area selection indicator, frame selection indicator, and pull bar. These features provide you much more convenience to search the surveillance database.

## 4.3.1 Areas

### 4.3.1.1 Display Area

The display area shows the surveillance database of each camera by events triggered by the alert or by time. You can change the video size through the display adjustment tool and the playback method through the play control tool. Under the normal display mode as shown in Figure 4-3, you can just double click on the frame area to change the frame size to 1:1 or 2.25:1. And in the preview mode, double clicking on any frame area can change the display mode to normal and show the 10-second interval including the event you selected.



Figure 4-3 Display by time (normal display mode)

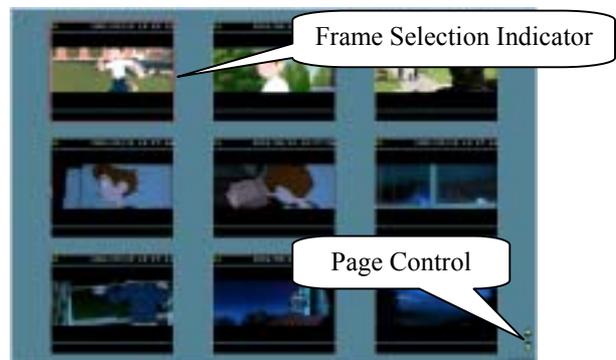


Figure 4-4 Display by event (preview mode)

### 4.3.1.2 Histogram Area

The histogram is an interactive control. Not only you can get the event's location in time domain and its motion quantity, but also you can select a group of events or period from the event histogram area and show it on the display area.

### 4.3.1.3 Control Area

The control area contains almost all the control selectors and toolboxes you need to

browse the database except the page control. The page control tool is located on the right-bottom corner of the display area when the program is operating in the preview mode (shown in Figure 4-4). These control tools include location selector, period selector, playback method selector, jog dial, display adjustment tool, searching range adjustment tool, exporting tool, and system control tool. In “4.7 Using Tools”, we will discuss these in more details.

#### **4.3.1.4 Status Area**

The status area is located at the bottom of the main window. It tells you all about the program statuses including display mode, display size, display speed, exporting file format, and exporting file name.

### **4.3.2 Indicators**

#### **4.3.2.1 Area Selection Indicator**

In Figure 4-2, the display area is surrounded by a yellow rectangle. This rectangle is the area selection indicator. This indicator can set to either display area or histogram area, as long as you move your mouse cursor to the area you want to select. When you select the display area, the display adjustment tool will appear in the control area, and if you select the histogram area, the display adjustment tool will disappear and the searching range adjustment tool will be shown in the control area.

#### **4.3.2.2 Frame Selection Indicator**

The frame selection indicator only appears when you change the display mode to preview mode (as shown in Figure 4-4). It is a red rectangle surrounding to one of the nine event preview frames. Once you select one of these frames, you can control its play status through the jog dial in the control area.

### **4.3.3 Pull Bar**

The pull bar is a fast, flexible control for seeking data in the selected time period. It represents the total length of time in that period. You can click or pull the indicator on the pull bar to the point you want to see. And the displaying video will halt and restart to play the video sequence from the point you choose. If the video sequence

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has been paused, the display area will show the point you select without playing. The pull bar will only function under the normal display mode.

## 4.4 Settings

After the main window is shown on the screen, you must modify the settings to make it work properly. Click on the “Settings” button in the system control tool, and the setting dialog will appear on the screen as shown in Figure 4-5.

