Digital Video Recording System

APPLICATION SOFTWARE
USER MANUAL

TARGET MODEL: HICAP-SERIES, OVERLAY-LIGHT
MIG, MID, MIS
Version 6.5.2

All information contained in this manual is subject to change

COMART SYSTEM CO., LTD

http://www.comartsystem.com

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1. INTRODUCTION

Dear Customer,

Firstly, we would like to thank you for purchasing Comart DVR products and applications.

At Comart System Co, LTD. We have occurred DVR fields with innovative products as a market leader since 1995

Our dedicated products have been manufactured to meet the highest quality standard. Moreover, Comart always strives to offer premium quality products in order to satisfy customer's needs and demands.
Now, we are the one of the fast growing companies in DVR boards market in Korea and Global.

As of Feb 2003, more than 300 companies from global have used our DVR boards. The main reason to be successful and catch their attention were as you recognize, we support reliable and excellent DVR solutions to our customers with reasonable price.

We wish you have satisfaction with our products. We commit that you will experience the cutting-edge technology with Comart.

If you have any queries in relation to price and products, do not hesitate to contact us. We will treat you as our best customer.

Best regards,

Comart System Co., Ltd.

1. COMART DVR HARDWARE SPECIFICATION

1-1. HICAP SERIES

CLASSIFICATION			HICAP25	HICAP50	HICAP100	HICAP200
PHYSICAL FORM FACTOR			131mm × 100mm 5.2 in. × 3.9 in.	160 mm × 110 mm 6.3 in. × 4.3 in.	200 mm × 110 mm 7.9 in. × 4.3 in.	265 mm × 110 mm 10.5 in. × 4.3 in.
POWER CONSUMPTION			2W	4.3 W	7.9 W	13.0 W
PCI INTERFACE			33㎒, BUS Master, 132Mbyte/sec, PCI Rev. 2.1 compliant			
VIDEO	INPUT NUMBERS		4/8/16 CH	16 CH	16 CH	16 CH
	INPUT VOLTAGE		1V p.p. required			
	INPUT IMPEDANCE		75 Ω			
	FORMATS		60㎐ NTSC, 50㎐ PAL			
	CONNECT TYPE		External 2 BNC connectors /internal 4 Molex connectors to extend up to 16ch	External two (2) Octopus BNC cables (Each BNC Cable Input: 8ea), Internal 16ch Molex Connectors		
	OUTPUT NO.		One (1) Switched (full size) Composite Video Out			
RESOLUTION SUPPORTED	NTSC	CIF	352 × 240			
		2CIF	704 × 240			
		4CIF	704 × 480			
	PAL	CIF	352 × 288			
		2CIF	704 × 288			
		4CIF	704 × 576			
Max. TOTAL DISPLAY FPS			30/25fps	60/50fps	120/100fps	240/200fps
Max. TOTAL RECORDING FPS			30/25fps	60/50fps	120/100fps	240/200fps
Max. RECORDING FPS PER CH			7fps w/4CHs	3fps/16CHs	7fps/CHs	15fps/16CHs
SENSOR IN/OUT			4×2, 4×4, 8×4	16 Sensor Inputs, 4 Alarm Outputs		
HARDWARE WATCHDOG			YES			
VIDEO MOTION DETECTION			BY SOFTWARE			
S/W VIDEO CODEC PROVIDED			Motion-JPEG, Advanced MPEG4			
AVERAGE FILE SIZE PER CODEC	MJPEG		6 ~ 12 Kbytes at CIF			
	MPEG4		2~5 Kbytes at CIF			

1-2. MID & MIS SERIES

CLASSIFICATION		MIG4CH	MID8CH**	MID16CH	MIS8CH**	MIS16CH
PHYSICAL FORM FACTOR		182 mm × 109 mm 7.1 in. × 4.28 in.	184 mm × 109 mm 7.24 in. × 4.28 in.		265 mm × 109 mm 10.43 in. × 4.28 in.	
POWER CONSUMPTION		8 W	19 W		24 W	
PCI INTERFACE		33㎒, BUS Master, 132Mbyte/sec, PCI Rev. 2.1 compliant				
VIDEO	INPUT NUMBERS	4	8	16	8	16
	INPUT VOLTAGE	1 V p.p.				
	INPUT IMPEDANCE	75 Ω				
	FORMATS SUPPORTED	50㎐ NTSC, 60㎐ PAL				
	CONNECT TYPE	BNC connector***	1. External two (2) octopus BNC cables (Each cable input: 8ea), 2. Internal four (4) Molex connectors (Each connector input : 4ea)			
	OUTPUT NUMBERS	1 C&S****	Two (2) Composite & Super Video Outputs (optional)*****			
RESOLUTION	NTSC CIF (DEFAULT)	344×240	352×240			
	NTSC 2CIF	688×240	704×240			
	NTSC 4CIF	688×480	704×480			
	PAL CIF (DEFAULT)	344×288	352×288			
	PAL 2CIF	688×240	704×288			
	PAL 4CIF	688×480	704×576			
Max. Total Display Frame Rate		Real-live******	Real-live	Real-live	Real-live	Real-live
Max. Total Recording Frame Rate		120/100fps	30/25fps	30/25fps	120/100fps	120/100fps
Max. Per Channel Recording FPS		30/25fps	3fps	1~2fps	12~15fps	6~7fps
SENSOR IN/OUT		16 Sensor Inputs, 4 Alarm Outputs				
HARDWARE WATCHDOG		YES				
VIDEO MOTION DETECTION		SOFTWARE				
S/W VIDEO CODEC PROVIDED		Motion-JPEG, Advanced MPEG4				
AVERAGE FILE SIZE PER CODEC	MJPEG	6 ~ 12 Kbytes at CIF				
	MPEG4	2~5 Kbytes at CIF				

* DIO-0402, DIO-0404, DIO-0804, DIO-1616 (These DIO boards contain RS-422/485 convertors)

Please note that the DIO-1604 is not compatible with HICAP25. DI/O-0402, 0404, 0804 boards, since HICAP25 is not compatible with other Comart models. HICAP25 is 4ch as default and can be expandable by 8ch and 16ch with 8ch and 16 extension kits respectively

** The main MID and MIS boards each have two daughter boards. By adding one daughter board, it becomes MID8ch and MIS8ch respectively. By adding two daughter boards, it becomes MID16ch and MIS16ch respectively.

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MID and MIS share the same daughter board. As you can see in the previous page, the only difference between MID and MIS is the total recording speed as per second. MIS records videos at 100fps per second while MID records videos at 25fps.

*** MIG4CH is only designed for 4 channels and has 4 BNC connectors. It has one (1) internal Molex connector as well.

**** MIG4CH TV OUT has a composite super video-out in a pair. This displays the same video on analog TV with PC monitor screen without GUI. The output is not programmable at all, but is fixed by designing hardware accordingly.

***** Each composite and super video-out in a pair displays the same video on analog TV. The quality of super video-out is better than the composite one. The MID & MIS TV-out is an optional add-on board that the user needs to purchase additionally.

TV-out 1 displays the same video as the PC monitor screen. However, TV-out 2 is dependent on the PC monitor screen in order to display videos on analog TV as in the table below. The output is not programmable at all, but can be fixed by designing hardware.

Division	PC Monitor	TV Out 1	TV Out 2
1	Ch. 1	Ch. 1	Ch. 5
4	Ch. 1 ~ Ch. 4	Ch. 1 ~ Ch. 4	Ch. 5 ~ Ch. 8
8	Ch. 1 ~ Ch. 8	Ch. 1 ~ Ch. 8	Ch. 9 ~ Ch. 16
16	Ch. 1 ~ Ch. 16	Ch. 1 ~ Ch. 16	Ch. 1 ~ Ch. 16

****** Unlike Hicap series, MIG4CH, MID and MIS all have hardware overlay function that provides real-live display. The user can monitor clear videos in real-live quality while it records videos respectably (as described in the specification sheet). As the full-frame of a single video per second is 30fps, it can be equal up to 240fps for 8ch DVR board and to 480fps for the 16ch one

1-3. GENERAL HARDWARE INFORMATION

1-3.1.   DIO: In order to hook up sensor inputs and alarm outputs, it is required to additionally purchase Comart DIO Guide or BNC Back-panel. [please refer to **page. 10**]

1-3.2.   Hera: To record audio more than one channel, It is required to additionally purchase Comart's Hera audio board for multiple audio inputs. [please refer to **page. 37**]

1-3.3.   Cooling Fan: A cooling fan is provided with Hicap200, MID, and MIS series only.

1-3.4.   It does not support more than one Comart DVR board in a single PC system.

We do not support multi-boards in a single PC system with current models.

2. DVR HARDWARE LAYOUT & DESCRIPTION

2-1. HICAP SERIES

HICAP25
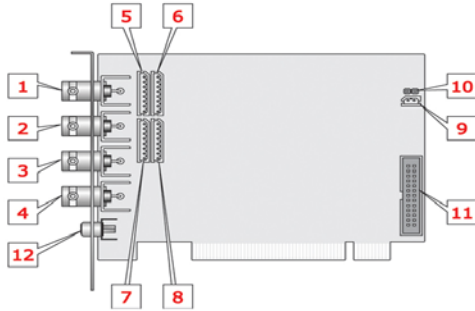
1) External BNC Connector: Video Inputs CH. No. 1

2) External BNC Connector: Video Inputs CH. No.2

3) External BNC Connector: Video Inputs CH. No.3

4) External BNC Connector: Video Inputs CH. No4

5) Internal Molex Connector: Video Inputs CH. No.1~4

6) Internal Molex Connector: Video Inputs CH. No. 5~8

7) Internal Molex Connector: Video inputs CH. No. 9~12

8) Internal Molex Connector: Video Inputs CH. No.13~16

9) Watch-dog Connector: DVR board to two reset pins of motherboard

10) Reset Connector: From the reset switch of PC case to DVR board

11) Head socket: DIO & Serial port

HICAP50
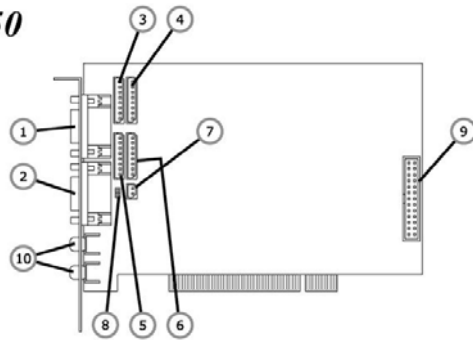
HICAP100
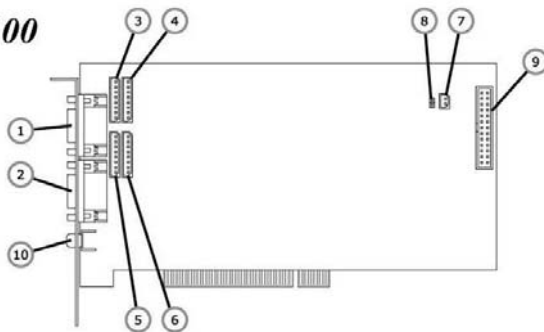
HICAP200

1) External octopus BNC cable: Video Inputs CH. No. 1 ~ 8

2) External octopus BNC cable: Video Inputs CH. No. 9 ~ 16

3) Internal Molex connector: Video Inputs CH. No. 1 ~ 4

4) Internal Molex connector: Video Inputs CH. No. 5 ~ 8

5) Internal Molex connector: Video Inputs CH. No. 9 ~ 12

6) Internal Molex connector: Video Inputs CH. No. 13 ~ 16

7) Watch-Dog connector: DVR board to the reset pin of PC motherboard

8) Reset connector: From the reset switch of PC case to DVR board

9) DIO connector: 16 digital inputs and 4 digital outputs

10) Composite Video Out: To display one video in full screen on analog TV

2-2. MIG4CH
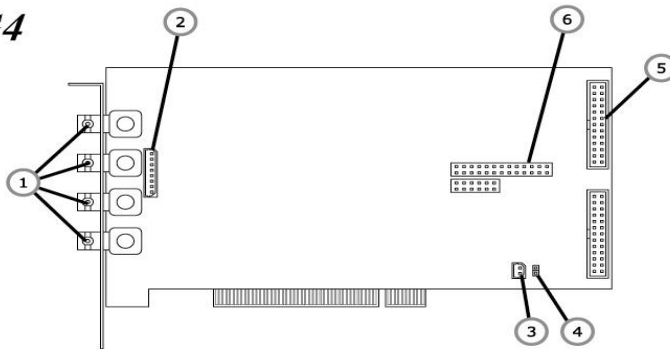
1) External BNC connector: Video Inputs Ch. No. 1 ~ 4

2) Internal Molex connector: Video Inputs Ch. No. 1 ~ 4

3) Watch-Dog connector: DVR board to the reset pin of PC motherboard

4) Reset connector: From the reset switch of PC case to DVR board

5) DIO connector: 16 digital inputs and 4 digital outputs

6) MIG4ch TV-out connector: To display multiplexed or one Ch. full video on analog TV

2-3. MID & MIS SERIES

MID8&16

FRONT

REAR

MIS8&16

1) External octopus BNC cable: Video Inputs Ch. No. 1 ~ 8

2) External octopus BNC cable: Video Inputs Ch. No. 9 ~ 16

3) Internal Molex connector: Video Inputs Ch. No. 1 ~ 4

4) Internal Molex connector: Video Inputs Ch. No. 5 ~ 8

5) Internal Molex connector: Video Inputs Ch. No. 9 ~ 12

6) Internal Molex connector: Video Inputs Ch. No. 13 ~ 16

7) Watch-Dog connector: DVR board to the reset pin of PC motherboard

8) Reset connector: From the reset switch of PC case to DVR board

9) DIO connector: 16 digital inputs and 4 digital outputs

10) MID/MIS TV-out connector: To display multiplexed or one Ch. full video on analog TV

Please do not remove the serial number at the bottom of the Comart board. Comart System is not responsible for the products without this serial number. (Warranty period: 15 months after the merchandise is shipped to the customers)

2-4. DIO (Digital Input / Output)

Comart DVR boards, except for HICAP25, have DIO connectors on their boards. It is designed for 16 Sensor Inputs and 4 Alarm Outputs. Our DVR boards have this DIO circuit drawn as in the below on PCBs. If you would like to design your own DIO guide or panel and would like to use them with our DVR boards, please refer to the pin assignment as described in the below:
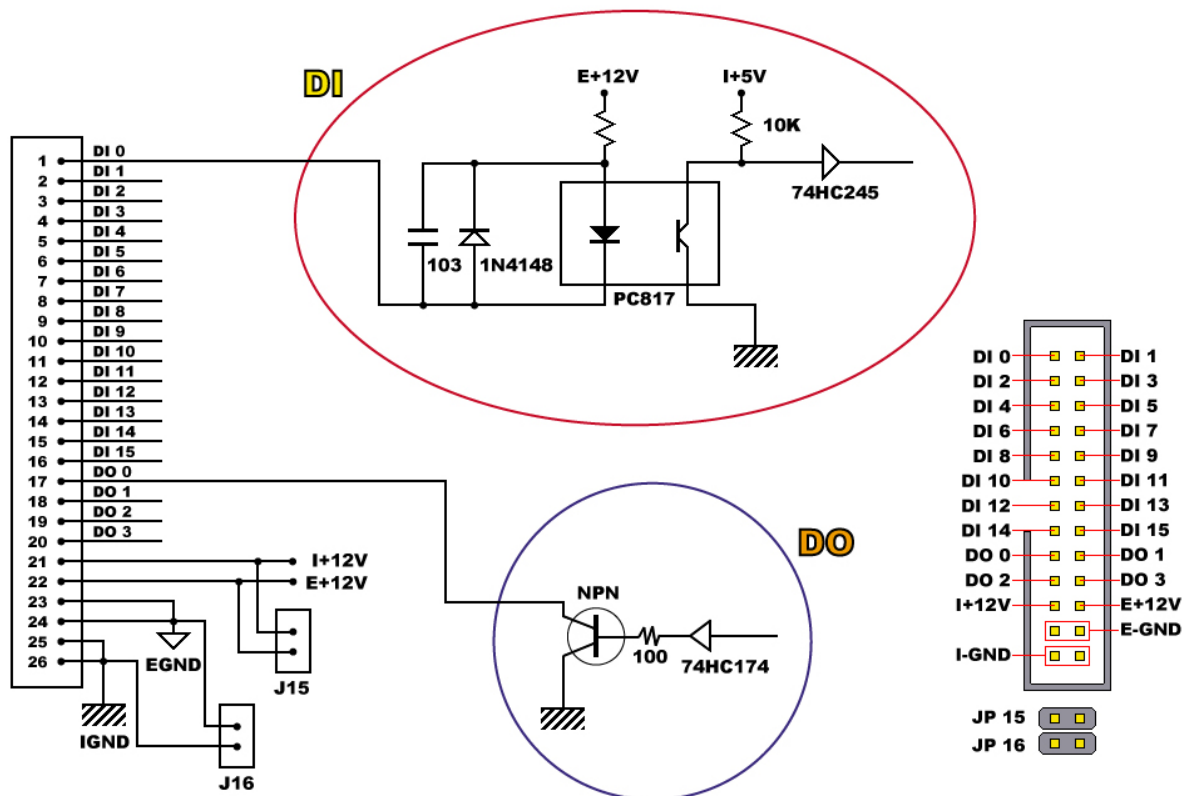
Back-Panel (PC Assemble Type)

(16 BNC Video Inputs + DIO)
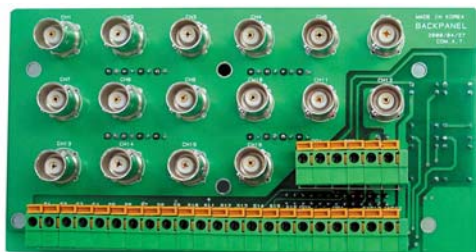
DIO 1604

(DIO only)

2-4.1.　　Comart 'DIO1604' Connections.
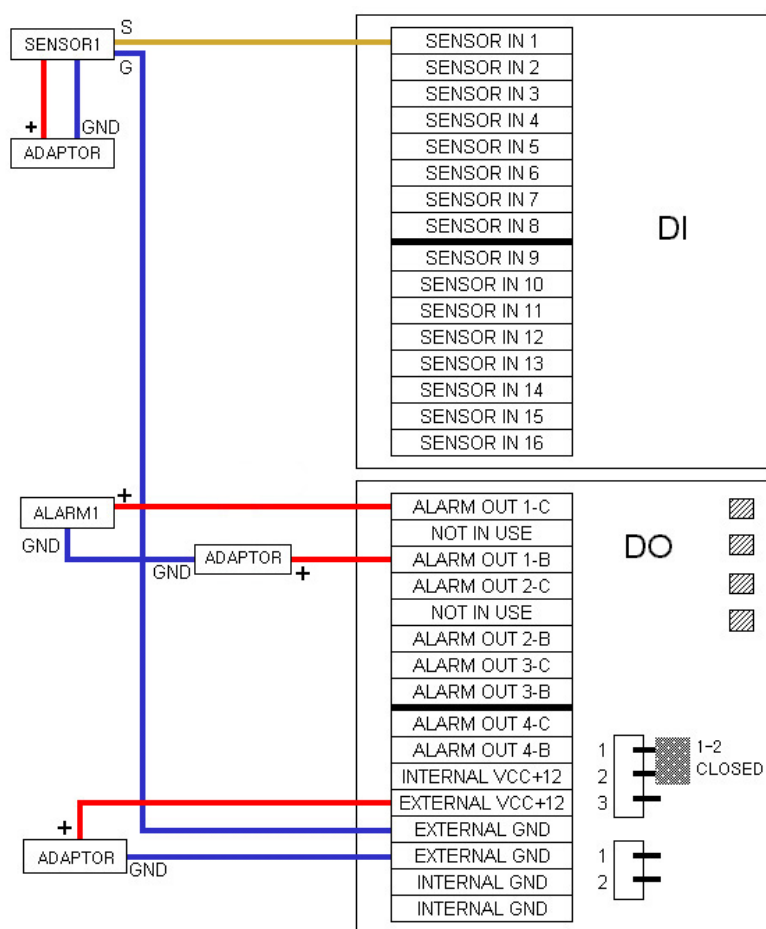
This is an example of how to do a wire connection between Sensors and Alarms with Comart's DIO 1604.

2-4.1.1. DI connections.

In order to use DI sensors, the user needs to configure an adaptor with EXTERNAL VCC+12 and EXTERNAL GND as shown in the above first. This is required because our DVR boards use photo diodes so as to receive signals from DI. By employing DI this way, the user can protect the DVR board from any electronic shock and/or harmful static electricity.

2-4.1.2. DO connections.

When the user connects DO alarms, you connect with 'B' and 'C'. The DO is opened and it is going to close with signals from the application.

2-4.1.3. 'DIO 0402, DIO 0404, DIO 0804' Connections

DIO 0402, DIO 0404, DIO 0804 are designed for our new models. The following diagrams show how to connect between Sensors and Alarms with our DIO 0402, 0404, 0804 accordingly.