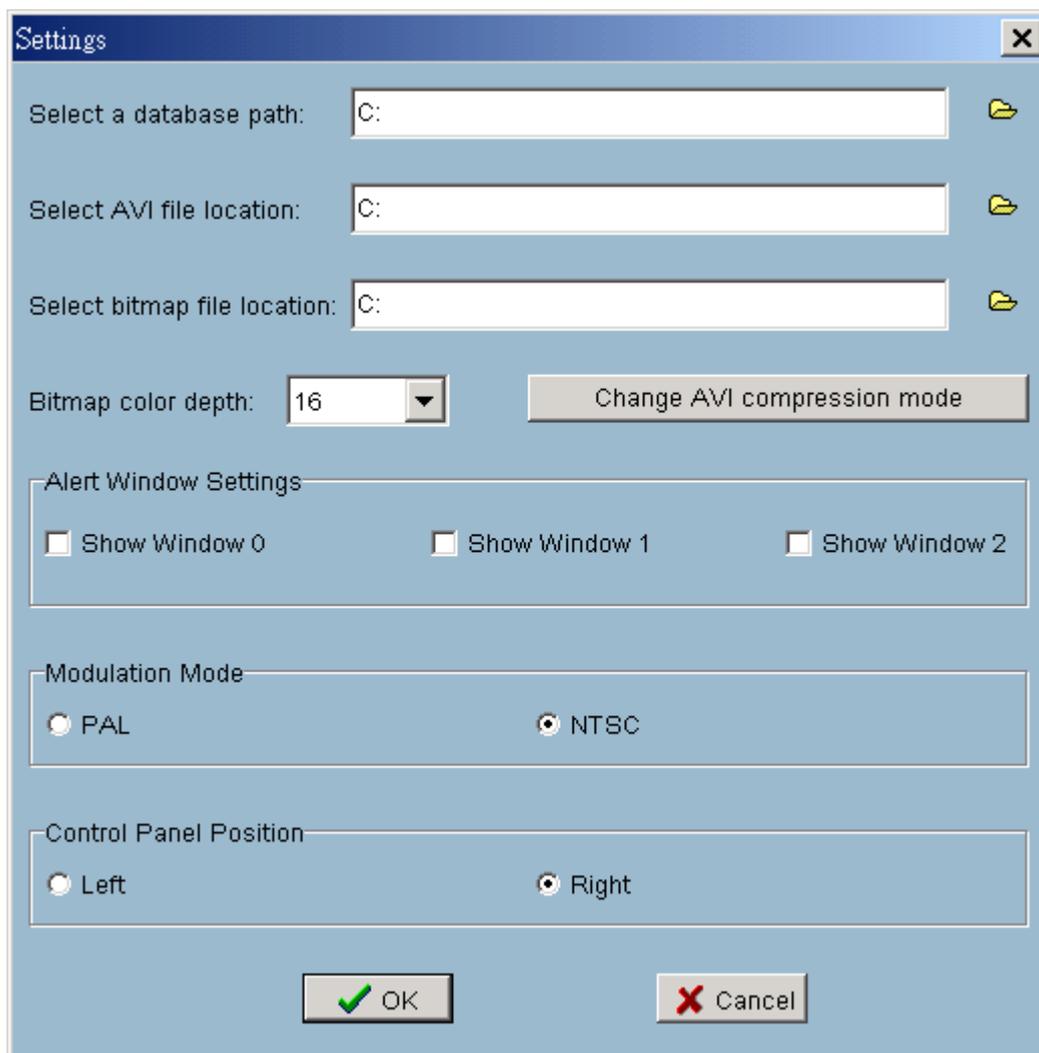


Figure 4-5 Settings dialog

- ✓ Database path  
The most important item in the settings dialog is the database path setting. You

must set it to the directory that contains the surveillance database to make the program work properly.

✓ AVI file location

It sets the storing directory when you export AVI files. These exporting AVI files will be stored in the sub-directory under the directory you set here with the name of the location you select.

✓ Bitmap file location

It sets the directory when you use the snapshot to export bitmap files. These exporting bitmap files will be stored in the sub-directory under the directory you set here with the name of the location you select.

✓ Bitmap color depth

This setting changes the color depth of the exporting bitmap file. It is suggested to use more than 16 bits color depth to get the better picture quality.

✓ AVI compression mode

Unlike the exporting of bitmap file, we use only 16 bits color depth to export the AVI file. During the AVI compression mode selection, you can select one of the compression methods that your computer supports to export the AVI file.

✓ Alert window settings

There are three alert windows you can activate during using the monitor program. In the playback program, you can choose whether these alert windows will be shown or not. If you check one window, then you will see that rectangle in green or red color shown in the displaying video sequence.

✓ Modulation mode

The modulation mode can't be changed uninhibited. It depends on how you recorded the video sequence in the monitor program. If you select the wrong mode, the video shown in the display area will become deformed. Under that situation you choose the wrong modulation mode, you may open the settings dialog again, change to the correct mode, and restart the playback program, then it will display properly.

✓ Control panel position

It provides you a very convenient method to change the position of the control area to fit your habit.

Once you change the setting of modulation or control panel position, you have to restart the program to take these changes into effect. And if you set the database path correctly, the video sequence will start displaying in the normal display mode when

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you click on the “Ok” button.

## 4.5 Normal (Single Frame) Mode

You can enter the normal mode when you:

- ✓ Change the database path in the settings dialog
- ✓ Change the location selector to another location
- ✓ Change the playback method selector to “Full Range”
- ✓ Change the playback method selector to “Time Period”
- ✓ Double click on one of the nine frames in the display area under the preview mode.