DIO-0402 / DIO-0404 / DIO-0804 connection diagrams
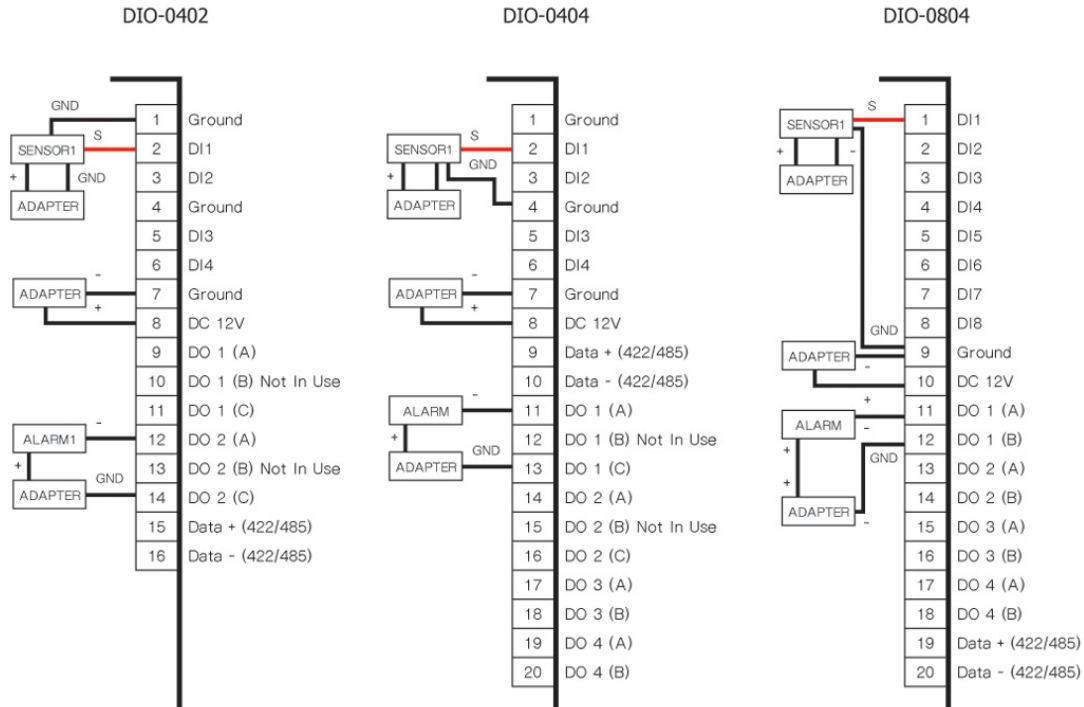
JUMPER-PIN SETTING

DIO-0402   : DIO-0402 (Master)

DIO-0404   : DIO-0404 (Master)

DIO-0804   : DIO-0804 (Master)

DIO-0804   : DIO-0402 (Master) + DIO-0402 (Slave)

DIO-0806   : DIO-0402 (Master) + DIO-0404 (Slave)

DIO-1206   : DIO-0402 (Master) + DIO-0804 (Slave)

DIO-0808   : DIO-0404 (Master) + DIO-0404 (Slave)

DIO-1208   : DIO-0404 (Master) + DIO-0804 (Slave)

DIO-1608   : DIO-0804 (Master) + DIO-0804 (Slave)

RS422/485

      1   TX only

      2   TX + RX

      3   RX only

2-5. DIO 1616 LAYOUT & DESCRIPTION
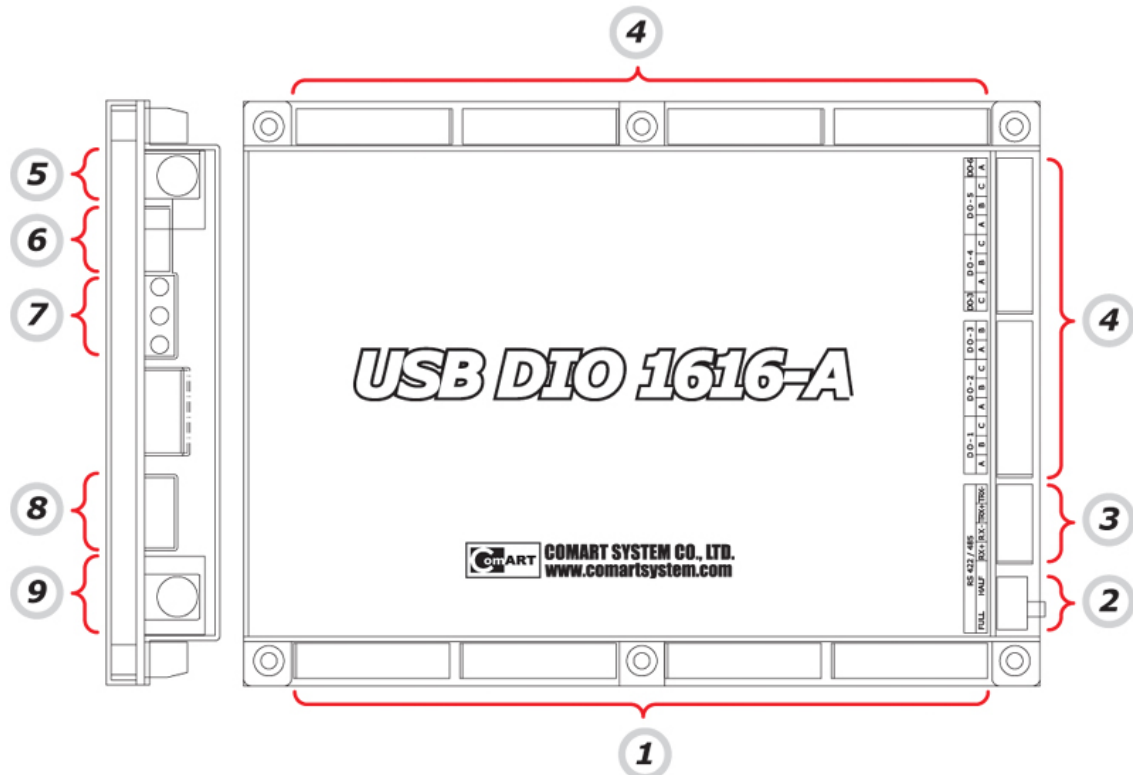
① Digital Input Port

- Connect 16 sensor inputs to each port. (please refer to the following picture)

S : Signal   G : Ground

- Type: Falling Edge Detect Enable (when signal changes from High to Low)

② Communication Select Switch

- Select full/half to set RS422/RS485 communication

- If you select FULL (RS422) communication mode, you need to connect rx+, rx-, trx+(tx+), trx-(tx-) to each port.

- If you select HALF (RS485) communication mode, you need to connect trx+, trx- to each port.

③ Communication Port

- You can communicate with RS422/485 from PC to another device(s) (eg. PTZ Camera).

- Communication Data Size: MAX 50 bytes

- Baud Rate : 2400, 4800, 9600, 19200, 28800 (bps)

- Parity bit : no, even, odd, mark, space (parity)

④ Digital Output Port

- Connect 16 alarm outputs to each port.

- Every channel is composed of 3 Ports (A, B, C) and when the alarm is turned on, A and C get connected.
  When the alarm is turned off,   B and C get connected. (please refer to following picture)

⑤ Power1 Port

- Main Power Input : DC 12V, 500mA(or above)

⑥ USB Port

- Connect USB-DIO1616 to PC (does not use +5v from usb port)

⑦ State LED Port

- Each LED (D1, D2, D3) displays current state of USB-DIO Board

*   D1 Red LED ----> ON   : main power is supplied successfully.
     D1 Red LED ----> OFF   : no power, all devices do not work.
    (If there is no error in your adaptor, it requires A/S or repairs.)

*   D2 Green LED ----> ON   : indicates that half communication(RS485) is set.
     D2 Green LED ----> OFF : indicates that full communication(RS422) is set.

*   D3 Yellow LED ----> ON   : Power 2 is supplied successfully.
     D3 Yellow LED ----> OFF : no power, sensor input and RS422/RS485

                                    communication does not work.
    (If there is no error in your adaptor, it requires A/S or repairs.)

⑧ Security Port

- You should not use this port

(If you remove label (sticker) in this port, you'll not able to get warranty service from us)

⑨ Power2 Port

- Power input for sensor and transceiver part : DC 12V, 500mA(or above)

2-6.Comart 'BNC Back-panel' Layout and Description.
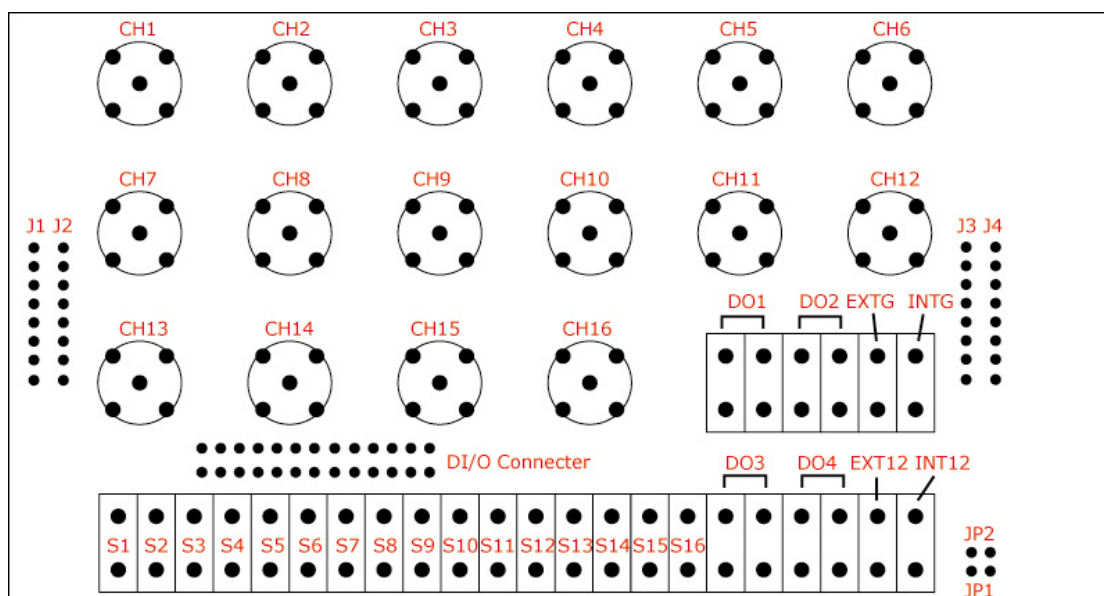
CH1	: Camera Channel 1	CH2	: Camera Channel 2
CH3	: Camera Channel 3	CH4	: Camera Channel 4
CH5	: Camera Channel 5	CH6	: Camera Channel 6
CH7	: Camera Channel 7	CH8	: Camera Channel 8
CH9	: Camera Channel 9	CH10	: Camera Channel10
CH11	: Camera Channel11	CH12	: Camera Channel12
CH13	: Camera Channel13	CH14	: Camera Channel14
CH15	: Camera Channel15	CH16	: Camera Channel16

J1	: Molex 8pin Connector (Camera 1~4)
J2	: Molex 8pin Connector (Camera 5~8)
J3	: Molex 8pin Connector (Camera 9~12)
J4	: Molex 8pin Connector (Camera 13~16)

S1 ~ S16	: Sensor Inputs (16ea)
DO1 ~ DO4	: Alarm Outputs (4ea)

EXT12/EXTG	: External Power +12 / External Ground
INT12/INTG	: Internal Power +12 / Internal Ground

2-7.Comart 'BNC Back-panel' Connections

(External Power)

DO 사용 (Digital Output)
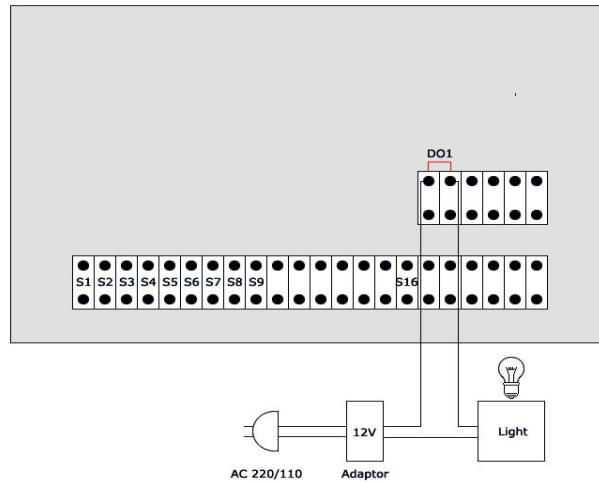
3. PC SPECIFICATION REQUIRED

3-1. PC MOTHERBOARD

Our DVR boards are compatible with Intel ATX-chipset motherboard. You can use a motherboard built-on with Intel Chipset.

I) Please note that certain PCs with OEM motherboards containing Intel chipsets might not be compatible with our board.

II) We have found that some motherboards with SIS chipsets work very well with our board. However, we do not recommend you to use SIS chipset motherboards since the working condition is different for each manufacturer.

III) Some motherboards with VIA chipsets provide unstable PCI clock although the user can find some good VIA chipset motherboards for our model. We do not recommend you to use VIA chipset motherboards either.

IV) The motherboard we recommend is only the ones with Intel chipsets. If you still would like to try other chipset motherboards, you need to test and find one at your side.

V) Current our Hicap & MIS might not be compatible with the motherboard with latest chipset(s) after 915 chipset. We're going to support the motherboards with latest chipset(s) after 915 chipset after modifying device drivers on Hicap & MIS.

3-2. CPU

Since we recommend Intel chipset motherboard, we also recommend you to use Intel CPU because Intel does not support AMD CPU with their chipsets. We recommend Intel Pentium IV 1.6 or faster with our applications.

I) It was reported that AMD CPU with some VIA chipset could work with some of our models, but we do not recommend.

II) Our drivers are not compatible with dual CPUs. You cannot use dual CPUs with our DVR board.

III) The minimum CPU specification required is Pentium III 866. As for Hicap200, we recommend you to use at least Pentium IV 2.4 or faster because it requires a lot of CPU work to get the maximum recording frame.

IV) The Hyper-threading function should be inactivated in CMOS setup when using hyper-threading supported CPU. If not, image distortion and/or noise might occur.

3-3. VGA

We recommend ATI chipset built-on AGP VGA card.

I) Some customers use other chipset VGA card, but we found that ATI VGA card is the one that does not have any problem.

II) If you still would like to try other chipset VGA card, you need to test and find one at your side.

3-4. RAM

Minimum RAM required: 128MB, RAM recommended: 256, 512MB for Hicap200.

3-5. OPERATING SYSTEM AND OTHER REQUIRED SOFTWARE

Operating System: Windows98, 98SE, ME, 2000 and XP. Required Software: DirectX 8.1a or Higher Version

3-6. CD-ROM INSTALLATION ORDER

When you install HDD (Hard Disk Drive) and CD-ROM, please make sure that you need to place CD-ROM drive as the last step. If this is not properly placed, you are not able to use HDD after installing CD-ROM in our application.

4. CD DIRECTORY STRUCTURE

On your CD provided, you will find the directory structure as below.
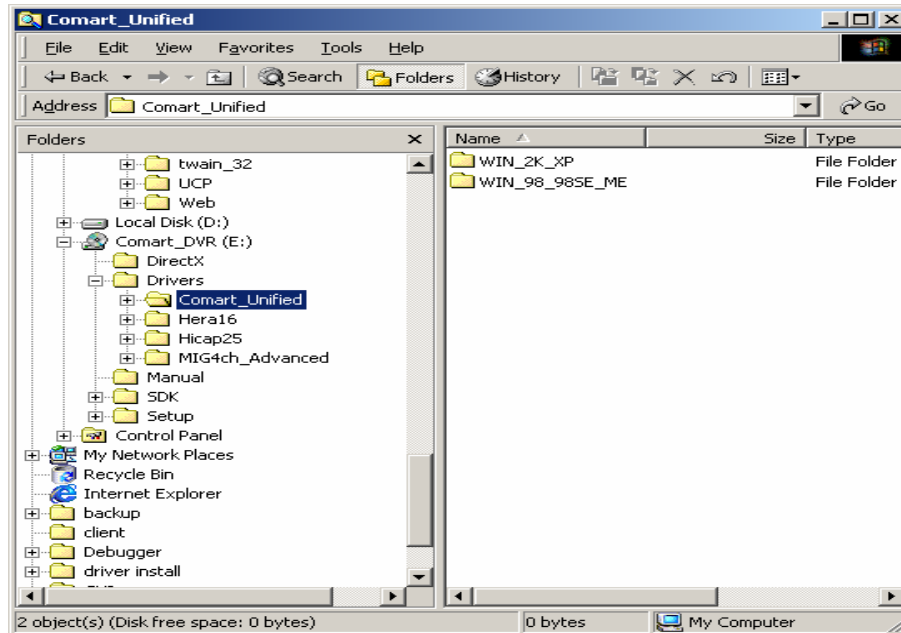
4-1. DIRECTX: Our application requires DirectX8.1 or newer version installed on your system.

4-2. DRIVERS: There are Comart Unified, MIG4ch Advanced and Hera Drivers.

4-3. MANUAL: There are Comart Unified SDK and Application User's manual.

4-4. SDK: There are Comart DVR and Hera board SDK.

4-5. SETUP: Comart Application software per model. There are sub programs like Remote (Client),

Multi Client (Remote), Multi Password, and Viewer (to playback Backup files) accordingly.

5. GETTING STARTED

5-1. MONITOR RESOLUTION

All of our Application software are designed on Monitor Resolution of 1024 by 768 or higher pixels. If your monitor does not support this resolution or is not set as it is required, our Application will not properly work on your system. And you should choose 32bit color in 'Colors' setup. Please set your monitor as follows:
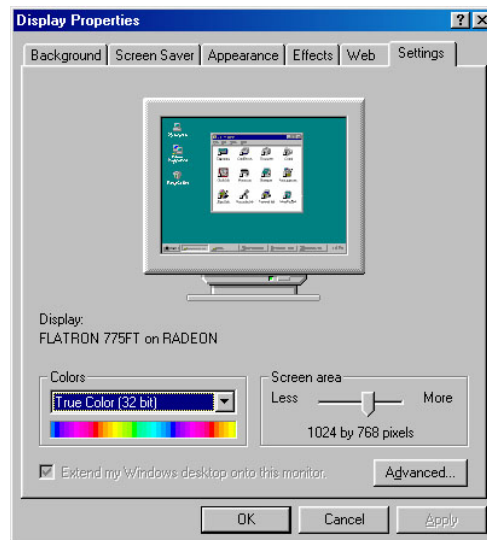
5-2. POWER MANAGERMENT & DISPLAY PROPERTIES

If you select any of such the options above, our Application will conflict with the options selected. So, check out your system if there is any option selected and working as it sets.
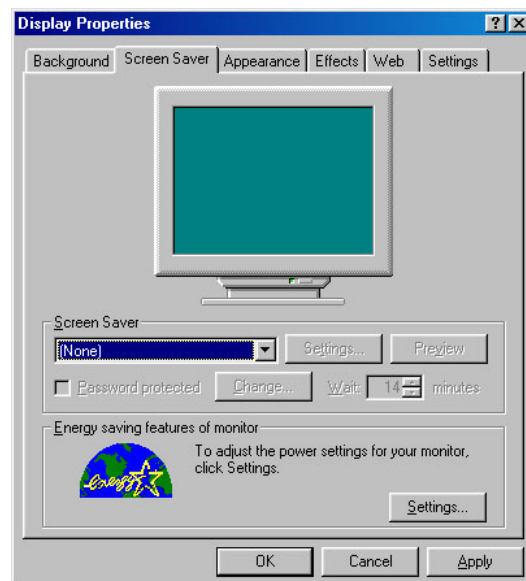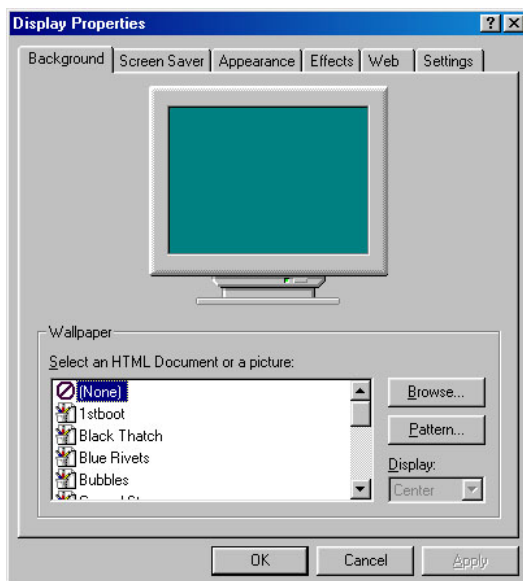
5-3. DIRECTX 8.1 OR NEWER VERSION INSTALLED

All of our Application programs require DirectX8.1 or higher version to be installed in your system.

If you have not installed it on your system yet, please install it from the CD provide with the board together.

You can easily run the program and it will automatically install DirectX on your system as follows:
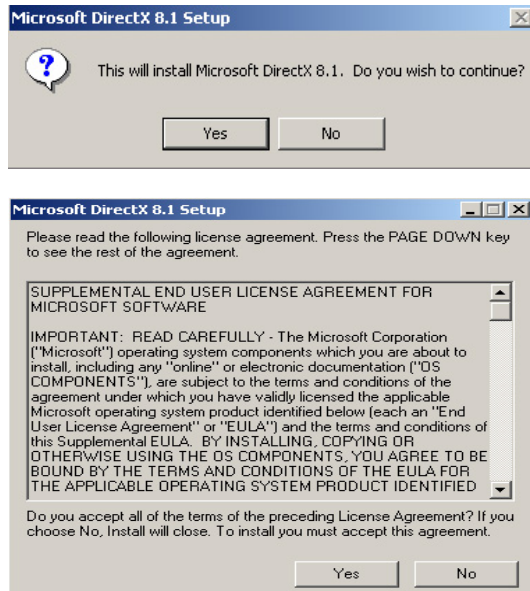
6. COMART DVR BOARD INSTALLATION

Before you install Comart DVR board on your system, please check if you have all proper components as in the below:

Hicap 50, 100: a reset cable for Watchdog, two BNC octopus cables for video input

Hicap200, MID16 & MIS16 series: a reset cable for Watchdog, two BNC cables for video input(one BNC cable for MID/MIS 8), a Fan

MIG4ch: a reset cable for Watchdog

* Fan needs to be installed on the blank guide next to Hicap200, MID & MIS series

* Watchdog cable needs to be connected with the reset pin of your motherboard. If you would like to use a reset switch of your PC case, you need to connect the cable with the reset pin of your DVR board.

Please make sure that the Watchdog time interval should be longer than 1 or 2 second(s). If not, it will keep rebooting your system when it is connected.

* When you install MIG4ch, you must use MIG4ch Advanced Driver. Comart Unified Driver includes Hicap series, MID and MIS series only.

IMPORTANT NOTE
- The application version 6.5.1 cannot be compatible with previous version. Therefore, if user wants to install the new version, initialization is recommended.
- New 6.5.1 version is not compatible with previous network protocol. User ought to install new version CMS
- To operate 6.5.1 version, user should install new devices which is in the provided CD or Comart homepage. Don't need to install for those who using previous 6.3.3 version.

6-1. INSTALLATION UNDER WINDOWS 98, 98SE AND ME

This is an installation example for MIS in Windows98.