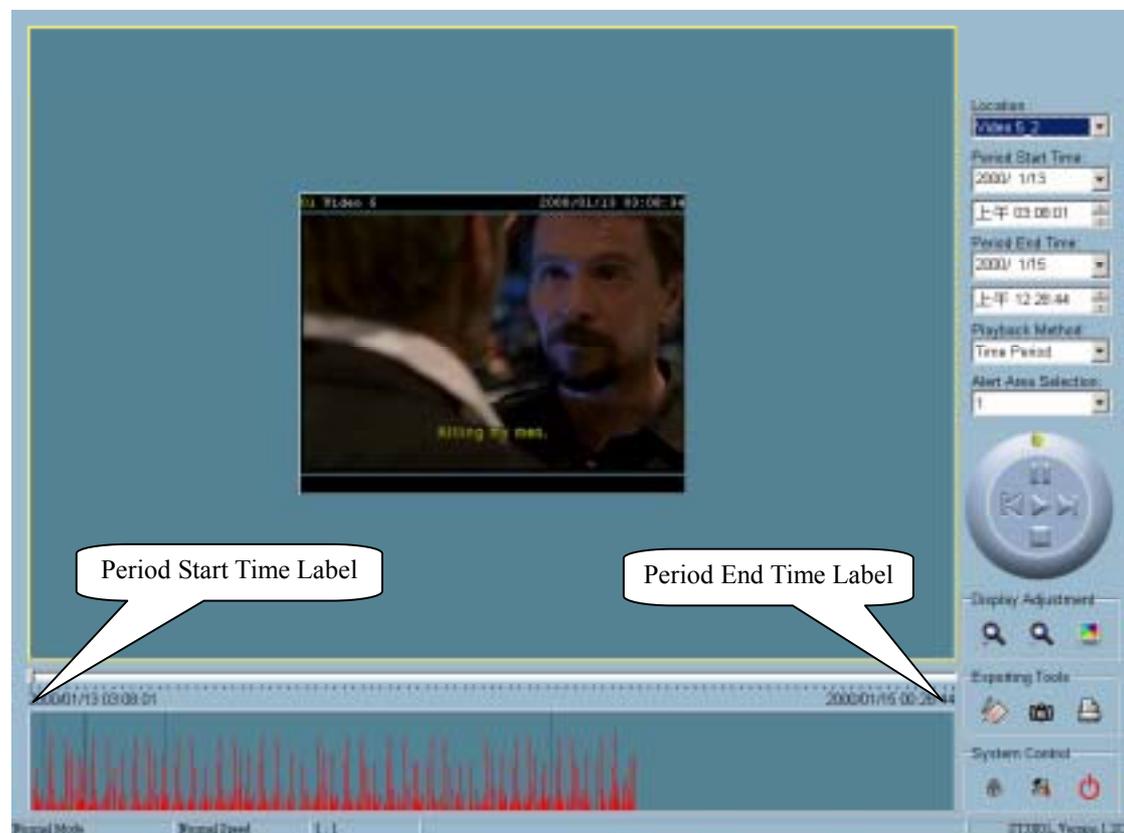


Figure 4-6 Normal display mode

Under the single frame mode, you can use all the tools the playback program provided except the page control. In this mode, the two labels under the pull bar show the start and end time of the period individually (as shown in Figure 4-6).

## 4.5.1 Histogram Area

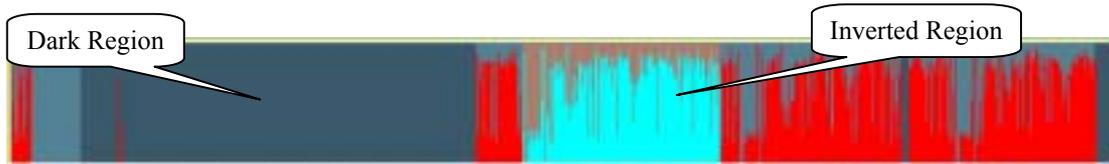


Figure 4-7 Histogram area in normal display mode

The histogram area in the single frame mode only shows the events' occurred time and the percentage of motion detection with red bars. If you want to access the histogram area, you must change the area selection indicator to the histogram area. You can select a color-inverted region by dragging your mouse with the left button pressed (as shown in Figure 4-7). When you release the left button, the color-inverted region will be enlarged to the whole histogram area. This color-inverted region will be the new period the program is going to display. If you change your mind and don't want to see that period, you can cancel it by just pressing the right button of your mouse with the left button still pressed. If you click on the left button without dragging it, the action will be the same as clicking on the pull bar in the same x-axis position. The dark regions mean there is no video data existed in that interval. If you click on those regions, nothing will happen except a warning message.

## 4.6 Preview (Multiple Frame) Mode

You can enter the preview mode only when you change the playback method selector to "Events Preview". It can help you to identify the objects triggering the events via not only the time information and the alert percentage but also the real video preview playing. With it, you can easily tell the different alert situations. Under the preview mode, the pull bar, "Transducer" button in exporting toolbox, and the display adjustment toolbox are disabled. The two labels under the pull bar show the displayed event number and the total event count individually. There are nine frames in the display area that we call it one page. And each frame displays a 10-second interval video sequence with  $1/2$  slow speed that contains different events. You can use the "Page Up" and "Page Down" button in the page control to browse the events in the selected period with nine events per page. And the page status tells you the current page number and total page count (as shown in Figure 4-8).