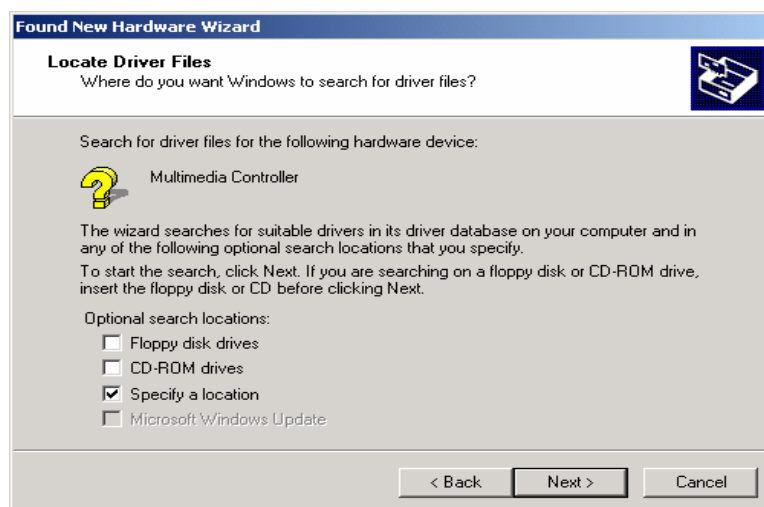Turn off computer system is recommended as user place DVR board on the PCI slot Turn on your computer and start Windows 98 as usual. Windows 98 will automatically find the DVR board as a new hardware device and your system will detect it as a PCI Multimedia Device as shown in the below. Please click 'NEXT' to continue

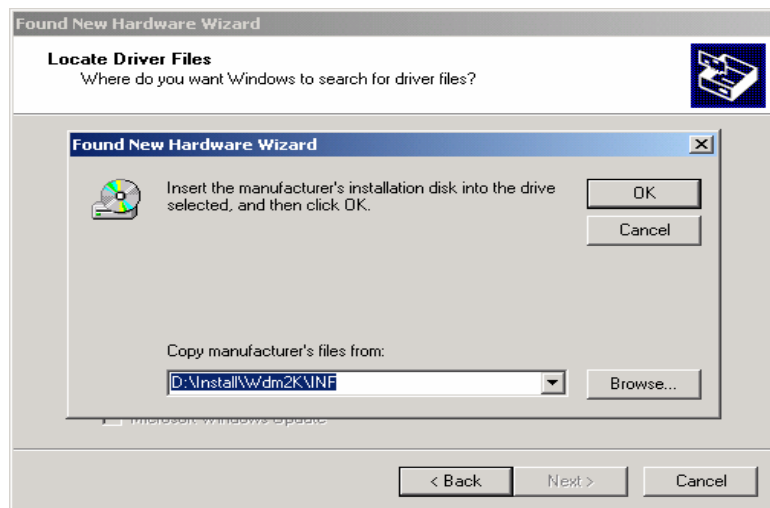**Add New Hardware Wizard**

This wizard searches for new drivers for:

Unknown Device

A device driver is a software program that makes a hardware device work.

< Back   Next >   Cancel

Insert CD (provided) into CD-ROM and Click NEXT to search for the DVR board's driver.

Add New Hardware Wizard

What do you want Windows to do?

○ Search for the best driver for your device. (Recommended).

○ Display a list of all the drivers in a specific location, so you can select the driver you want.

< Back   Next >   Cancel
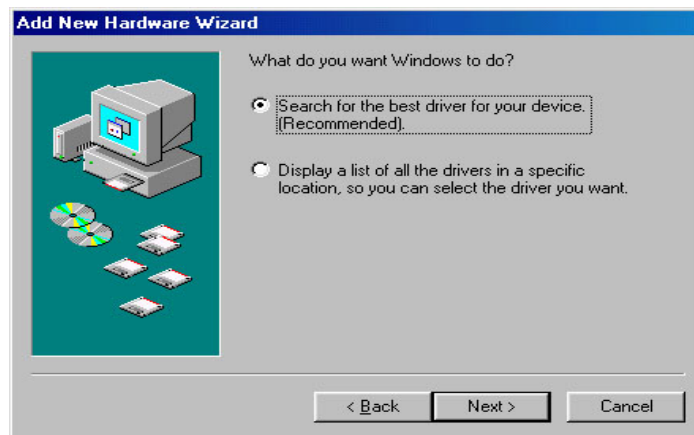
You need to browse and find our drivers on the CD

Add New Hardware Wizard

Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.

☐ Floppy disk drives

☐ CD-ROM drive

☐ Microsoft Windows Update

☑ Specify a location:

A:\

Browse...

< Back   Next >   Cancel

The driver for DVR board is in the directory 'WIN_98_SE_ME'
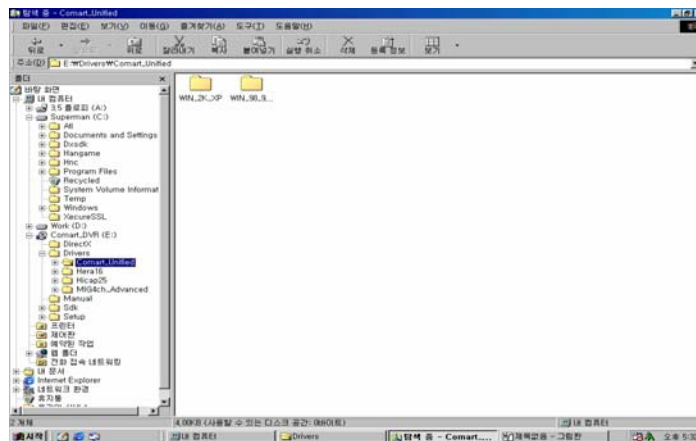
In Windows 98, 98SE, and ME, all of Comart DVR boards are using the same driver called 'Digitalq'.
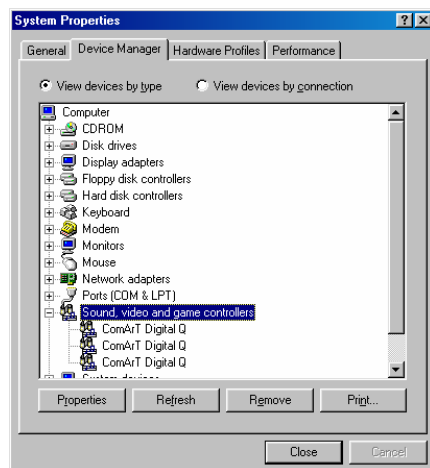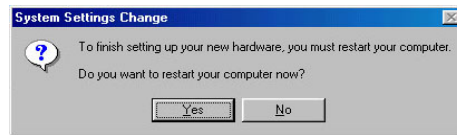
Once you restart your system, it will automatically try to install some more needed driver(s. You simply let them install it as they wish.

6-2. NECESSARY DRIVERS LISTED FOR WINDOWS 98, 98SE AND ME

6-2.1.　MIS8&16CH　<COMART UNIFIED DRIVER>

● 　　　ComArt Digital Q

● 　　　ComArt Digital Q

6-2.2.　MID8&16CH　<COMART UNIFIED DRIVER>

● 　　　ComArt Digital Q

6-2.3.　MIG4CH　　　<MIG4CH ADVANCED DRIVER>

● 　　　ComArt Digital Q

6-2.4.　HICAP25　　　<HICAP 25 DRIVER>

● 　　　ComArt Digital Q

6-2.5.　Hicap50　　　<COMART UNIFIED DRIVER>

● 　　　ComArt Digital Q

6-2.6.　Hicap100　　　<COMART UNIFIED DRIVER>

● 　　　ComArt Digital Q

● 　　　ComArt Digital Q

6-2.7.　Hicap200　　　<COMART UNIFIED DRIVER>

● 　　　ComArt Digital Q

● 　　　ComArt Digital Q

- ComArt Digital Q
- ComArt Digital Q

6-3. INSTALLATION In WINDOWS 2000 AND XP

This is an installation example procedure for HICAP200 in Windows 2000.

With the computer being turned off, please insert the Comart Board in any vacant PCI slot on the motherboard.

Turn on your computer and start Windows 2000.

Windows 2000 will automatically find the Comart Board as a new hardware device. Your system will detect Comart Board as a PCI Multimedia Device as shown in the below. Please click 'NEXT' to continue:

Found New Hardware Wizard

Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.

This wizard will complete the installation for this device:

Multimedia Controller

A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.

What do you want the wizard to do?

◉ Search for a suitable driver for my device (recommended)

○ Display a list of the known drivers for this device so that I can choose a specific driver

< Back   Next >   Cancel

Insert your CD in your CD-ROM drive and Click 'Next' to continue:

Found New Hardware Wizard

Locate Driver Files
Where do you want Windows to search for driver files?

Search for driver files for the following hardware device:

Multimedia Controller

The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.

To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.

Optional search locations:
☐ Floppy disk drives
☐ CD-ROM drives
☑ Specify a location
☐ Microsoft Windows Update

< Back   Next >   Cancel

Click 'Specify a location' and 'Next' to continue:

In order to find Comart_ Unified driver of Hicap200 in Windows2000 PNP, please click 'Browse'.

In order to find the 'WIN_2K_XP' directory in your CD, please click 'Open'.
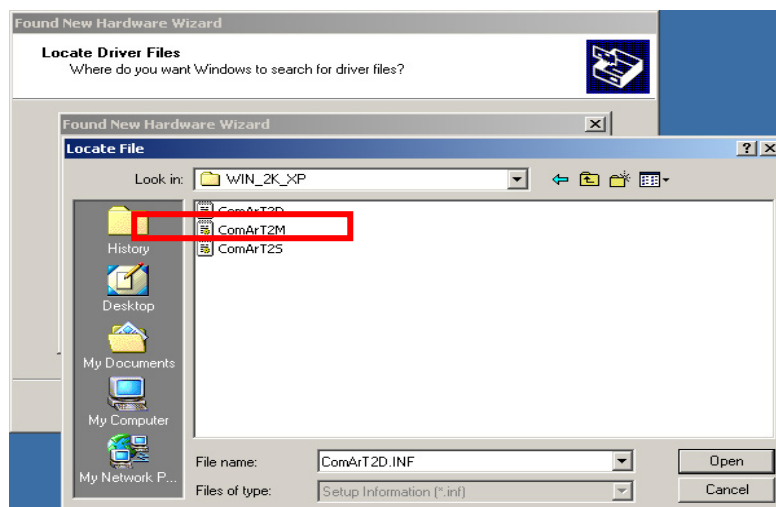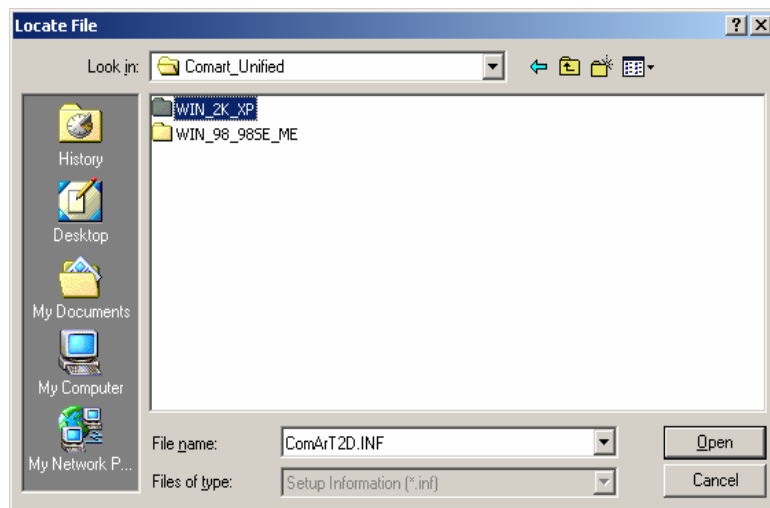
You will need to find 'ComArT2M.INF' file in the directory. Please open the file.
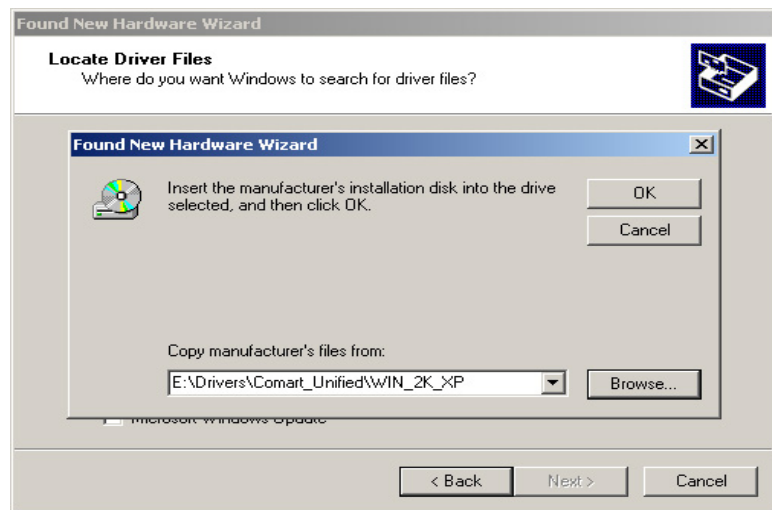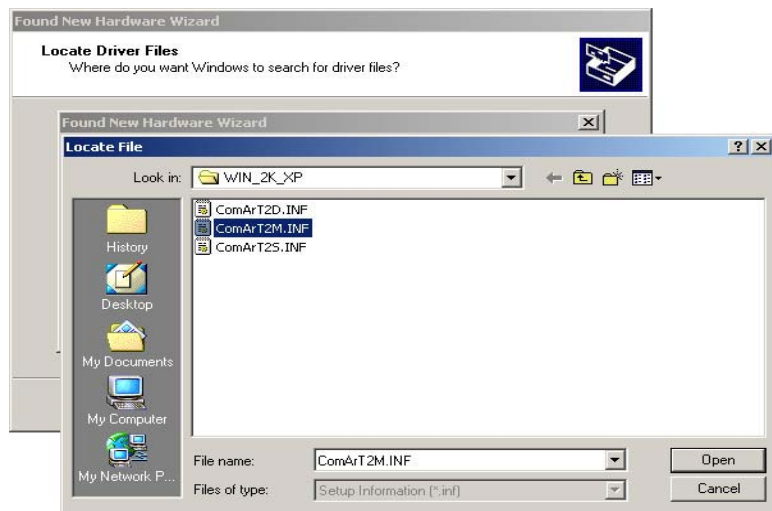
Click 'Ok' to continue.
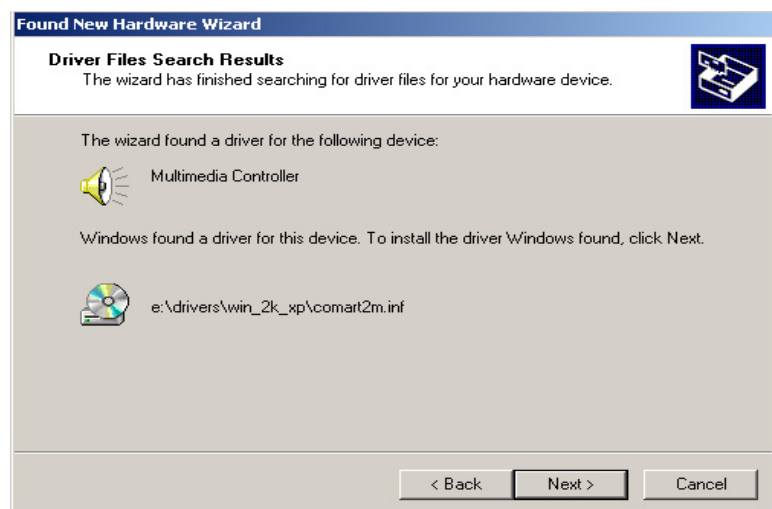
Click 'Next' to continue.
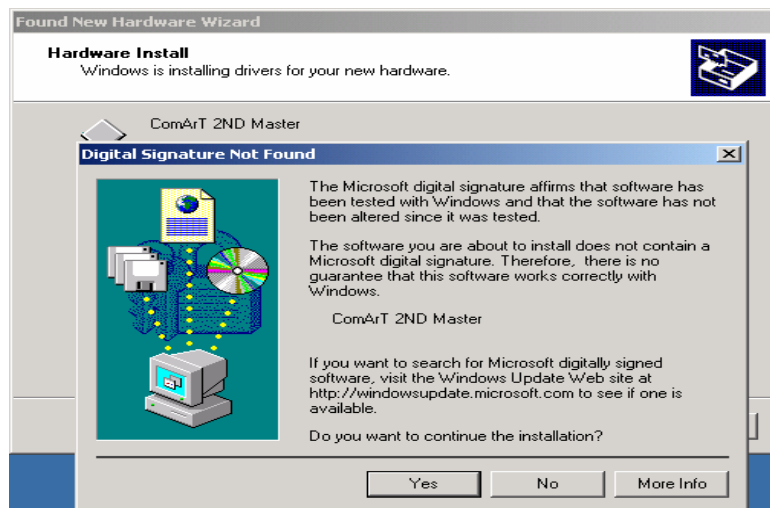
Click 'Yes' to continue.

Click 'Finish' to continue.

The four master drivers are then installed on your system. Please go to 'System Properties' and click 'Hardware':
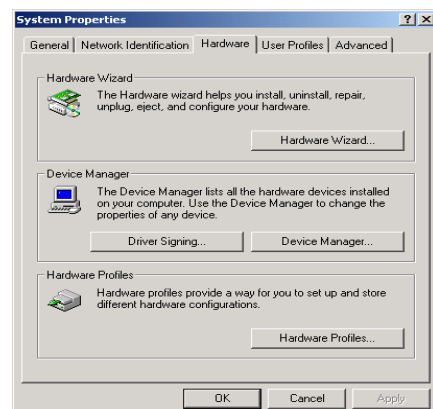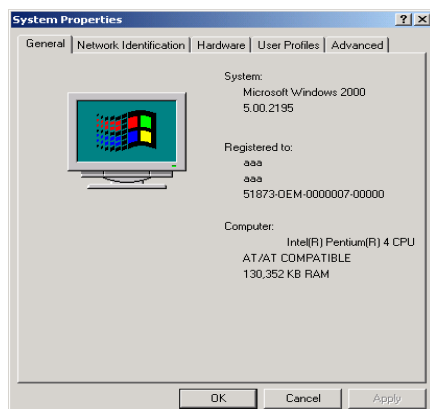
Please click 'Hardware Wizard…'
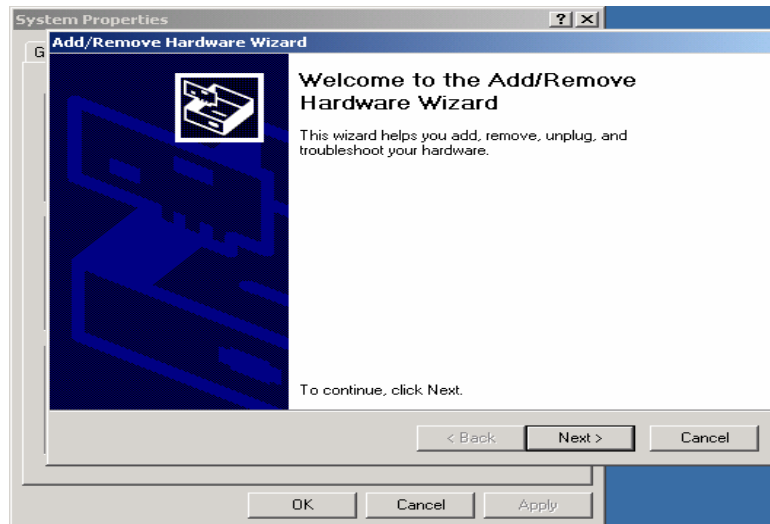
Click 'Next' to continue.
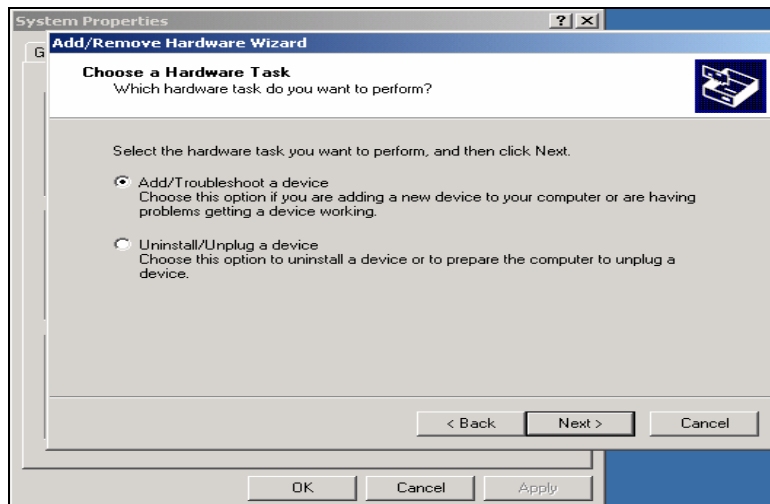
Select 'Add/Troubleshoot a device' and 'Next' to continue.
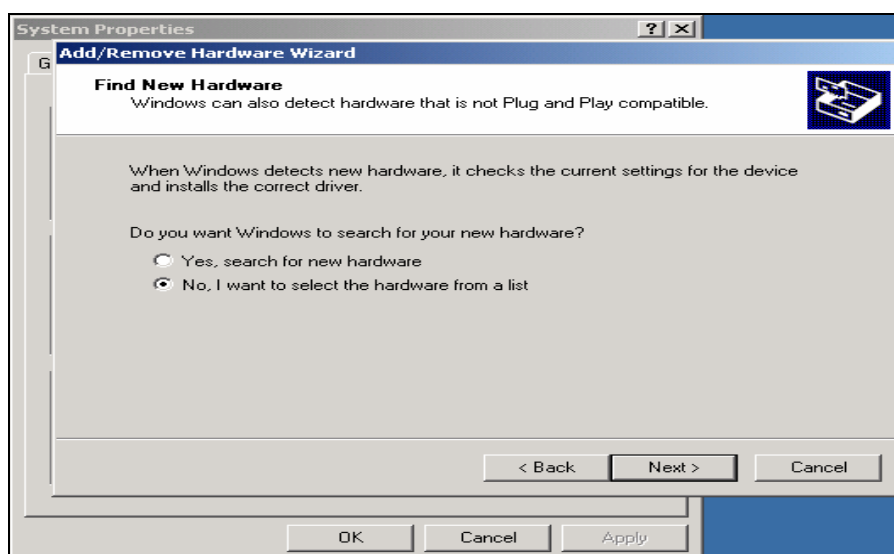
Select 'No, I want to select the hardware from a list' and click 'Next'.
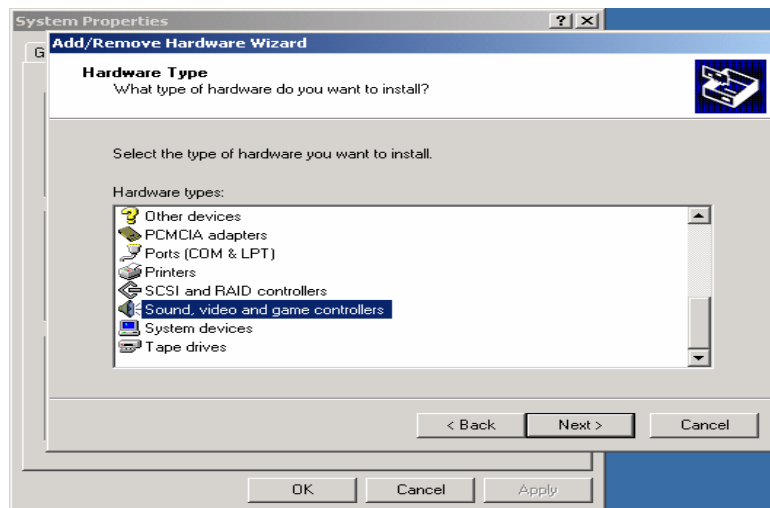
Select 'Sound, video and game controllers' and click 'Next' to continue.
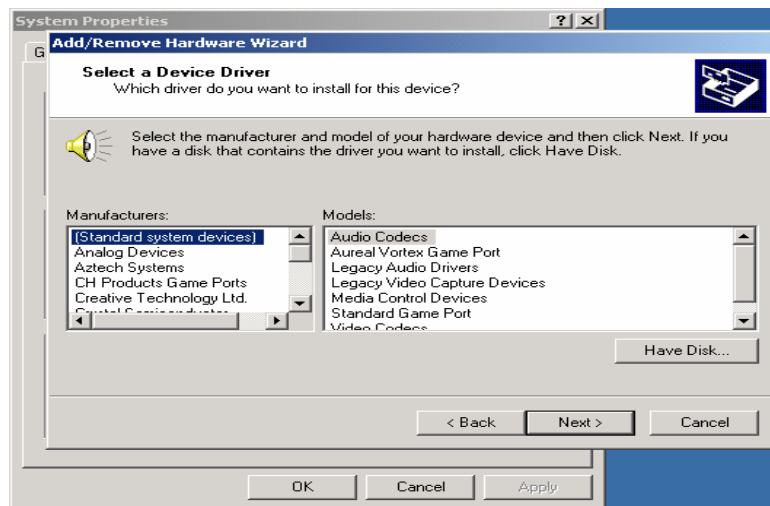
Click 'Have Disk' and 'Next' to continue.
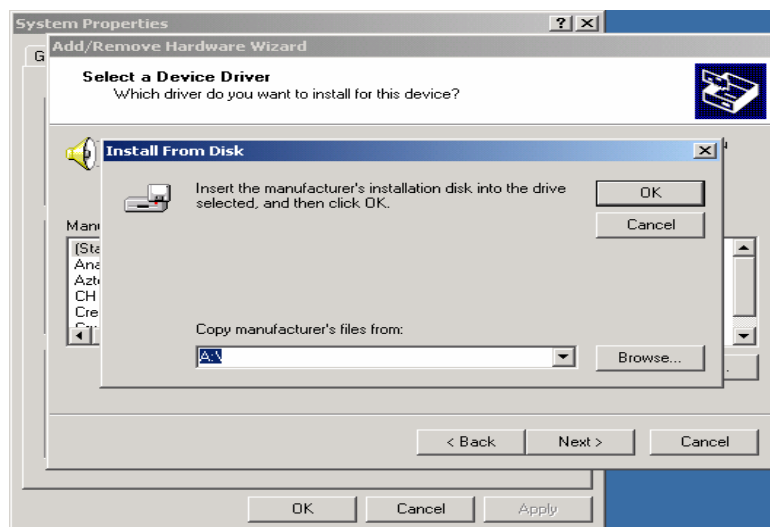
Click 'Browse…' to find the Comart driver.
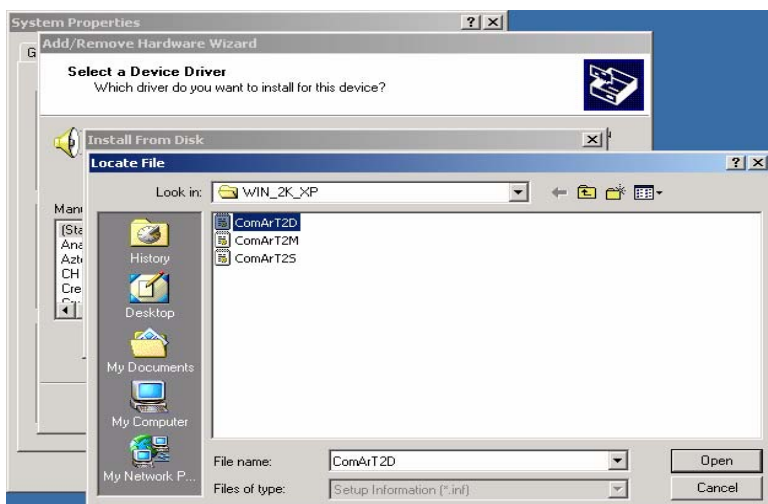
Find 'ComArT2D.INF' file in WIN_2K_XP directory and Open the file
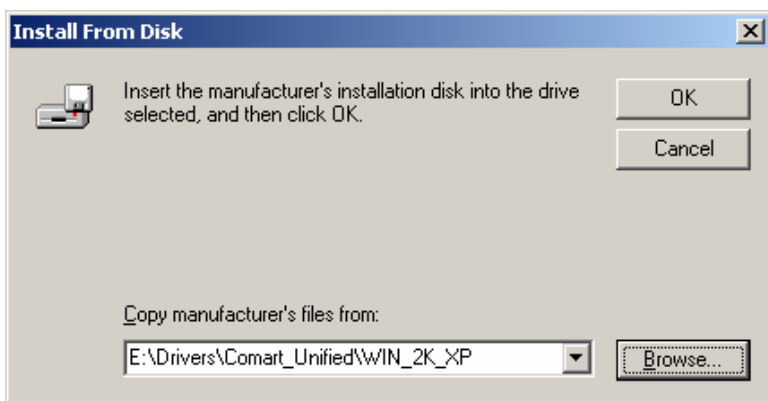
Click 'Next' to continue.
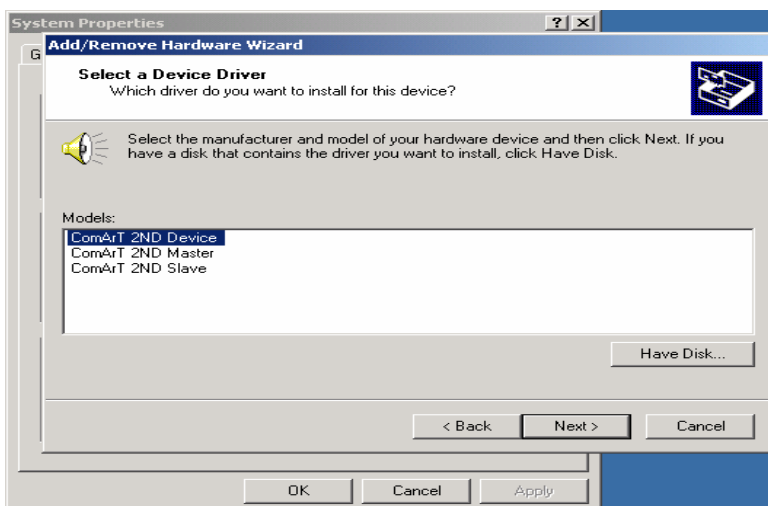
Select 'ComArT2ND Device' and click 'Next' to continue
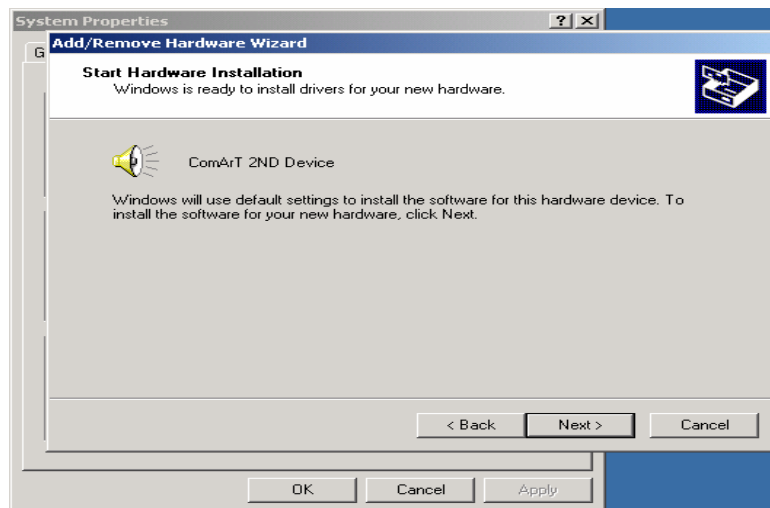
Click 'Yes' to continue.
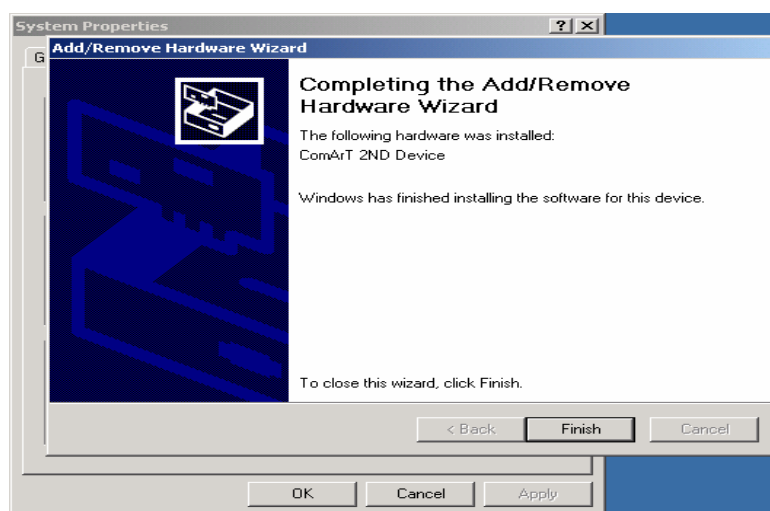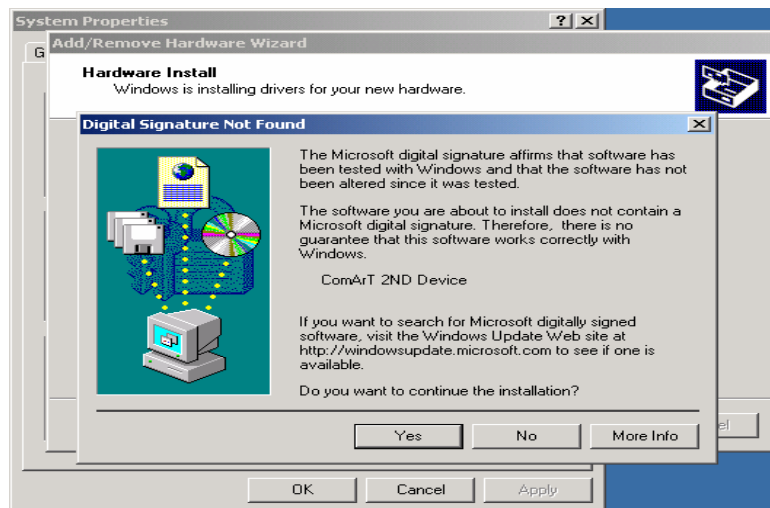
Click 'Finish' to finish installing 'ComArt2D.INF' driver on your system.

As for installing the 'ComArt2D.INF' in the above, you need to install 'ComArT2S.INF' for 'Comart 2ND Slave' Driver.
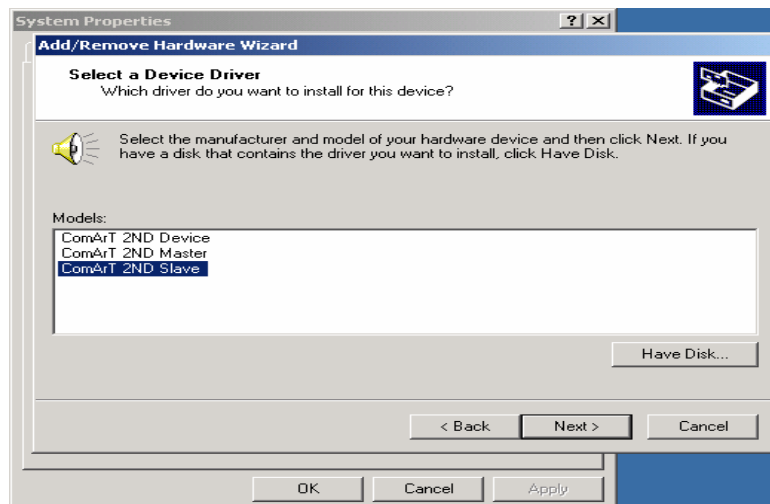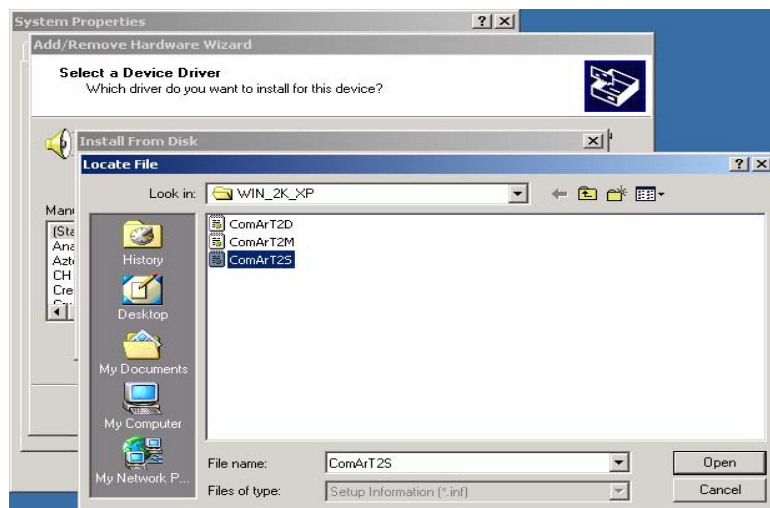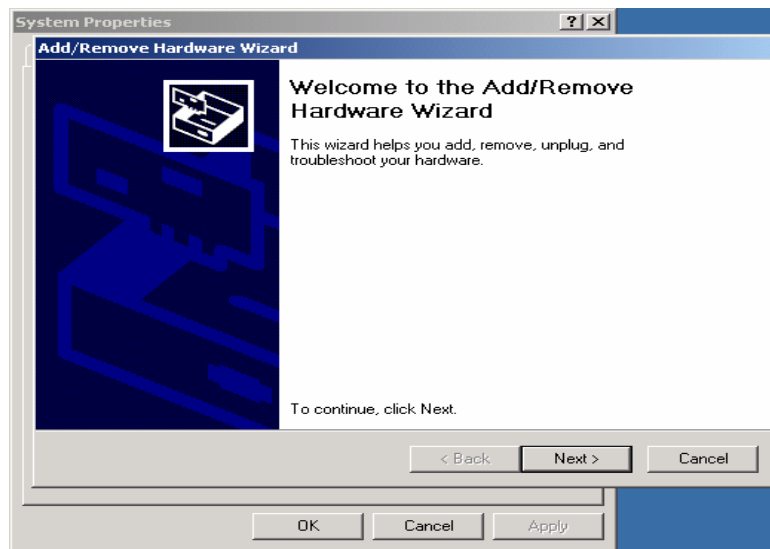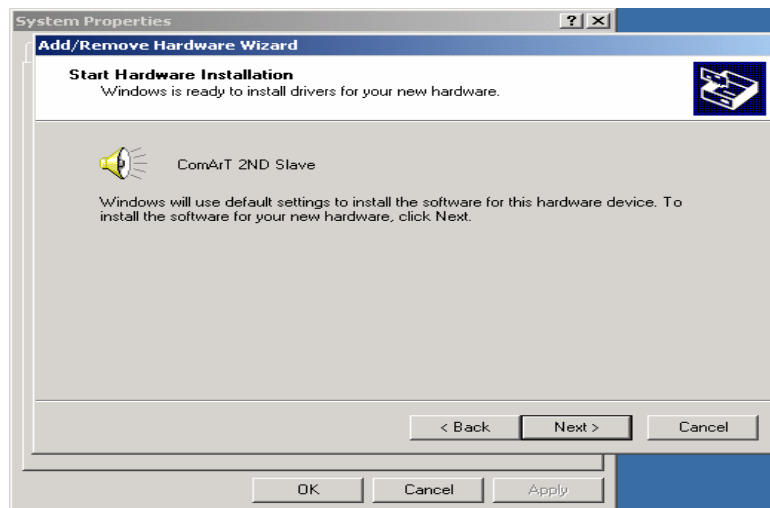
After installing ComArT 2ND Slave Driver, please check your 'Device Manager' to see if all the drivers are installed successfully on your system as shown in the below:

XP Version.

This is an installation of example procedure for HICAP50 in Window XP

With the computer being turned off, please insert the Comart Board in any vacant PCI slot on the motherboard.

Turn on your computer and start Windows XP.
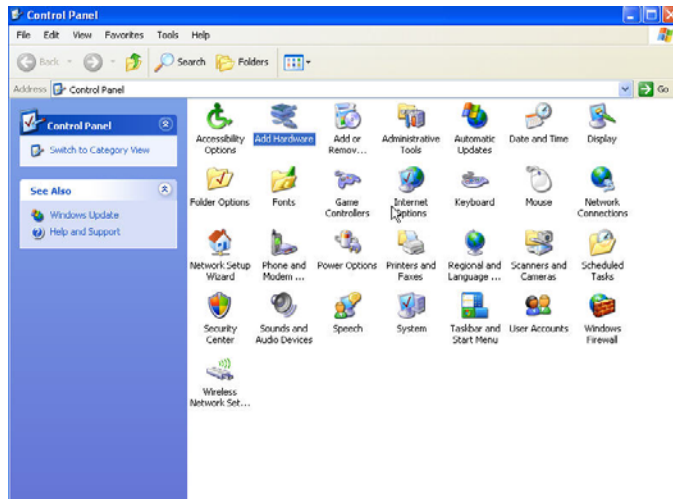
Go to control panel to install a new hardware.
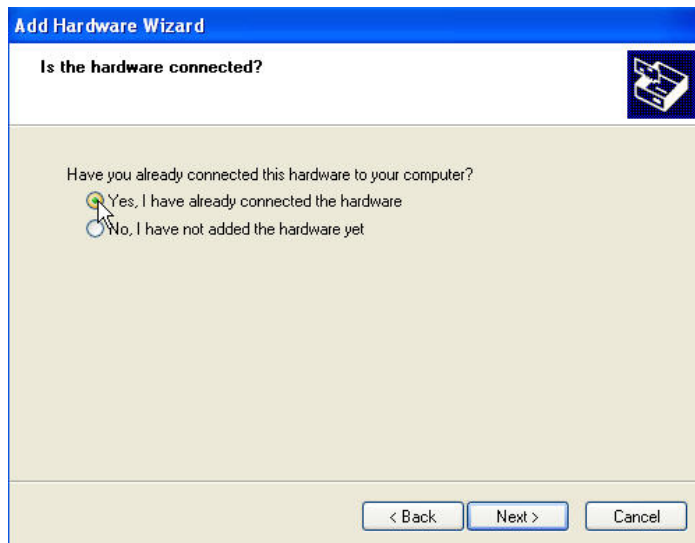
Click "YES" because the DVR hardware is already connected on the Main Board in the PC
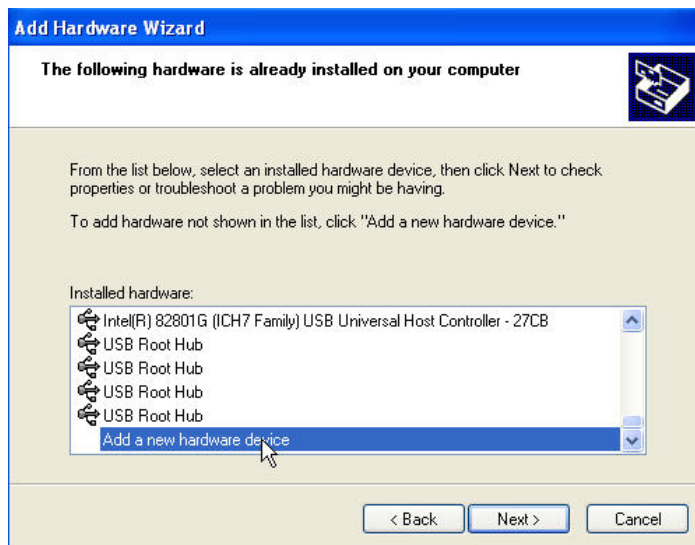
Scroll your mouse to bottom of the menu, there is "Add a new hardware device"

Apparently, user installs a new hardware device to operate the system.
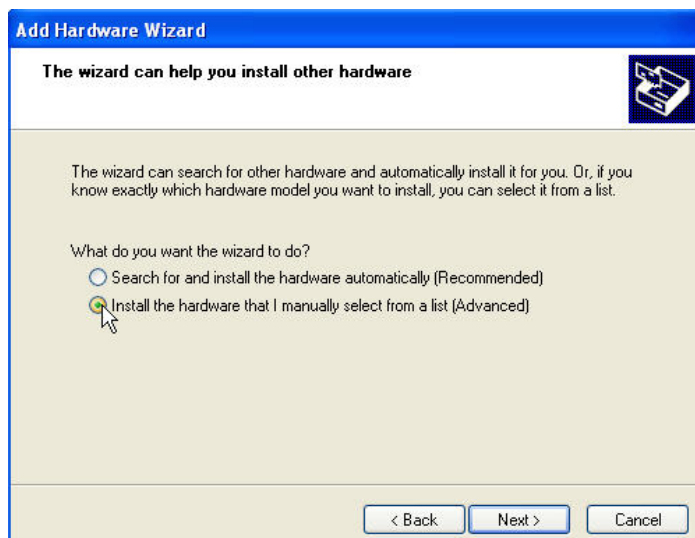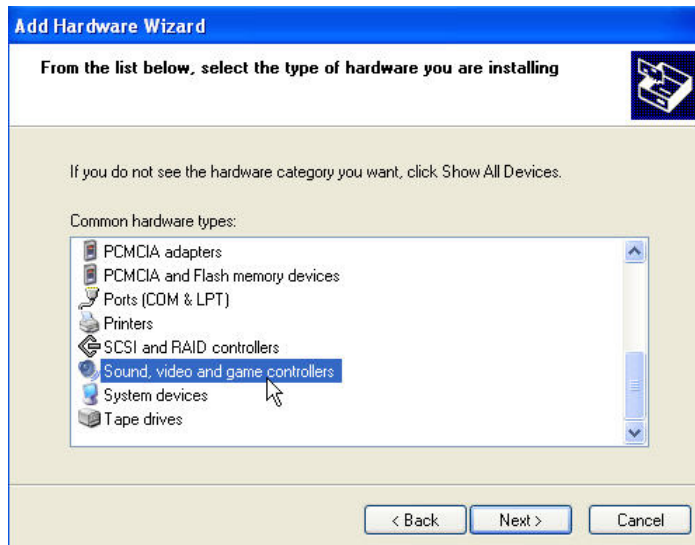
Generally, Comart product drives are installed in Sound, video and game controller" . Therefore, installing new devices should be in Sound, video and game controller
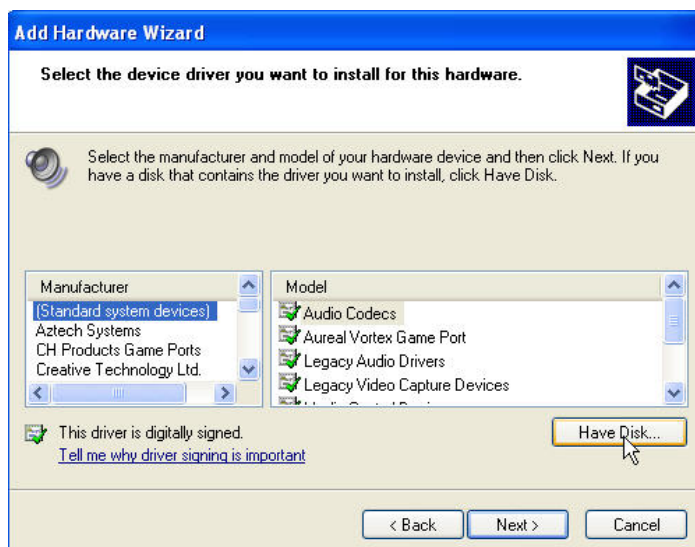
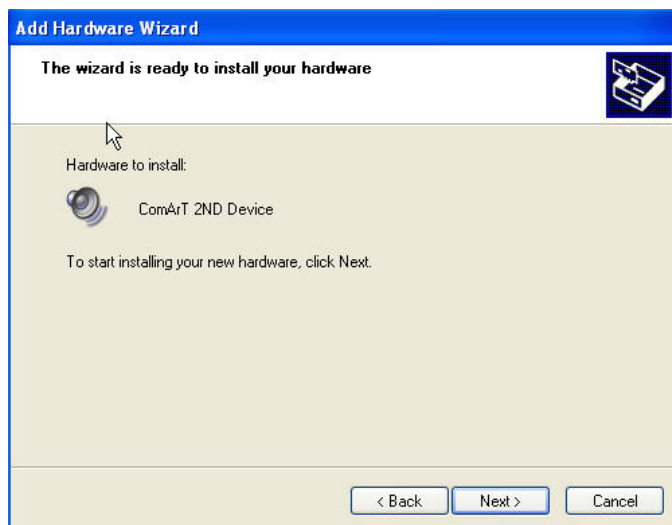User has a disk so click "Have Disk" then below window will pop up on the screen
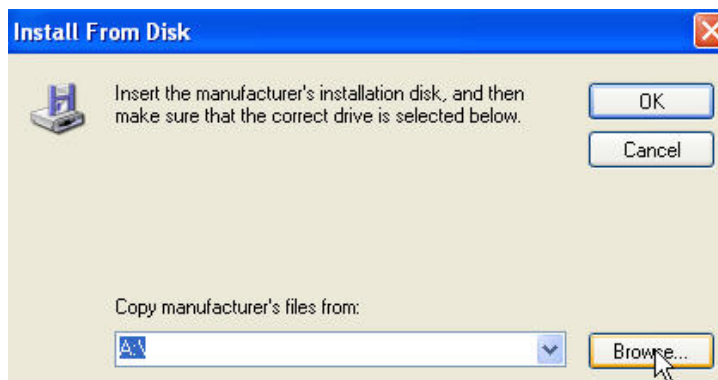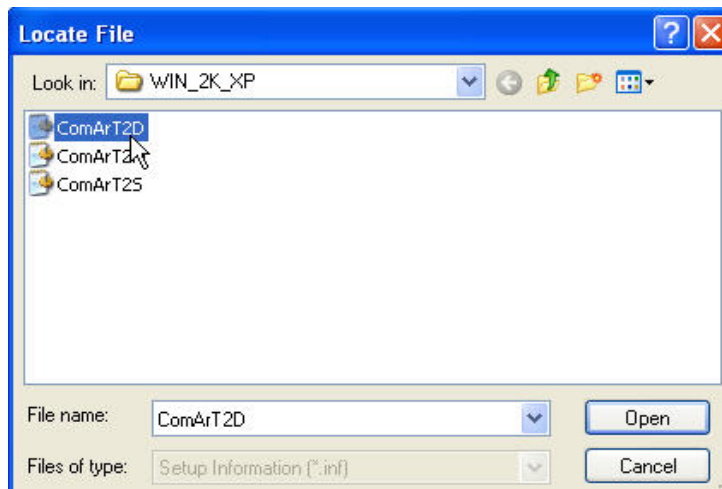
Go to driver path it's in the HICAP folder.