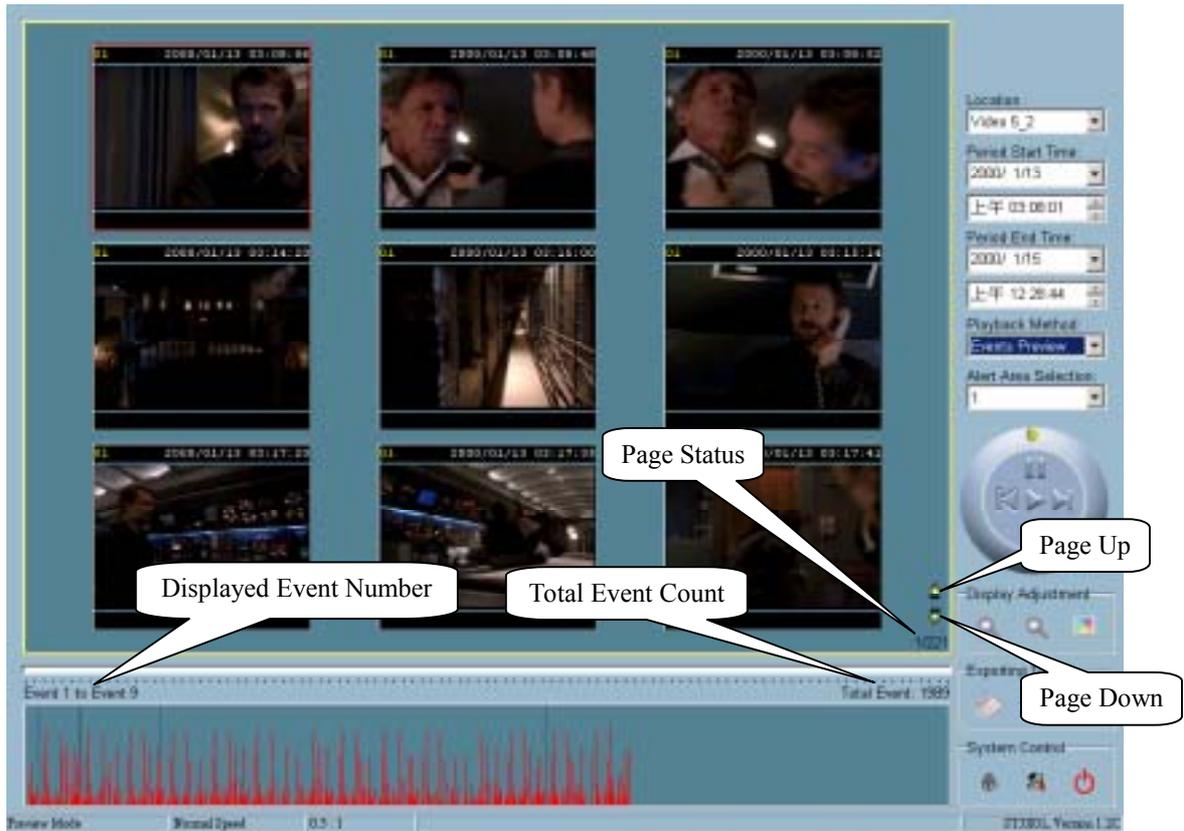


Figure 4-8 Preview mode

### 4.6.1 Histogram Area

The histogram area in the preview mode not only shows the events' occurred time and value with red bars, but also tells you the current displayed events with green bars and the selected event with blue bar. If you want to access the histogram area, you must change the area selection indicator to the histogram area. You can select a color-inverted region by dragging your mouse with the left button pressed (as shown in Figure 4-9).

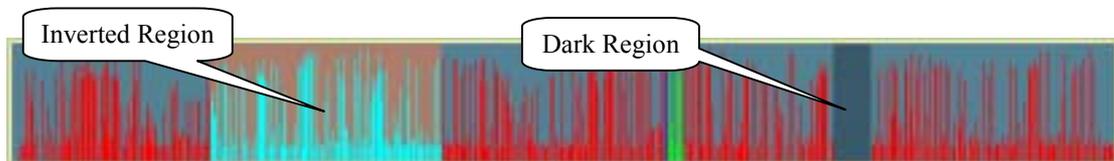


Figure 4-9 Histogram area in preview mode

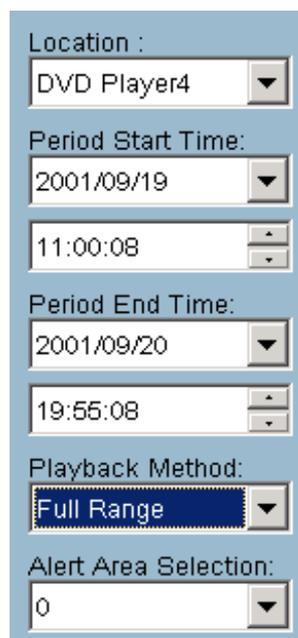
When you release the left button, the color-inverted region will be enlarged to the whole histogram area. This color-inverted region will be the new period the program

is going to display. If you change your mind and don't want to see that period, you can cancel it by just pressing the right button of your mouse with the left button still pressed. If you click on the left button without dragging it, the display area will show the event page closest to the point you select. The dark region means there is no video sequence existed in that interval. If you click on those regions, nothing will happen except a warning dialog.