Master driver would be installed automatically as user turn on the PC so user needs to install "Device" and "Slave" drivers

Then click next, it will display the process of being installed Device Driver.

After install the device, user should install slave driver as well with same procedure. Refer to above process of installing new drivers.
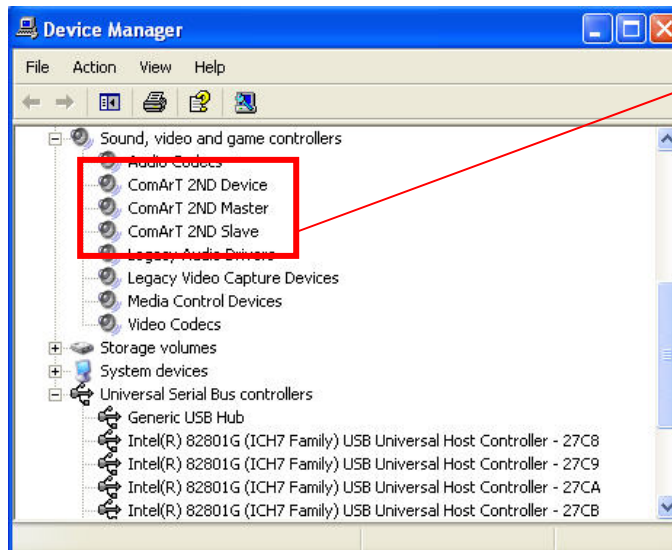
Please check this part on the 'Device Manager' of the System Properties whether all the drivers are installed properly afterward.

6-4.NECESSARY DRIVERS LISTED FOR WINDOWS 2K AND XP

The drivers for each model on the 'Device Manager' should be appeared as in the below.

(Please note that MIG4ch & HICAP25 do not use Comart Unified Driver but MIG4 Advanced Driver & HICAP25 Driver respectively)

6-4.1.   MIS8&16CH   <COMART UNIFIED DRIVER>
- ComArt 2ND Master
- ComArt 2ND Master
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

6-4.2.   MID8&16CH   <COMART UNIFIED DRIVER>
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

6-4.3.   MIG4CH   <MIG4CH ADVANCED DRIVER>
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

6-4.4.   Hicap25   <HICAP25 DRIVER>
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

6-4.5.   Hicap50   <COMART UNIFIED DRIVER>
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

6-4.6.   Hicap100   <COMART UNIFIED DRIVER>
- ComArt 2ND Master
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

6-4.7.   Hicap200   <COMART UNIFIED DRIVER>
- ComArt 2ND Master
- ComArt 2ND Master
- ComArt 2ND Master
- ComArt 2ND Master
- ComArt 2ND Slave
- ComArt 2ND Device

7. HERA AUDIO BOARD (HERA Board Users ONLY)

7-1. HERA LAYOUT AND DESCRIPTION

This installation is required if you have a Hera board installed to record audio data. If you do not have a Hera board, you can just skip this section.

In our Ver. 5.X.X, we support AC97 audio device or your sound card device to record only one channel. If you would like to record more than 2 audio channels or up to 16 audio channels, you need to use a Hera board.
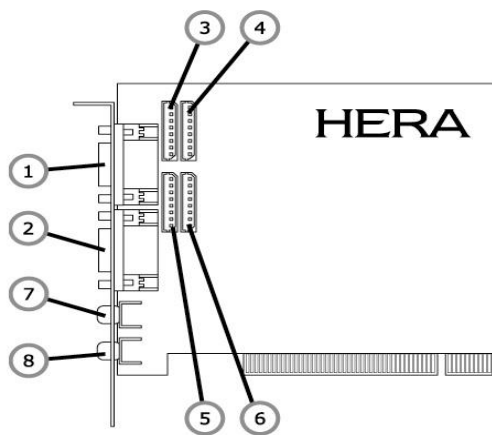
120*92 (mm)

1) External RCA cable connector	: Audio Inputs (8ch : 1~8)
2) External RCA cable connector	: Audio Inputs (8ch : 9~16)
3) Internal Molex cable connector	: Audio Inputs (4ch : 5~8)
4) Internal Molex cable connector	: Audio Inputs (4ch : 1~4)
5) Internal Molex cable connector	: Audio Inputs (4ch : 13~16)
6) Internal Molex cable connector	: Audio Inputs (4ch : 9~12)
7) Speaker Out	: 1ea
8) Line Out	: 1ea

7-2. HERA HARDWARE SPECIFICATION

Audio Inputs	: Full 16ch in real time
Audio Outputs	: Speaker Out 1ea, Line Out 1ea
Sample Bits	: 12Bit
Sample Rate	: 8, 11, 16, 22 Kbit per channel (Selectable)
Audio Signal Type	: Mono
Data Format	: PCM, GSM(by Software)

7-3. DRIVER INSTALLATION

7-3.1.　　DRIVER INSTALLATION IN WINDOWS 98, 98SE, AND ME.

With the computer being turned off, please insert Hera in any vacant PCI slot. Turn on your computer and start Windows98 as usual. Windows98 will automatically find Hera as a new hardware device.
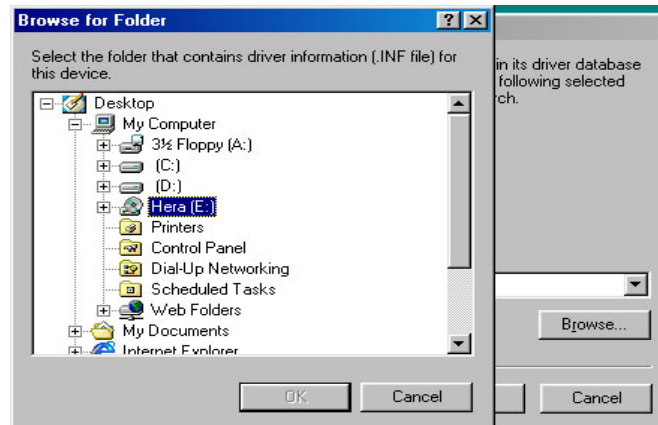

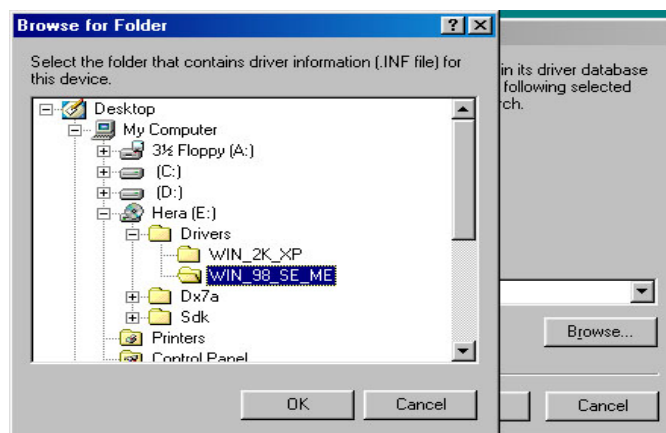Then, your system will detect Hera as a PCI card as shown below. Click 'Next' to continue.

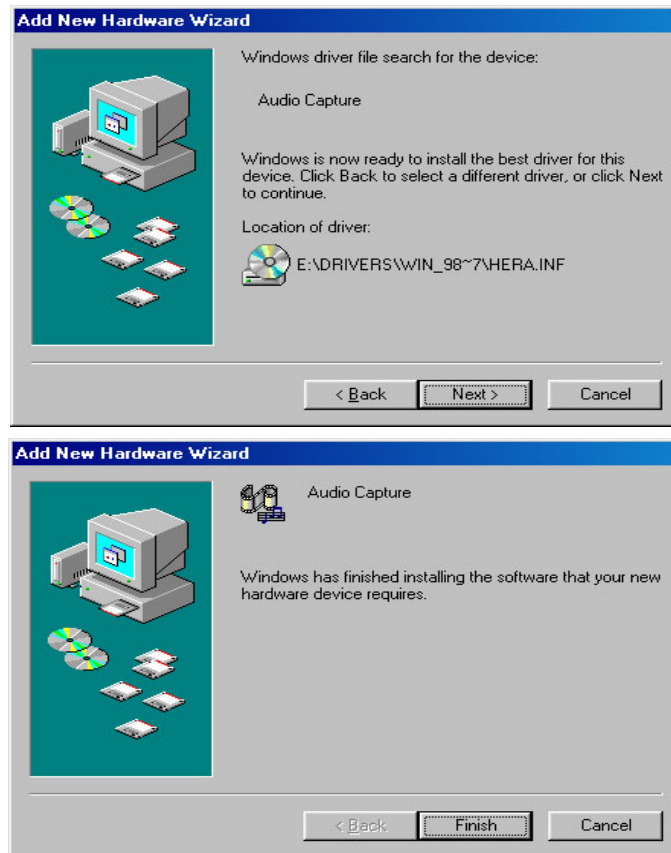Insert the Hera CD into the CD-ROM and click Next to search for the Hera driver.

Browse a directory called 'WIN_98_SE_ME' in the CD and click 'OK' to continue.

If you use Windows 2000 or XP, please go to the directory called 'WIN_2K_XP'.

Click 'Next' to continue.

Your system will detect Hera board as an Audio Capture device.

You need to check 'System properties' if Hera is listed as Audio Capture in one of devices for Sound, Video and Game controllers. If you can see Audio Capture driver under Sound, Video and Game controllers, Hera drivers are installed on your system completely.
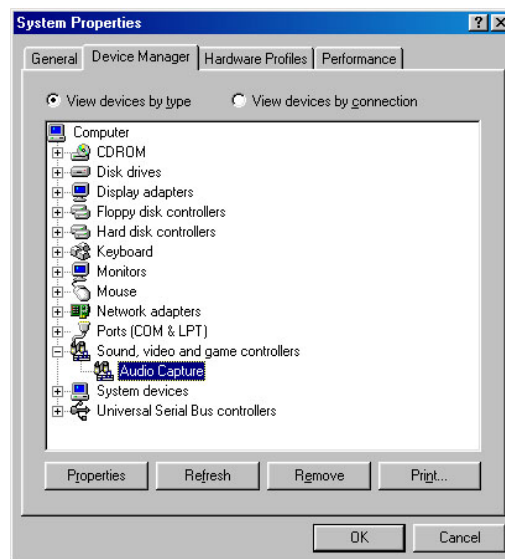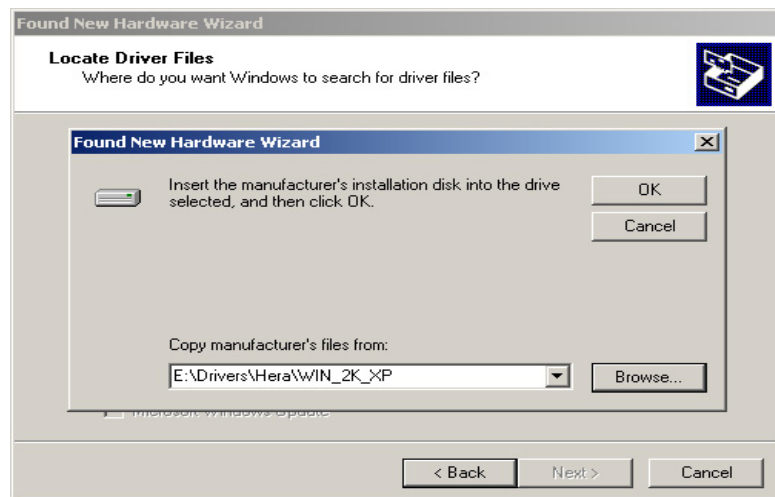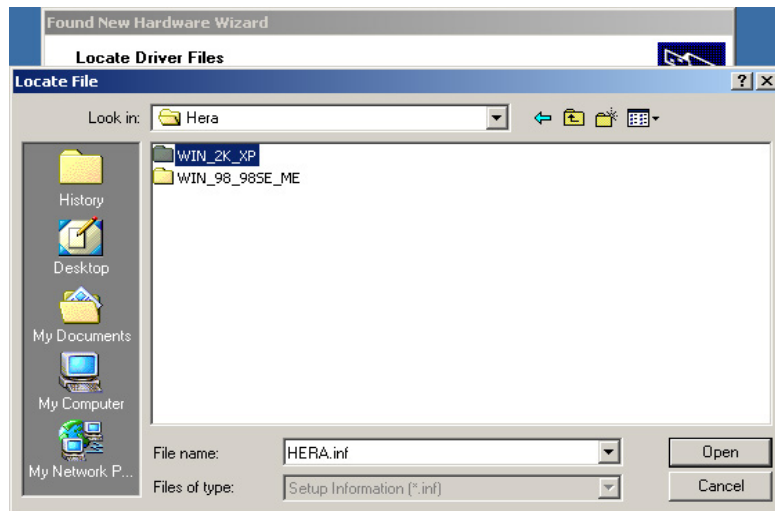
7-3.2.   DRIVER INSTALLATION IN WINDOWS 2000 AND XP.

Your Windows system will detect Hera board as shown in the above.
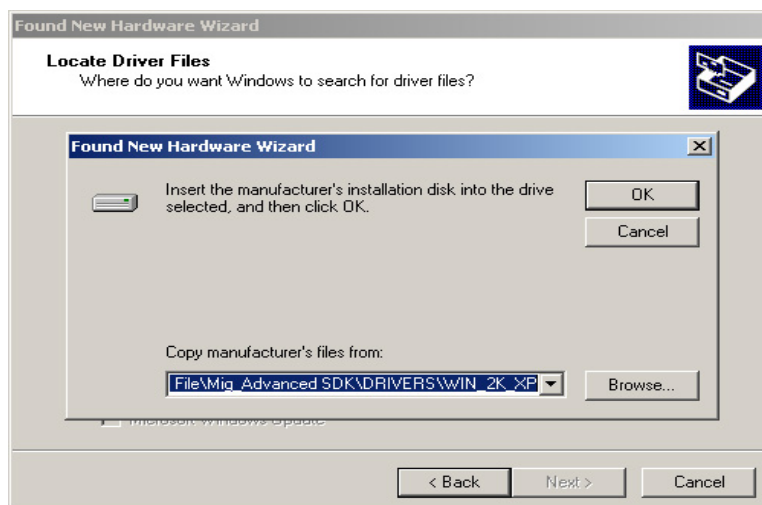
Browse the CD and refer to the Hera driver's directory for Windows 2000 and XP.
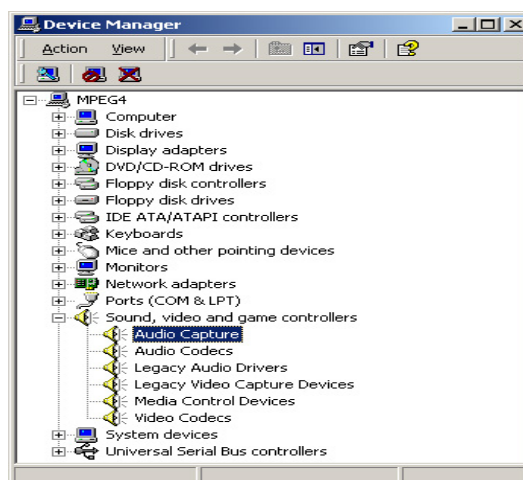
Click "OK" to continue.

Click "Next" to continue.

Click "Yes" to continue.

Click "Finish" to finish installing. Please, check if your Hera Driver is installed properly as follows.

7-4. GENERAL INFORMATION ABOUT HERA

7-4.1.   In our application Ver. 5.X.X, you have to select one between Hera and AC97 (Motherboard Sound device or any Sound card device).

7-4.2.   When using a Hera board, each Audio channel is being recorded together with the same video channel.

7-4.3.   For Hera board inputs, we provide two RCA octopus cables and each one has 8 channel inputs. Since the connector type is RCA, you need to convert the connector into RCA if you want to connect a microphone with Hera.

7-4.4.   Hera board has OP-AMP to magnify audio inputs. So, if audio data inputs are already being magnified, the captured audio data could be loud.

7-4.5.   There are two audio outputs for Hera.
  Speaker Out: from this output, you can just connect a cable to the speaker
  Line Out: you can use this output when you want to amplify the audio signal

7-4.6.   In the main application, you can select one of audio inputs from Hera and monitor it with any of Speaker Out or Line Out. Also, in the search application, you can select one of the audio channels that is recorded on your HDD so as to playback the data.

8. OVERLAY-LIGHT (Overlay Light Users ONLY)

8-1.1. Model Name: **OVERLAY-LIGHT**

Overlay-Light is the live display board that displays videos in real-time up to 16 cameras.

It displays videos in Real-Time up to 16 cameras and records videos at 25,50,100. and 200FPS (PAL) respectively with HICAP 25,50, 100 and 200.

8-1.2. Model Description: Overlay-Light is a kind of PC-based multiplexer board that displays videos in real-live from up to 16 cameras on PC monitor simultaneously..

8-1.3. Model Application: Overlay-Light can work together with non real-live display boards such as Comart Hicap Series in order to display videos in real live on PC monitor.

It is possible to display videos in real-live from up to 16 cameras with Overlay-light while it captures and records the videos with Hicap series at their respectable capturing frame speed per second. As a result, it reduces CPU work because CPU does not have to draw and overlay captured videos any more but only compresses and records the videos accordingly.

8-1.4. Combination with Comart DVR series:

- Overlay-Light + Hicap25 (16ch): Real Live Display (480fps) + Recording (30fps)
- Overlay-Light + Hicap50 (16ch): Real Live Display (480fps) + Recording (60fps)
- Overlay-Light + Hicap100 (16ch): Real Live Display (480fps) + Recording (120fps)
- Overlay-Light + Hicap200 (16ch): Real Live Display (480fps) + Recording (240fps)
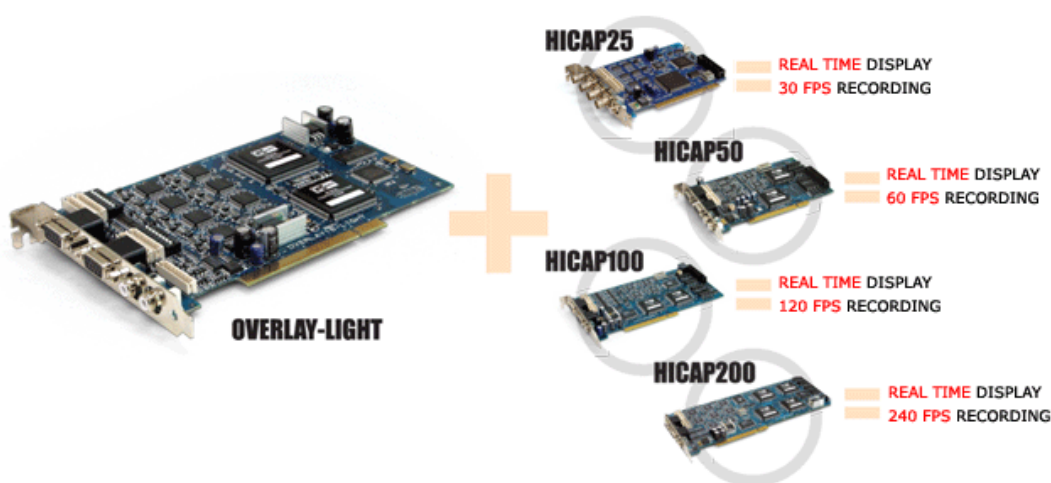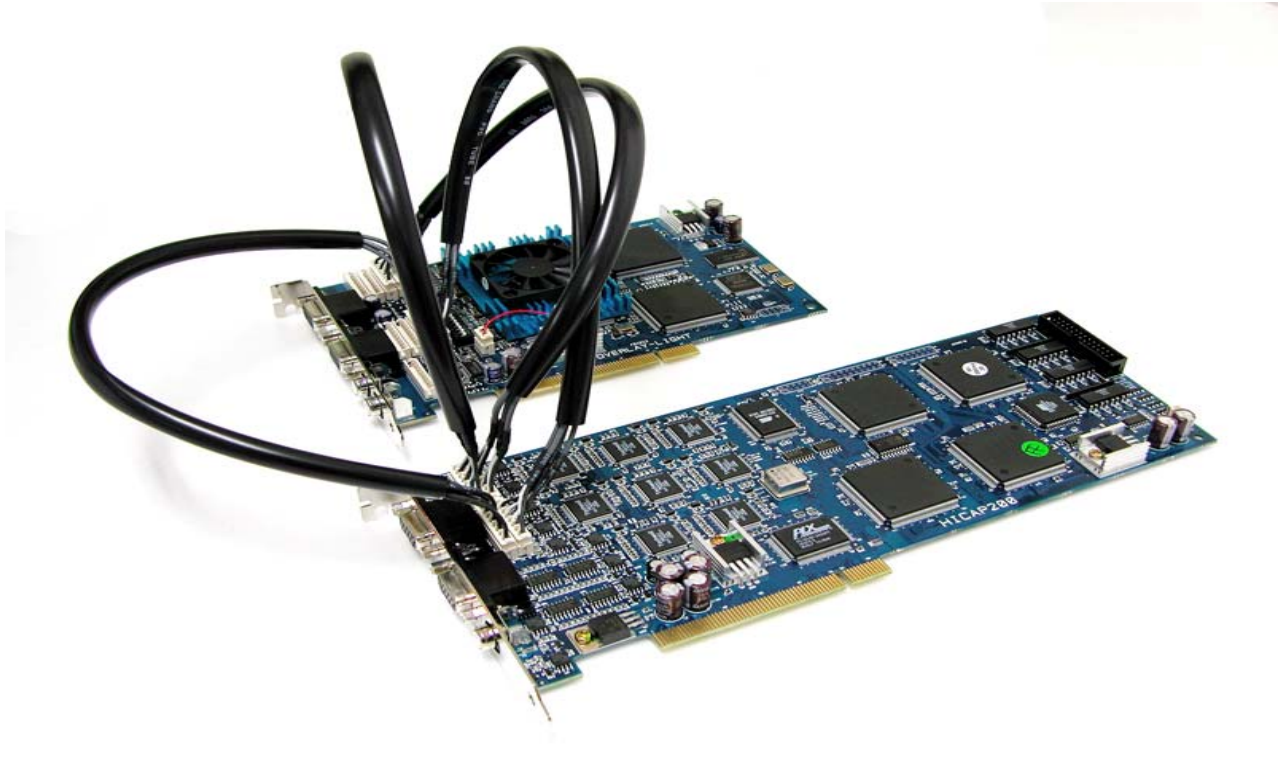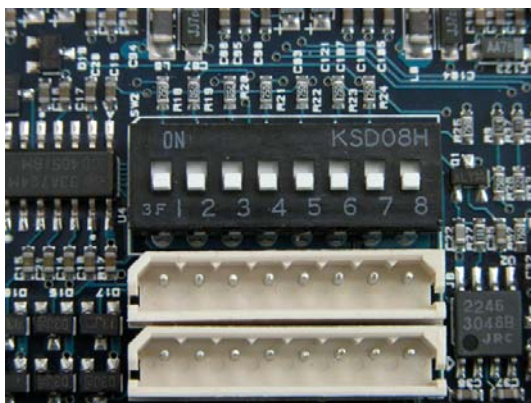
Ex 1.) Video Connection Configuration

Video: Hicap board → Overlay-Light   : Connect BNC cable to BNC connecter of Hicap
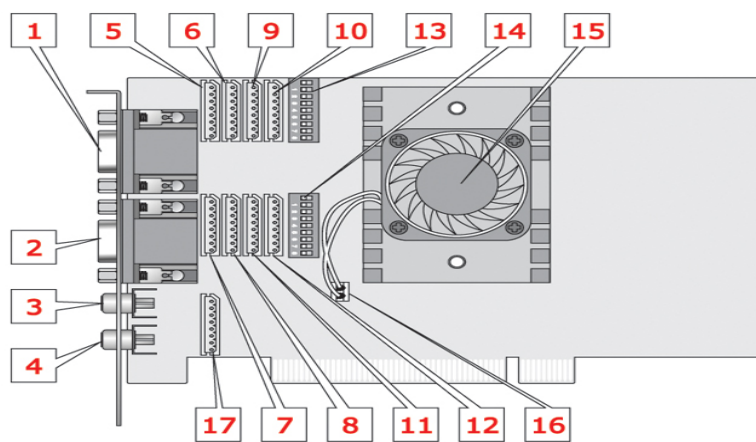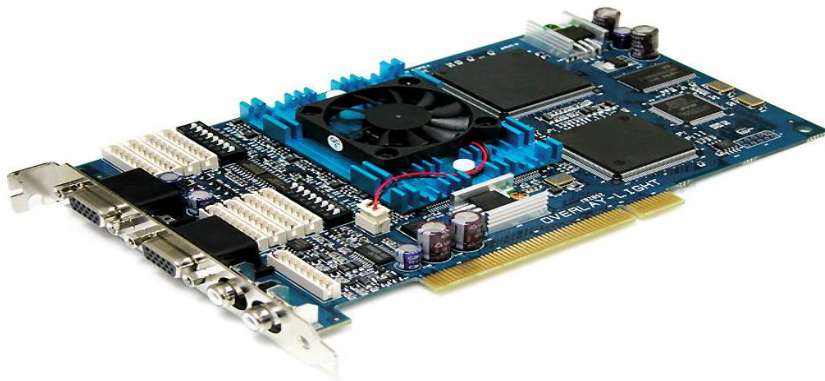
Ex. 2) Video Connection Configuration

Video: Overlay-Light → Hicap board   : Connect BNC cable to BNC connecter of Overlay light.

When the Overlay-Light is connected with Hicap series, the 75ohm impedance switcher should be set off
as shown in the above.

8-2. BOARD LAYOUT & DESCRIPTION

1) External BNC Octopus Cable Connector: Video No. 1~8

2) External BNC Octopus Cable Connector: Video No. 9~16

3) External Analog Video Out 1: Displays one channel in full screen size among 16 video inputs

4) External Analog Video Out 2: Displays the same video with VGA monitoring video

5) Internal Molex Shielded Cable Connector: Video No. 1~4

6) Internal Molex Shielded Cable Connector: Video No. 5~8

7) Internal Molex Shielded Cable Connector: Video No. 9~12

8) Internal Molex Shielded Cable Connector: Video No. 13~16

9) Molex Shielded Cable Connector: Video No. 1~4

10) Molex Shielded Cable Connector: Video No. 5~8

11) Molex Shielded Cable Connector: Video No. 9~12

12) Molex Shielded Cable Connector: Video No. 13~16

13) 75Ω Impedance Switcher: Video No. 1~8

14) 75Ω Impedance Switcher: Video No. 9~16

15) FAN

16) Power of FAN

17) Internal Analog Video Out: It is connected with external Analog Video out 1 & 2 including S-Video out

8-3.BOARD SPECIFICATION

CLASSIFICATION			OVERLAY-LIGHT
PHYSICAL FORM FACTOR			180 × 109 mm
			6.69 × 4.29 in
WEIGHT			200g
POWER CONSUMPTION			11.54W
PCI INTERFACE			33Mhz, BUS Master, 132Mbyte/sec, PCI Rev. 2.2 Compliant
VIDEO	INPUT		16 EA
	INPUT VOLTAGE		1 V p.p.
	INPUT IMPEDANCE		75Ω (Switchable)
	FORMATS SUPPORTED		50Hz PAL, 60Hz NTSC
	CONNECT TYPE		External : 2 BNC Octopus Cables
			Internal : 4 Molex Cables
	OUTPUT		TV-Out 1 : One(1) switched composite video out in full-screen size only
			TV-Out 2 : Same as VGA overlay video
MAX. TOTAL DISPLAY FRAME RATE			480fps (NTSC), 400fps (PAL)

8-3.1.   When it connects Overlay-Light with another capture board including Hicap series, the 75Ω impedance switcher per channel has to be set off if there are 75Ω impedances already on the capture board. As you may already know, it makes video signal levels very low if both Overlay-Light and a capture board have 75 impedances.

8-3.2.   When it connects Overlay-Light with another capture board, it has to be connected with Molex cables being provided between Overlay-Light and the capture board.

8-3.3.   TV-out 1 has the same function as the Hicap series. It displays one of video inputs from 16 cameras in full screen.

8-3.4.   TV-out 2 displays the same videos that are being displayed on PC monitor through VGA board.

8-3.5.   It does not capture videos at all but only has a function to display videos in real live.
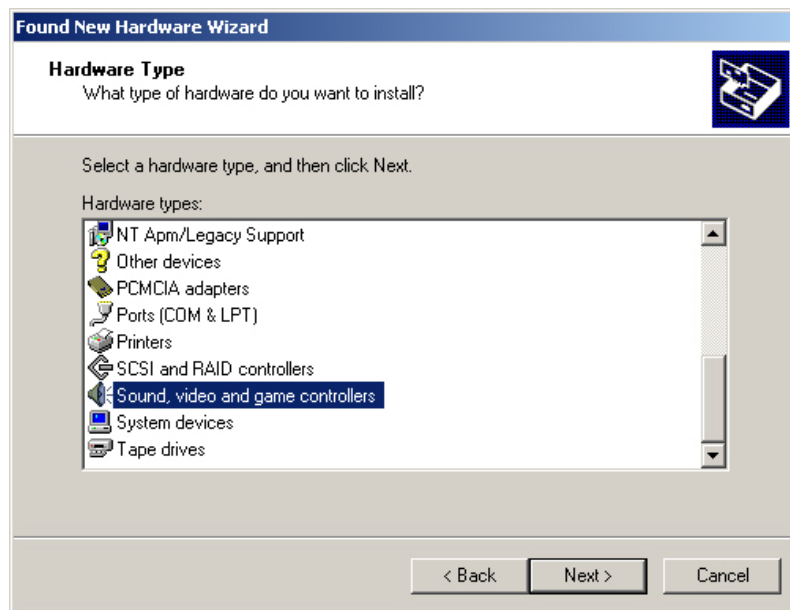
8-4.INSTALLATION

The following step is based on Windows2000 system. Installation on other Windows system(s) could be a bit different. With the computer being turned off, please insert Overlay-Light in any vacant PCI slot. Turn on your computer and start Windows2000 as usual. Windows2000 will automatically find Overlay-Light as a new hardware device as follows:
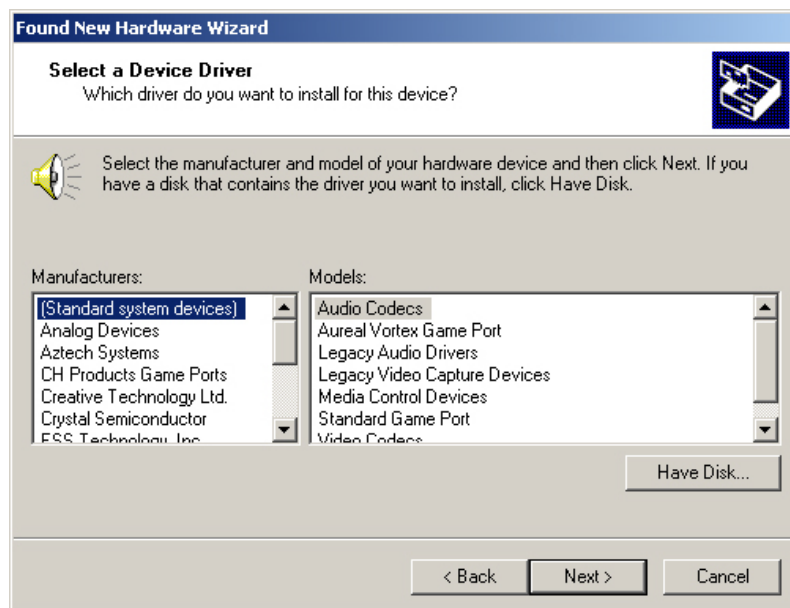

Click "Next" to continue.

Select the second option in the above and click "Next" to continue.

Found New Hardware Wizard

Hardware Type
What type of hardware do you want to install?

Select a hardware type, and then click Next.

Hardware types:

- NT Apm/Legacy Support
- Other devices
- PCMCIA adapters
- Ports (COM & LPT)
- Printers
- SCSI and RAID controllers
- Sound, video and game controllers
- System devices
- Tape drives

< Back   Next >   Cancel

Select "Sound, Video and Game Controllers". Then, click "Next" to continue.

Found New Hardware Wizard

Select a Device Driver
Which driver do you want to install for this device?

Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.

Manufacturers:

- (Standard system devices)
- Analog Devices
- Aztech Systems
- CH Products Game Ports
- Creative Technology Ltd.
- Crystal Semiconductor
- ESS Technology, Inc.

Models:

- Audio Codecs
- Aureal Vortex Game Port
- Legacy Audio Drivers
- Legacy Video Capture Devices
- Media Control Devices
- Standard Game Port
- Video Codecs

Have Disk...

< Back   Next >   Cancel

Click 'Have Disk..." to continue.

Install From Disk

Insert the manufacturer's installation disk into the drive selected, and then click OK.

OK

Cancel

Copy manufacturer's files from:

A:\   Browse...

You can browse or search for a directory called "WIN_2K_XP" under Driver directory. Please refer to the directory and you can find a file as shown in the below:
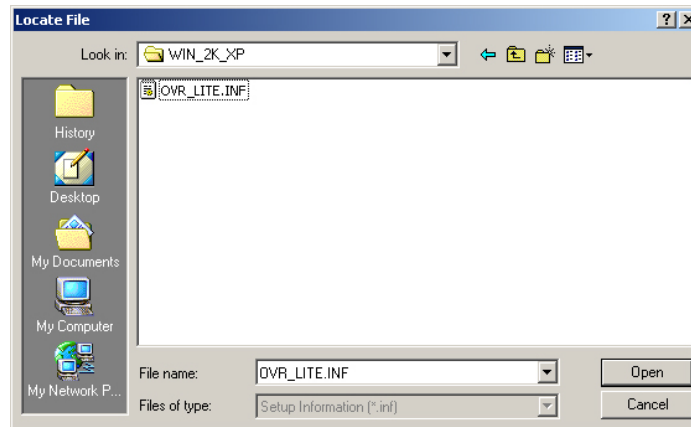
Browse for a file name called "OVR_LITE.INF" and open it.
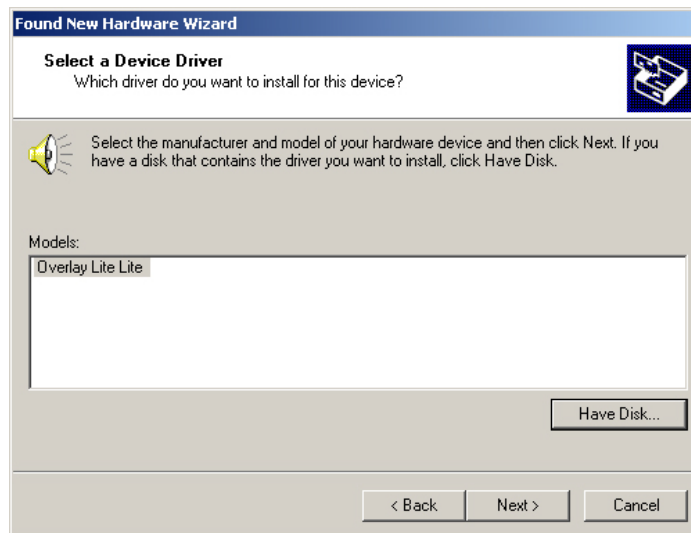
Click "Next" to continue.
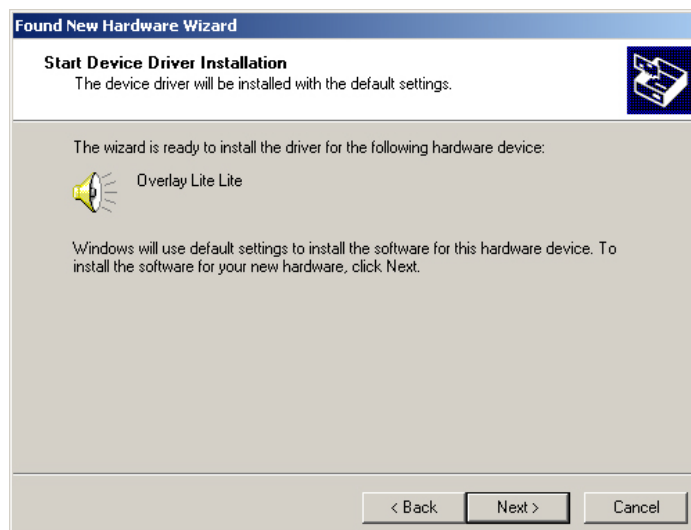
Click "Next" to continue.

Click "Yes" to continue.
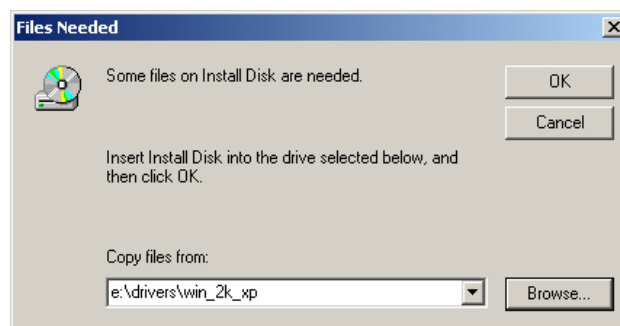
Click "Browse…" and open a file name called "**OVR_LITE.sys**" then click 'OK' to continue.

Click "Finish" to compete installing the Overlay-Light.
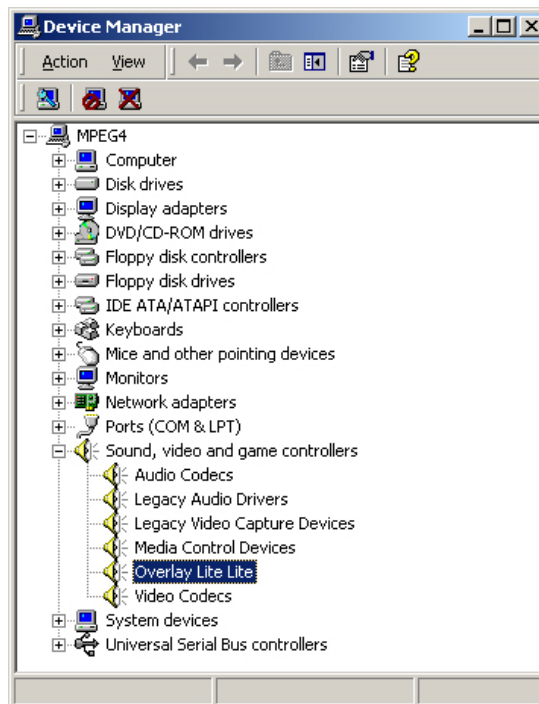
You can find "Overlay Lite" in your Device Manager of the system.

Please note that Overlay-Light will be automatically installed on your system as ComArT2D once you have installed any Comart DVR board before on your system. Then, you need to update Drivers of Overlay-Light.

Currently, there is no I2C difference between Hicap series and Overlay-Light.
We will change this Driver conflict with out next Hardware revision.

8-5. OVERLAY APPLICATION

The GUI of overlay application will appear as follows:
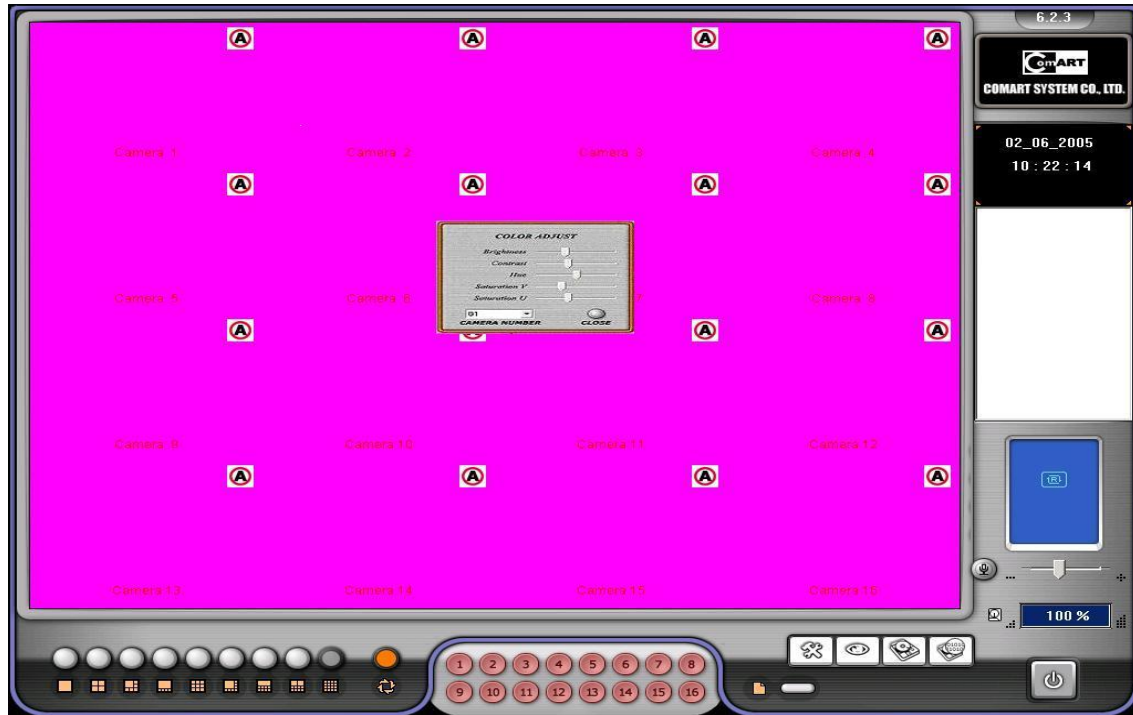
It has 9 different screen division modes.

 : Color adjust button

This button appears in the main program once you install the overlay-light board

with the HICAP series.
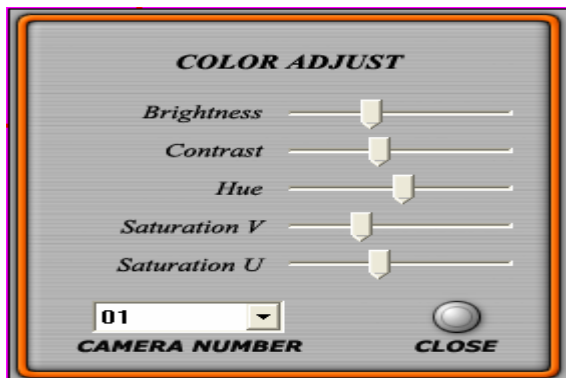
As you press this button in the main program, the above dialogue box is being displayed on the main screen.