## 4.7 Using Tools

### 4.7.1 Selector Tools

Figure 4-10 shows the selector tools, they are location selector, period selector, playback method selector, and alert area selector.



Location :  
DVD Player4

Period Start Time:  
2001/09/19  
11:00:08

Period End Time:  
2001/09/20  
19:55:08

Playback Method:  
Full Range

Alert Area Selection:  
0

Figure 4-10 Selector tools

#### 4.7.1.1 Location Selector

The location selector is a control that lets you select the camera you want to see (refer to Figure 4-10). The location information is the same as the location when you specify in the monitor program (see “2.5 Global Settings”). If there is more than one database in the same location, another dialog will appear (as shown in Figure 4-11). And you must select an interval in that dialog. If your selection is correct, the

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playback program will automatically switch to that camera and start displaying.

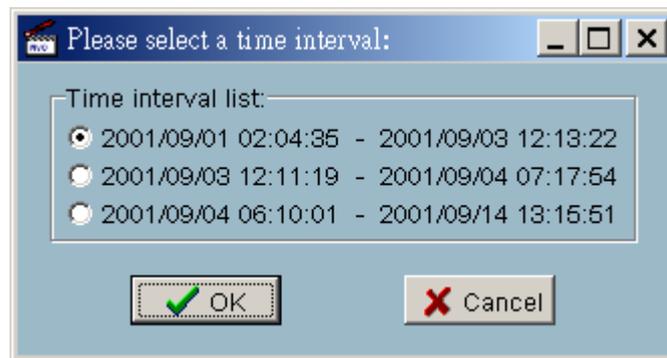


Figure 4-11 Time interval selection dialog

#### 4.7.1.2 Period Selector

Period selector provides you a precise way to choose the start time and the end time of a new period. The end time should be larger than the start time. After you give the correct start and end time, clicking on the “Play” button in the jog dial will play the new period in the display area, change the period start and end time label, the pull bar and histogram area will change, too. If the selected period is not present in the database, the data in the period selector will change to the previous correct start and end time and a warning message will be displayed.

#### 4.7.1.3 Playback Method Selector

✓ Full Range

If you select this method, the database will be displayed from the beginning to the end of this location. Any change in the period selector will take no effect except you change this selector to “Time Period”.

✓ Time Period

If you change the playback method to “Time Period”, you can modify the start and end time in the period selector. When you click on the “Play” button in the jog dial, the period you select will be displayed.

✓ Events Preview

This method will change the display mode from the normal display mode to the preview mode.

Since the program will record the previous start and end time in “Time Period” and “Events Preview” mode. Any time you want to change the period selector to see another period, you must change the playback method selector to the mode you want

to use first. Otherwise, the period selector will back to the previous data when you change the playback method selector.

#### 4.7.1.4 Alert Area Selector

In the preview mode, the playback program only can show the total events information of one alert window each time. If you want to see the events of the other two alert area windows, you must change the alert area selector to other numbers. In the normal display mode, the alert window that the alert area selector indicates will be highlighted with red rectangle if you checked that window in the settings dialog. The alert area selector will be changed to alert window 0, when you change the location selector to another one.

### 4.7.2 Play Control

For the play control, we used a jog dial to provide the easiest way to control the displaying video sequence. Except the “Play” button, all other buttons can control the displaying frame in the normal display mode and the selected displaying frame in the preview mode.