You can control Brightness, Contrast, Hue, Saturation V, Saturation U of the image(s) by clicking each screen you

wish to change.

10. APPLICATION SOFTWARE INSTALLATION

In order to install the Comart Application software on your system, please go to the setup directory first and go to the model name directory so as to install your board application.

For example, when we go to the HICAP directory, you will see the files as shown in the below:
(This will be the same with other models in their directories)
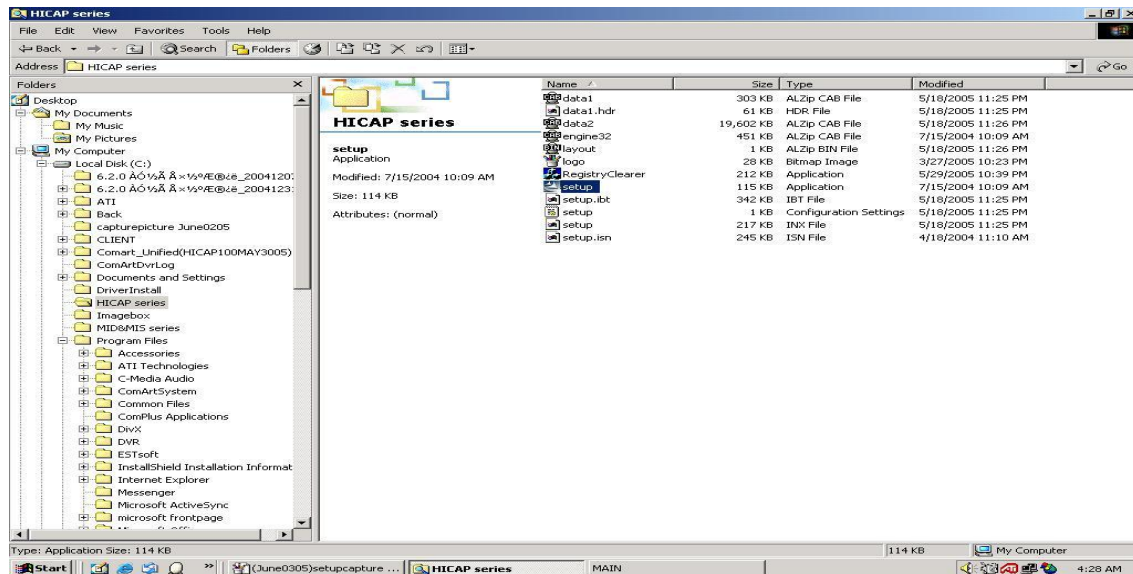
c.f.) Prior to installing the CD program, please note that Version 6.2.7. allows you to freely add and/or change
your company logo by modifying the bitmap image in the 'logo' file (logo.bmp) of the CD Program
(InstallShield) without any limitation. But please also note that the file name 'logo' should not be changed since
the setup program can not recognize other file name(s) except for the 'logo' file.
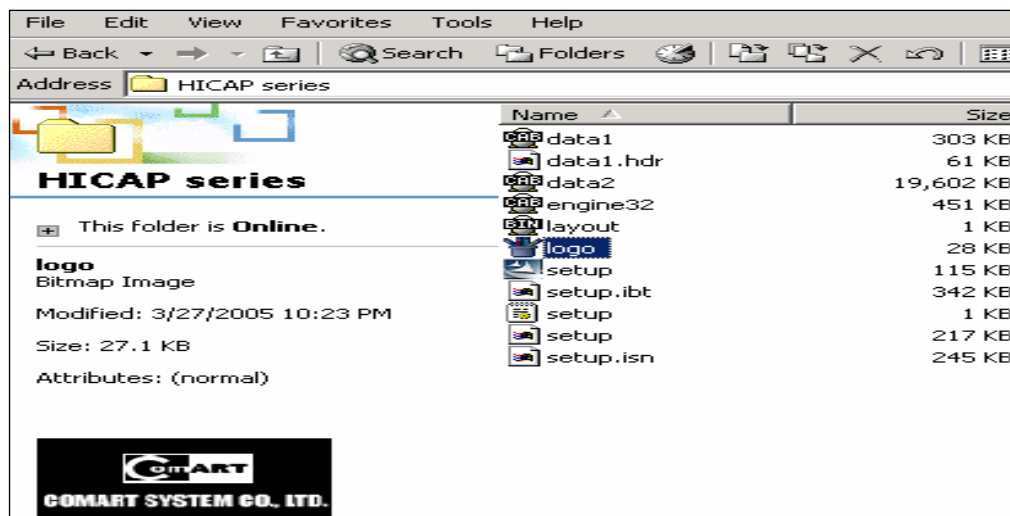
Click "Hicap Series" and Run 'Setup.exe' file to install the software program.

Then, Click 'Next' to continue installing on your system.
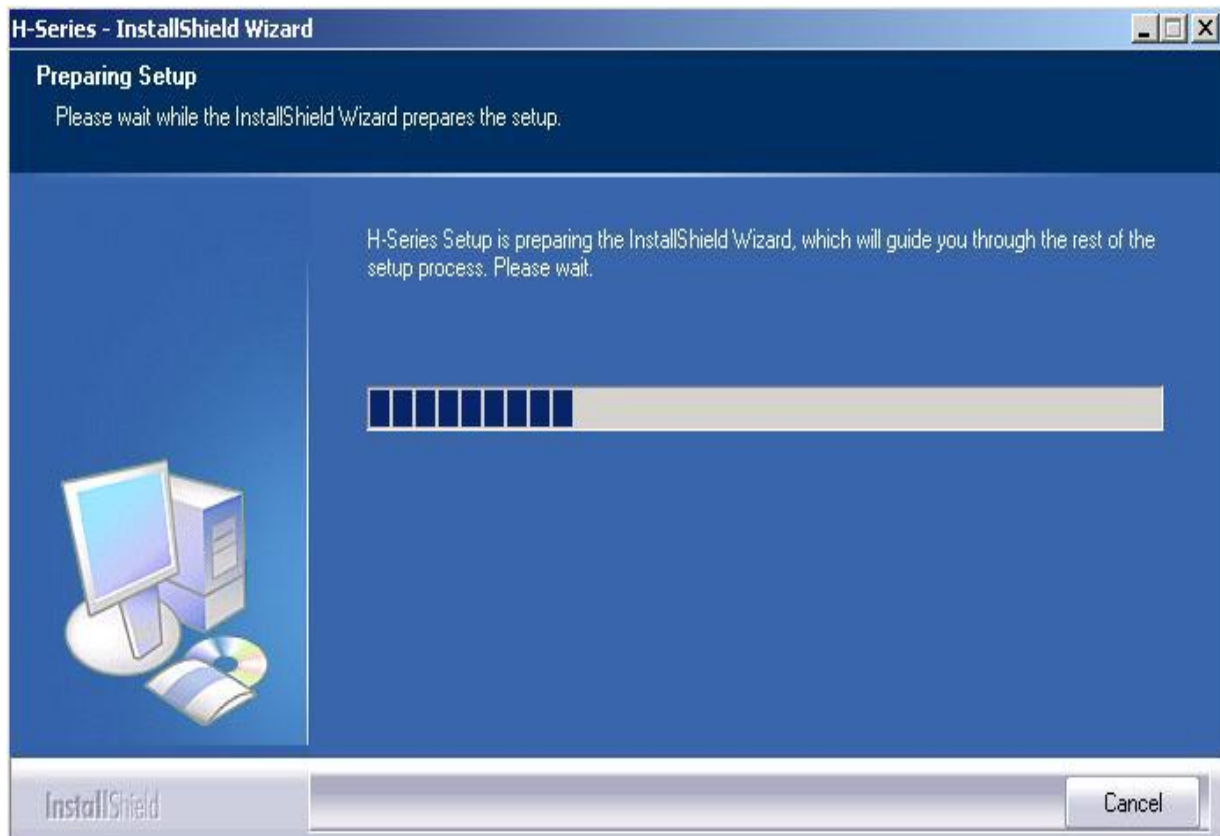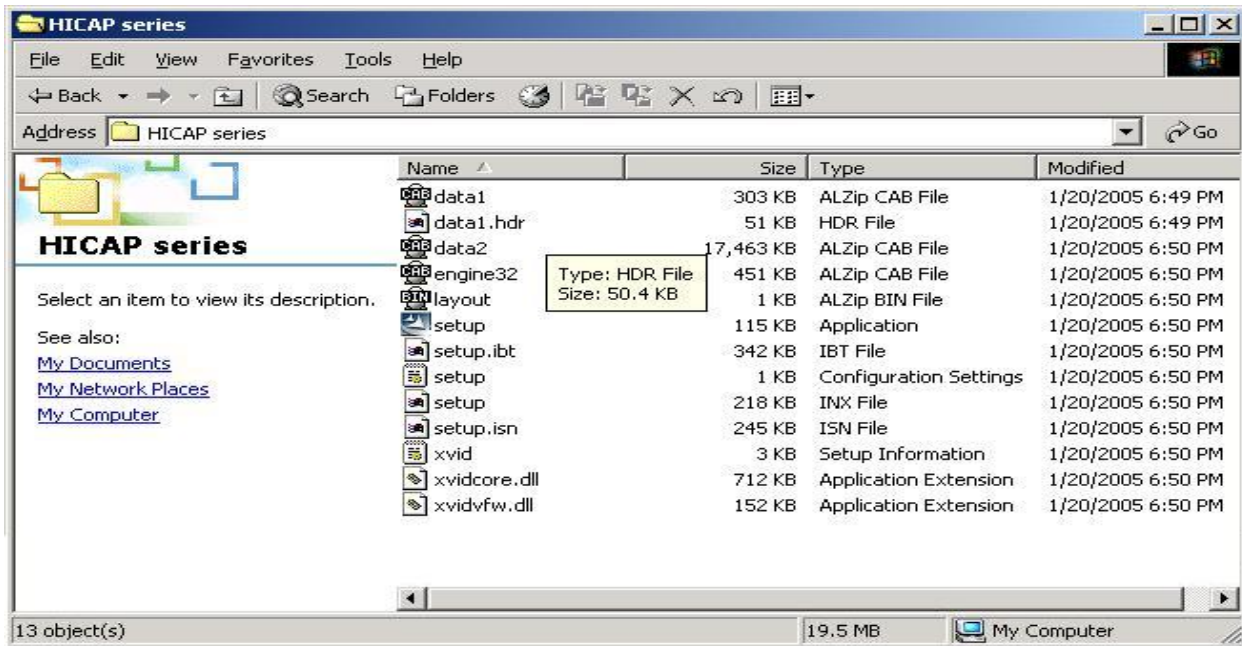
Click " Next" to continue.

Then "License agreement" will be shown as in the below, please check on "I accept the terms of license agreement" and click "Next" to continue.
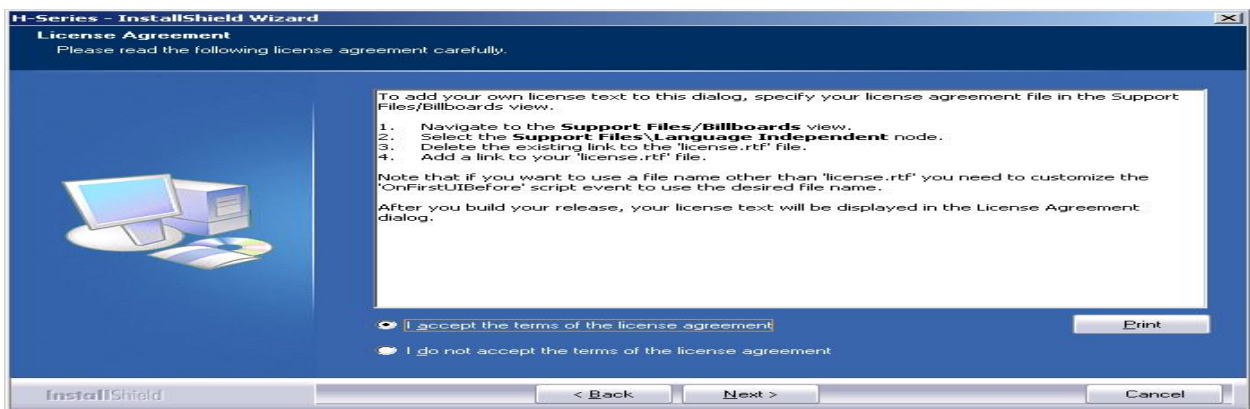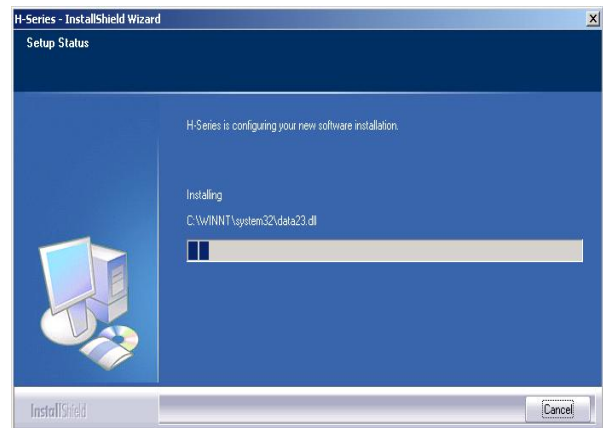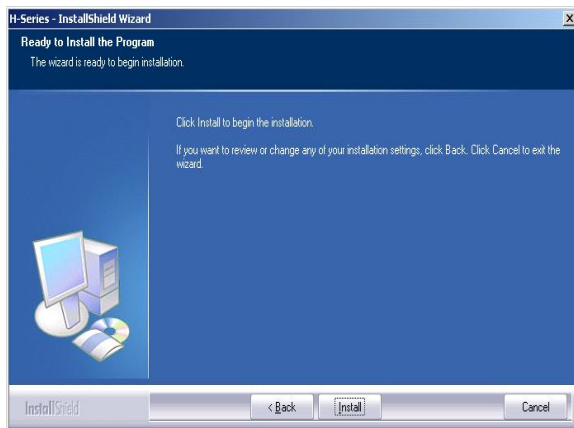

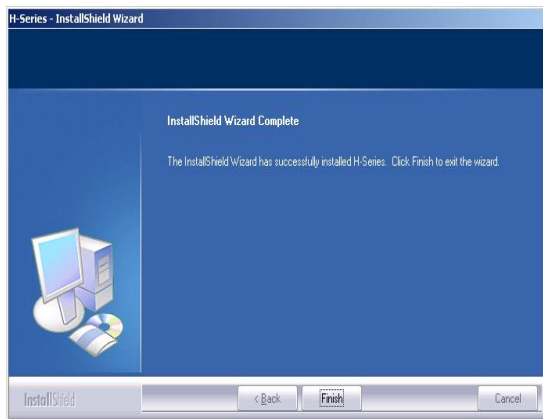Insert your information and click " Next" to continue.
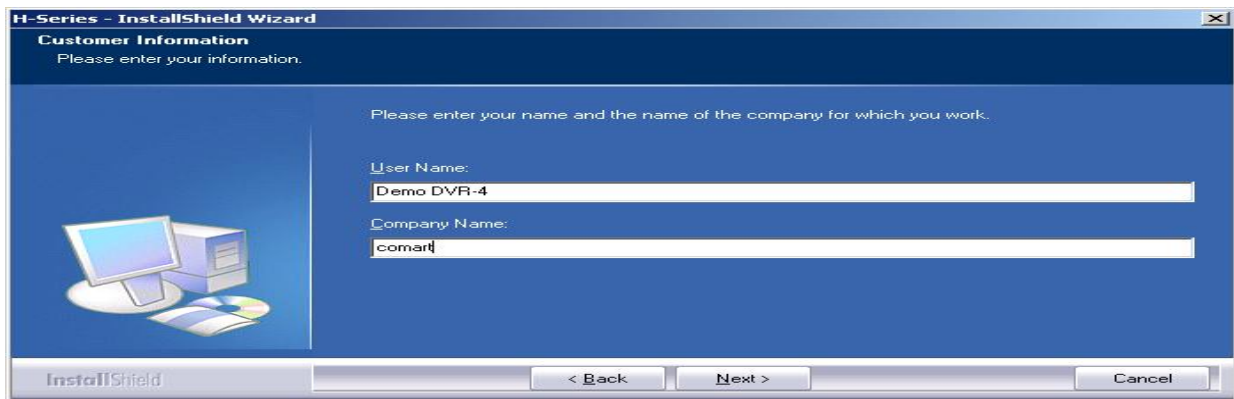
Check " Complete" and click " Next" to continue.
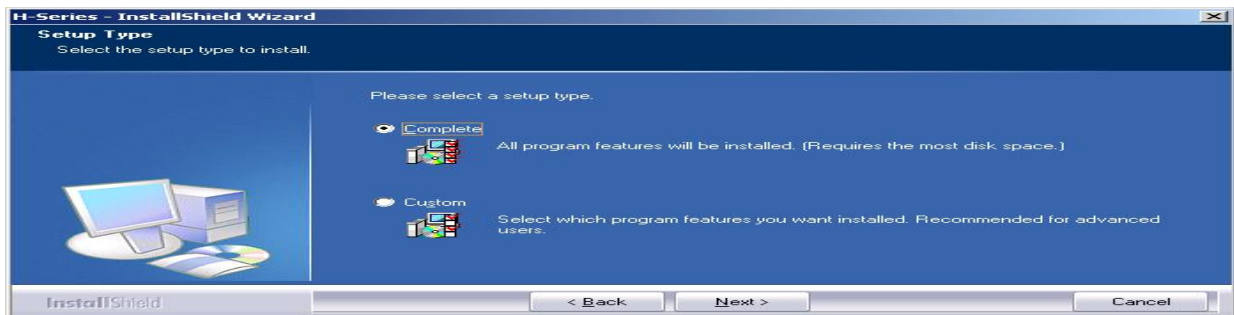
Click "Install" to start installing.

Then, click 'Finish' to complete installing.

After installing the main DVR Application, you will see the above shortcut icon on your desktop screen.

Once you run the Application program, it will automatically take you to the Setup Program page.

M-JPEG and Advanced MPEG4 software codec will be installed automatically after installing the Comart Application on your system and you do not need to install any other file(s). If you do not see the icon in the previous page on your Windows' main screen, it means that the installation was not properly done or you missed installing some required file(s) such as DirectX8.1 or newer version. So please check your installation with this manual from the beginning.

If you have the same problem or the Setup program is not run automatically, please contact your supplier or Comart Technical Support for any assistance.

NOTE

There is limitation of using letter for ID/ PASSWORD. Maximum 15 characters

11. SETUP PROGRAM

There is virtual keyboard. Click the mark on the screen.

The first time the user runs the short cut icon, he/she will see this Setup page as shown above and the left pictures.

Please note that from our latest version 6.2.3., the Log File Overwriting Interval function menu (e.g. 1~6 Days, 1~4 Weeks, 1~3 Months as described in the above) is being added in the Set Up menu for the user's convenience. Unlike previous version, our latest version asks the User Name and Password in the Login dialogue box at the time of the Setup menu startup.

c.f.) IMPORTANT- "**super**" is the default username and password.

You need to select options you wish and create image boxes. Prior to monitoring the main screen for the first time, you need more than one image box in the File Management Program. Otherwise, you cannot change password or run the main application program. The program will continue to require you to enter your username and password.
If you need to stop this, press 'Ctrl+Alt+Del' and stop the Task accordingly because the setup page will keep asking you the username and password.

In this Setup page, you must make selections at least two things such as **Recording** & **File Management**. Otherwise, it cannot run the main application program properly.

!) This application supports 127 different usernames and passwords. In order to add or change your username and password, you need to type your username and password that you are using currently, and click Change button. Then a dialogue box will be shown as in the below:

In this dialogue box, you need to type a new user name and password in which you wish to change or add. Then click Change or Add button. As for your reference, there are up to 127 different usernames and passwords available for use.

11-2. DEFAULT
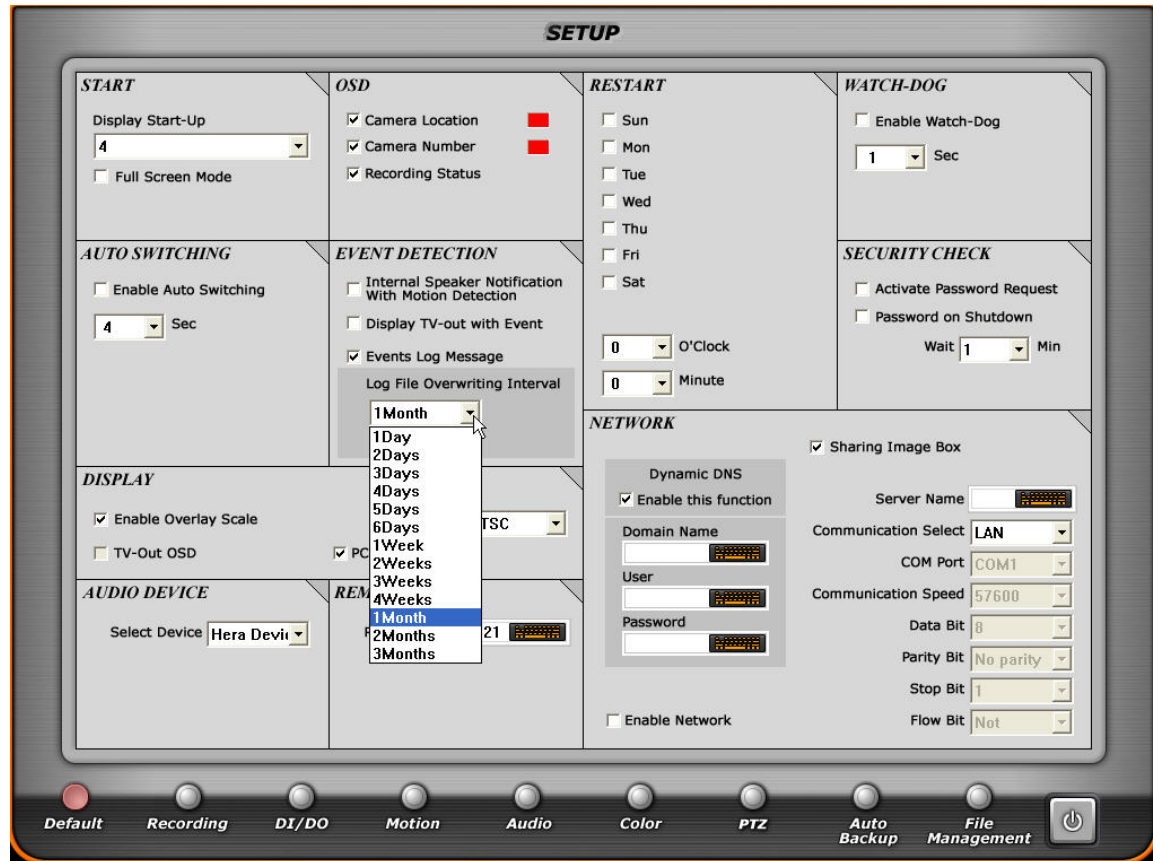
11-2.1 START

Please select your initial monitoring type in here. You can choose one video channel for a full screen, 4 videos in Quad mode, 8 videos or 16 videos split screen modes. The screen mode you choose here will be the default display screen mode when you start the program.