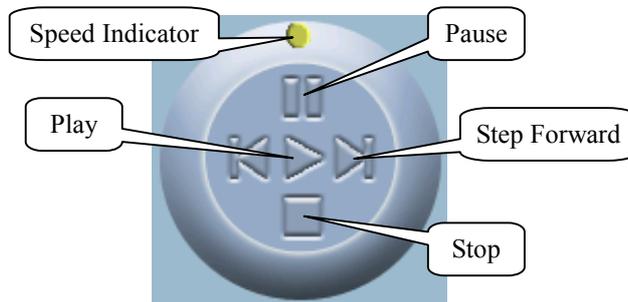


Figure 4-12 Jog dial

- ✓ **Play**  
The “Play” button we support here is an intelligent play interface. The functionality of this button can vary to fit with different circumstance. In the normal display mode, click on the “Play” button can restart the displaying video sequence. When in the preview mode, if you don’t change the data of period selector, click on this button only restarts the selected displaying frame. If the data of the period selector has been changed, clicking on the “Play” button will restart all frames to display the first nine events in the new period.
- ✓ **Stop**  
When you want to stop the displaying video sequence, you can click on the

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“Stop” button. Once you had pressed the “Stop” button, the start point will be reset to the start of the present period.

✓ **Pause**

The “Pause” button provides you a way to pause the displaying video sequence. When the displaying video is paused, click on the “Pause” button again will continue the video to display.

✓ **Step Forward**

This button is only valid when the displaying video sequence is paused. It will display the next frame in that period when you click on the “Step Forward” button one time.

✓ **Fast Play and Slow Play**

We support maximum to x16 fast forward play and minimum to /16 slow forward play. This function helps you browse the surveillance database more flexible. If you want to change the playing speed, you just need to move the speed indicator. To increase playing speed, move the indicator in the clockwise direction. And to decrease playing speed, move it in the counterclockwise direction. Current speed you set will be shown in the second column of status area.

### 4.7.3 Display Adjustment Toolbox

Using the display adjustment toolbox, you can change the displaying video sequence to the size you want to see in the normal display mode when you move the area selection indicator to the display area. Figure 4-13 shows the display adjustment toolbox and its own three elements, i.e. “Zoom In”, “Zoom Out”, and “Full Screen”.



Figure 4-13 Display adjustment toolbox

#### 4.7.3.1 Zoom In



When you click on the “Zoom In” button one time, the image size in the display area will be magnified 12.5 percent to the original size. Due to the limitation of the display area size, the maximum zoom in ratio we support here is only 2.25:1 for NTSC modulation mode and 1.875:1 for PAL modulation mode. If

you want to see the image in more details, you can use the full screen function we support in the same toolbox.

### 4.7.3.2 Zoom Out



When you click on the “Zoom Out” button one time, the image size in the display area will be minified 12.5 percent to the original size. To show the location and time information completely, the minimum zoom out ratio is limited in 0.5:1.

### 4.7.3.3 Full Screen



When you click on the “Full Screen” button, the video sequence will be enlarged to the whole screen instantly. You can double click on any place to return to the original state. When you switch to full screen display, you can press the “Alt” and “Space” keys together to pop the jog dial to control the displaying video sequence. Press the same keys again will close the jog dial. You can also press the “Alt” and “Enter” keys together to switch between the normal display and full screen display at any time when the program is under the normal display mode.

## 4.7.4 Searching Range Adjustment Toolbox

The searching range adjustment toolbox provides you a faster way to change the range of the displayed time period. By using this toolbox, you can browse the database of one location from any 10-second interval of the entire range. Figure 4-14 shows the searching range adjustment toolbox with its own three elements, i.e. “Zoom In”, “Zoom Out”, and “Full Range”.



Figure 4-14 Searching range adjustment toolbox

### 4.7.4.1 Zoom In



Each time you click on the “Zoom In” button in the searching range adjustment toolbox, the displayed time period will be half in the center of the original time period until the period is equal to 10 seconds. You can see the new

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interval in more details. The scale of pull bar and alert histogram window changes and the period start and end time change, too. The period selector will show the new start and end time. And the display area will restart to display the new period from the new start time.

#### 4.7.4.2 Zoom Out



Each time you click on the “Zoom Out” button in the searching range adjustment toolbox, the displayed time period will be double in the center of the original time period unless the start time or end time exceeding the database boundary. The scale of pull bar and alert histogram window changes and the period start and end time change, too. The period selector will show the new start and end time. And the display area will restart to display the new period from the new start time.

#### 4.7.4.3 Full Range



As you click on the “Full Range” button, you will get the same functionality just like you change the playback method selector to “Full Range”.

### 4.7.5 Exporting Toolbox

In our playback program, you not only can check the database through our program but also can export the database to other media. Using the exporting toolbox, you can export the database to other more portable formats, such as avi file, bitmap file or paper. Then you may use windows media player or other program to browse the exporting data. Under the normal display mode, you can use all the exporting tools. And under the preview mode, only snapshot and print can be used. Figure 4-15 shows the three elements of the exporting toolbox, i.e. “Transducer”, “Snapshot”, and “Print”.



Figure 4-15 Exporting toolbox

### 4.7.5.1 Transducer



Using the transducer tool, you can transpose the displaying video sequence to the avi file. Just click on the “Transducer” button and an information dialog will be shown as Figure 4-16.



Figure 4-16 Dialog for exporting avi file

It tells you the start time and end time of the avi file that is going to be exported. When you click on the “Ok” button, the conversion procedure will be started. The time of exporting data is depending on how fast the processor you used. During any time of the exporting interval, you can click on the “Stop” button in the jog dial to stop the procedure. Then you will get an avi file from the start time to the time you click the “Stop” button. The exported avi filename will be generated automatically and listed in the fourth column of the status area. If you want to change the output directory, you can go to the settings window as we described in “4.4 Settings”. To get the better quality of the exporting AVI file, it is suggested to set the video format to normal size (please refer to “2.4 Camera Configurations”).

### 4.7.5.2 Snapshot



When you click on the “Snapshot” button one time, you can make the program export a bitmap. In the normal display mode, the exporting bitmap is the image shown in the display area. And in the preview mode, it is the image that you selected through the frame selection indicator. The size of the bitmap will be the same as that of the image you select. The exported bitmap filename will be generated automatically and listed in the fourth column of the status area. If you want to change the output directory, you can go to the settings window as we described in “4.4 Settings”.

### 4.7.5.3 Print



When you click on the “Print” button, a printing dialog will be appeared. After you made your selection and send to the printer, the images on the

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display area will be printed out. The printing functionality is designed based on the idea, “what you see is what you get”. Therefore, the output data will be the same as what is in the display area.

## 4.7.6 System Control Toolbox

The system control toolbox provides you some basic operations for the playback program. Figure 4-17 shows the three elements of the system control toolbox, i.e. “Lock Window”, “Settings”, and “Exit”.



Figure 4-17 System control toolbox

### 4.7.6.1 Lock Window

 If you want to leave away from your computer, for the security concern, we suggest you to close the playback program or you can just click on the “Lock Window” button to lock the main window. Once you click this button, the main window will be hidden and the login dialog will appear (as shown in Figure 4-1). To return to the main window, you need to enter the root’s password again.

### 4.7.6.2 Settings

 The settings dialog will pop up when you click the “Settings” button. For more information about setting this program, please refer to “4.4 Settings”.

### 4.7.6.3 Exit

 The playback program will be terminated immediately when you click on the “Exit” button. If the avi exporting procedure is running, this procedure will be stopped first.

Thanks of your using our ST3X01. If there is any question, please contact your dealers who will always be very happy to serve you. Have a wonderful journey at the marvelous ST3X01 world.