11-2.2 OSD

You can select to display Camera 'Location', 'Number' and 'Recording Status' to be seen on the upside of each video Window. If you double-click red color set as default, you will see this pop-up window on the left. Then, you can change the colors of camera position and camera number of OSD accordingly.

11-2.3   RESTART

You can choose to shut down and restart the system automatically at selected day(s) and time period(s).

Please note that this mode can only be executed when the system is on.

You do not have to select this function if you keep running your DVR system all the time.

11-2.4   WATCHDOG

This function helps you to avoid being shutdown in the event the shutdown takes place.

In order to select Watchdog function, please click 'Enable Watch-Dog' and set the time.

In order to operate this function, you need to connect the Watchdog connector on our board with the reset switch of your PC motherboard.

If you want the DVR program to be started automatically when you turn on your PC, please copy and attach the DVR icon on the desktop to the Startup Program.

11-2.5   SECURITY CHECK

1) Activate Password Request

In order to select Security Check, click 'Activate Password Request' and set

the time. If there are no inputs from keyboard and mouse during the period,

then if there is input signal from keyboard or mouse, you will see the window

as shown on the right side.
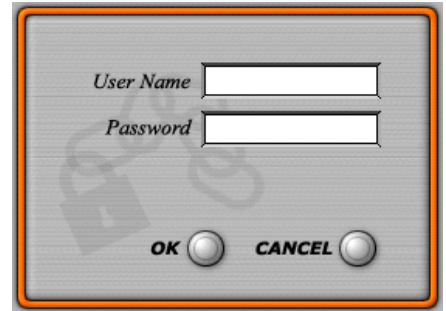
c.f.) User name and password are same as you set at 'LOG IN'

2) Password on Shutdown

When you click the 'EXIT' button on our main program, you will see this screen if you check 'Password on Shutdown'.

11-2.6   AUTO SWITCHING

In order to select Auto Switching Mode, click 'Enable Auto Switching' and set the time. It will automatically switch video monitoring type (one video, 4 videos, and 8 videos) to the very next camera group per selected time. This is the same function key of Switch button on the main DVR program. This will also switch video outs on analog TV.
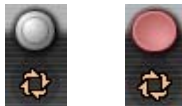
11-2.7   EVENT DETECTION

- Internal speaker notification with Motion Detection: It will automatically make some sound through internal PC
  speaker when motion detection is being triggered.

- Display TV-out with Event: It shows video channel for motion detection on TV monitor.

- Display Event Log file : It shows Log texts in Log window of Main Screen if you check this function. You can select it
  as either Enable or Disable.

11-2.8 DISPLAY

Select your video type between 'PAL' and 'NTSC'.

11-2.9 AUDIO DEVICE

You can select one of 2 Audio Devices which we support.

If you select 'Hera Device', you need to install Comart Hera board on your PC platform.

By using this Hera device, it is possible to record sound data from 16 Audio channels up to Max.44KHz in real time.

It means that you can record not only videos but also Audio data which provide high Audio quality.

Also, you can select 'Sound Device' if you have installed any PC soundcard or AC 97 port on the motherboard that you have. However, this provides you only with one channel Audio recording in our application.
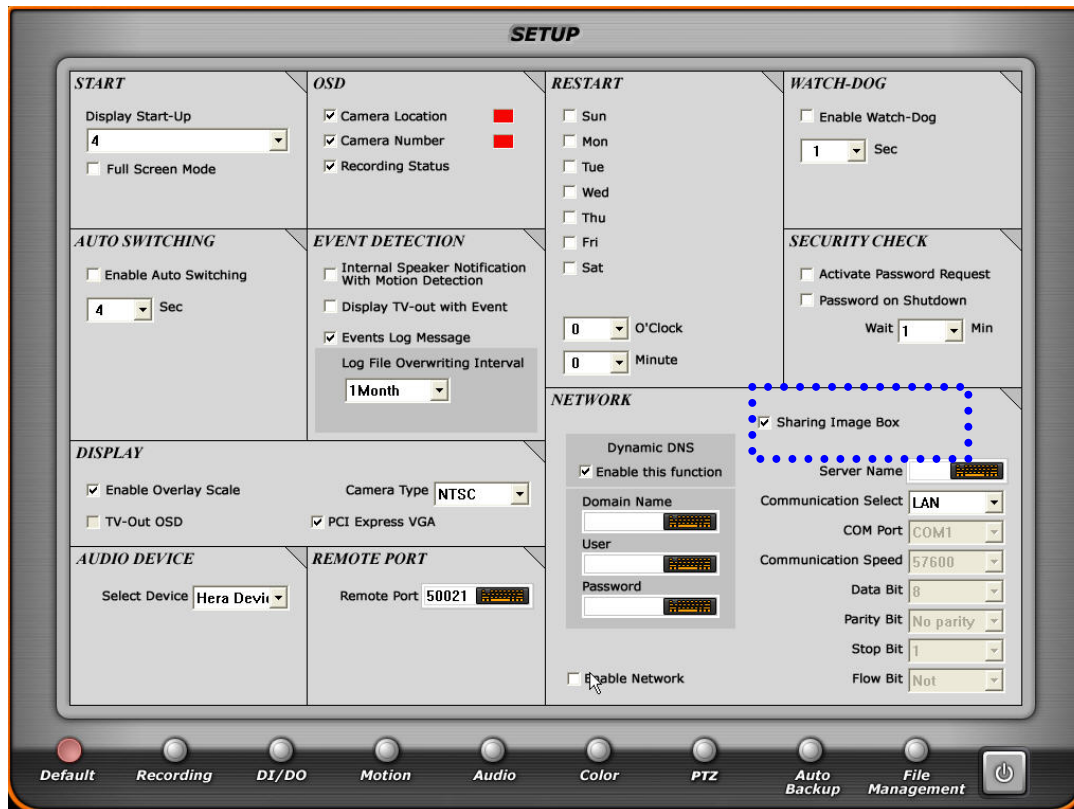
11-2.10 REMOTE PORT

You can select Network port number to make a connection between Main DVR and Remote PC. In case of using Network protection software like Firewall, you can set this port as you like to open. As for your reference, Remote port number has changed "**50021**'" from Ver,.6.1.0 software.

11-2.11 SHARING IMAGE BOX

If you set it as "enable", a folder named 'Imagebox' will be created automatically in this PC. Then if this Main DVR PC is connected with Network, you can playback these imageboxes in other PC using our Backup-Viewer program.

11-2.11   NETWORK

Click 'Enable Network' if you wish to allow remote client systems to be monitored, search recorded images in the main system and save images in remote systems. LAN, ISDN, and PSTN are supported for Software. If the "Enable Network" box is not checked, remote client access will not be allowed.

If you check 'Enable Network' and "LAN" but if no Ethernet cards on your system, then it comes up saying that 'Address in the specified family cannot be used with this socket'. It does not shut down your system but just warns you that you have no Ethernet card on it.

Click "Enable this function on Dynamic DNS" section to allow remote client systems to monitor, search recorded images in the main system and save images through remote systems by CCTV DDNS. To get the Domain name, please visit www.cctvddns.com and create new account as follows;
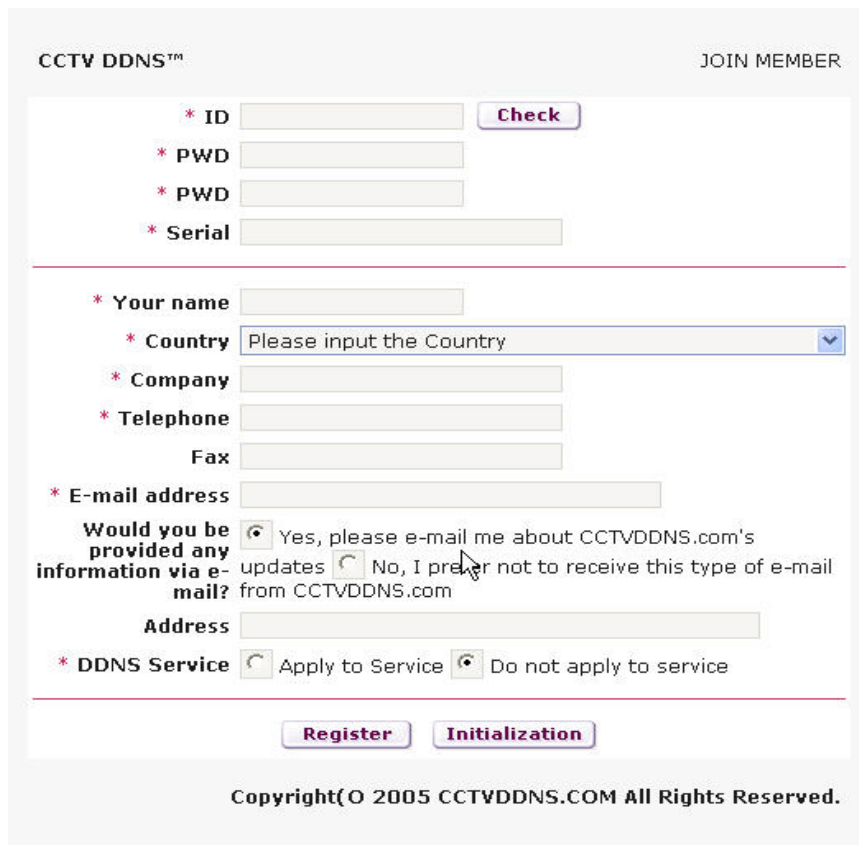
Click "Create Account" to continue

User should register to CCTVDDNS to get Server Information such a domain name.

Fill out the form on the screen after that, press "Register"
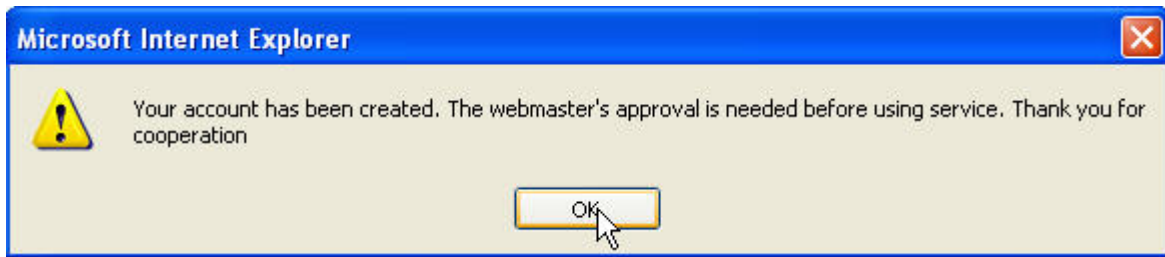
As user complete the form, above message will be shown. After register CCTVDDNS, wait until the account will be approved. The process will be completed within 24 hours.

Completed Register   Insert information
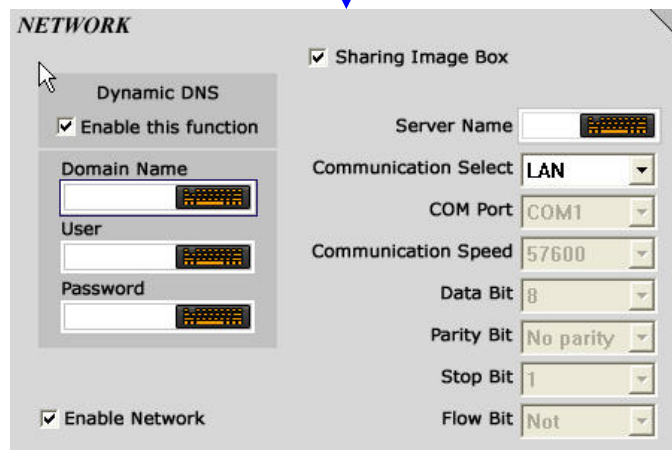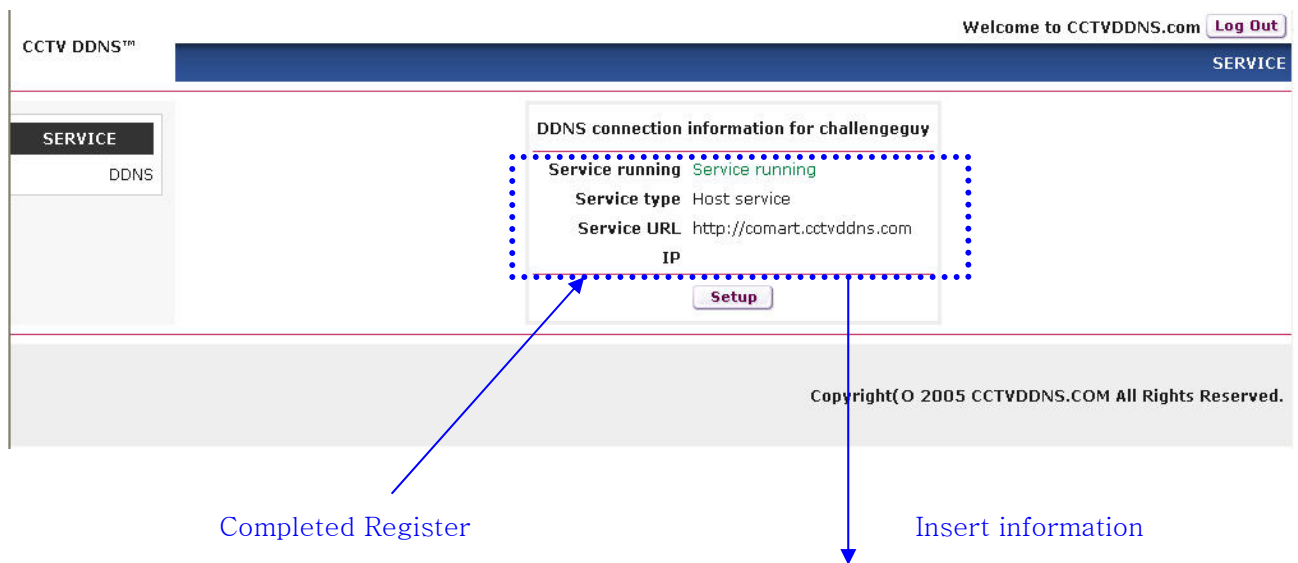
In order to use CCTV DDNS service, click "Enable this function" on CCTV DNS section and insert domain name, user name and password which registered on cctvddns site.

Put all the necessary information from CCTV DDNS.

<CMS LOGIN PART>
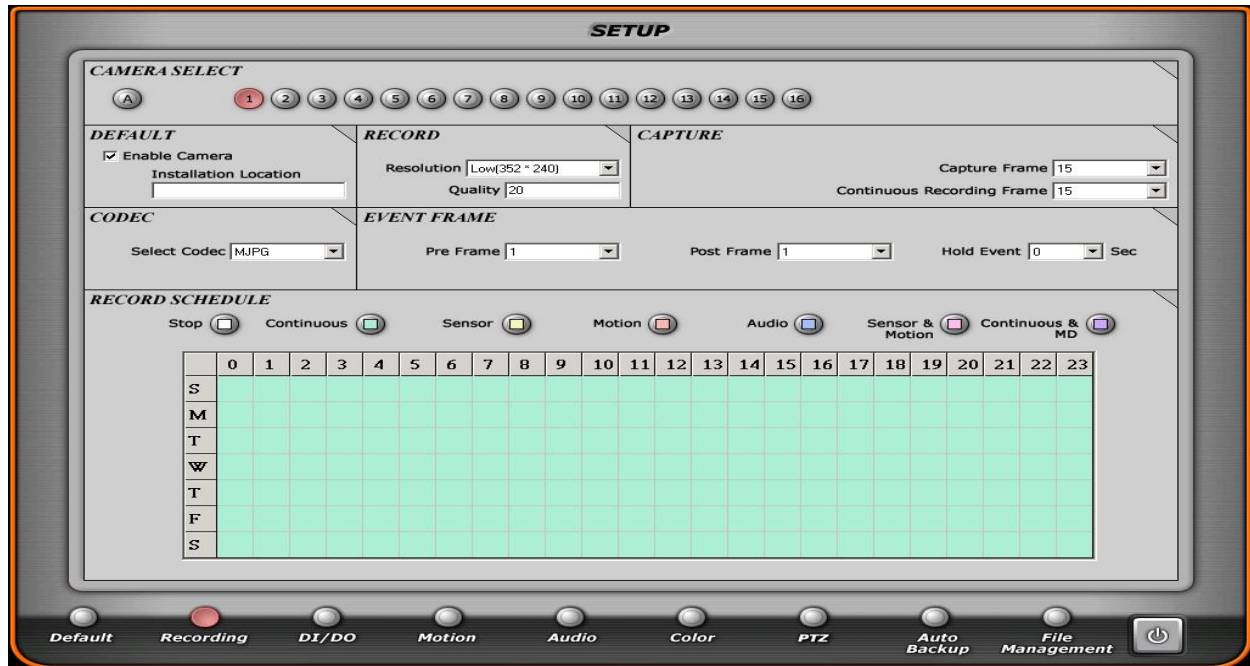
11-3. RECORDING

In order to set up and use this RECORDING part, the following information is very important.

All Comart DVR boards have a maximum recording speed per video type as follows:

Model	NTSC		PAL	
	Max. total fps	Max. fps per Ch.	Max. total fps	Max. fps per Ch.
Hicap50	60	3	50	3
Hicap100	120	7	100	6
Hicap200	240	15	200	12
MIG4ch	120	30	100	25
MID8ch	30	3	25	3
MID16ch	30	1	25	1
MIS8ch	120	15	100	12
MIS16ch	120	7	100	6

The maximum recording speed is the ideal fps from our DVR board and it may not be the same.

Now, you need to know that there is a video recording chip on each Comart DVR board. Each recording chip can record videos at max. 30 fps in NTSC and 25 fps in PAL. So, there are numbers of video recording chip on each Comart DVR board as follows.

Model	Chip No.	Cameras
Hicap50	Decoder – 1	Camera no. 1, 3, 5, 7, 9, 11, 13, 15
	Decoder – 2	Camera no. 2, 4, 6, 8, 10, 12, 14, 16
Hicap100	Decoder – 1	Camera no. 1, 5, 9, 13
	Decoder – 2	Camera no. 2, 6, 10, 14
	Decoder – 3	Camera no. 3, 7, 11, 15
	Decoder – 4	Camera no. 4, 8, 12, 16
Hicap200	Decoder – 1	Camera no. 1, 9
	Decoder – 2	Camera no. 2, 10
	Decoder – 3	Camera no. 3, 11
	Decoder – 4	Camera no. 4, 12
	Decoder – 5	Camera no. 5, 13
	Decoder – 6	Camera no. 6, 14
	Decoder – 7	Camera no. 7, 15
	Decoder – 8	Camera no. 8, 16
MIG4ch	Decoder – 1	Camera no. 1
	Decoder – 2	Camera no. 2
	Decoder – 3	Camera no. 3
	Decoder – 4	Camera no. 4
MID8ch	Decoder – 1	Camera no. 1, 2, 3, 4, 5, 6, 7, 8
MID16ch	Decoder – 1	Camera no. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
MIS8ch	Decoder – 1	Camera no. 1, 5
	Decoder – 2	Camera no. 2, 6
	Decoder – 3	Camera no. 3, 7
	Decoder – 4	Camera no. 4, 8
MIS16ch	Decoder – 1	Camera no. 1, 5, 9, 13
	Decoder – 2	Camera no. 2, 6, 10, 14
	Decoder – 3	Camera no. 3, 7, 11, 15
	Decoder – 4	Camera no. 4, 8, 12, 16

In order to share the chip, cameras are hooked up differently in each model as you can see.

For example, when you connect only 4 cameras with a Hicap50 to camera 1, 2, 3, and 4, the each recording frame you can get Max. per channel will be 15fps in NTSC and 12fps in PAL.

However, if you connect to camera 1, 3, 5, and 7, you use only one chip and the maximum frame will be 30fps. So, the each recording frame you can get Max. per channel will be 7fps in NTSC and 6fps in PAL.

When you slice vide frames per channel, you can set up recording frames differently per channel. In the same recording chip group, you can slice video frames as you like.

In Hicap100, you can slice 30fps for 4 cameras instead of setting up the recording frame equal to every camera. You can set Camera 1 at 10fps and provide the left frames for other cameras. In this case, you reduce frame rate first to provide more frame rate to other channels.

Please note that MIG4ch is a bit different from other models. Although you set up each recording speed differently per channel, MIG4ch has a trend to record videos at the highest frame you set for any camera.

11-3.1   CAMERA SELECT

You can choose any camera number by clicking the numbers. Then, you can individually set options you like per each camera.

If you click 'A', it automatically set 'Capture Frame' and 'Continuous Recording Frame' to average frame for every camera channel. After you set all options for any camera channel, it will automatically change what you have chosen into other camera channels as well except the case 'Capture Frame' and 'Continuous Recording Frame' are set when you click 'A'.

If you want to adjust 'Capture Frame' and 'Continuous Recording Frame' per each camera, you should not click 'A' because it will make every camera's frame to the default rate as average.

11-3.2   DEFAULT

Click 'Enable Camera' if you want to use the selected camera. Then, the other options will be enabled to be selected.

If you click 'Camera Position' on OSD Mode of DEFAULT SETUP page, what you name in the box of Installation Location will be displayed while monitoring.

11-3.3   RECORD

In our Application program, we support three resolutions such as Low(352*240), High(704*240), and Progressive(704*480).

Regarding High resolution (704*480:NTSC, 704*576:PAL), do not select 704*480 in our application unless you use a progressive camera. It means that you actually record interlaced videos at this resolution. To record videos at 704*480 without interlaced videos, you must use Progressive CCTV cameras.

Otherwise, you generally have to select High(704*240) to record videos at 704*480, then it captures videos at a semi-high resolution like 704*240 and stretch the video out to 704*480 for Playback. Applying this way, it can be possible to get 704*480 screen in our application.

The video images recorded in 704*240 resolution provide non-interlaced videos than ones recorded in 704*480.

There are some limitations on choosing video resolutions due to computer PCI bandwidth.

Therefore, we recommend you to select video resolutions according to the following;

- Required data size per Video Resolution

Low Video Resolution (352*240) per Recording chip group: 5MB/sec

High Video Resolution (704*240) per Recording chip group: 10MB/sec

Progressive Video Resolution (704*480) per Recording chip group: 20MB/sec

Live Display board requires basically 20MB/sec.

So, you have a limitation to select a video resolution for recording chip groups with some DVR models.

Hicap50   : 2 Recording chips- 10~40MB/sec (No problem with any resolutions mixed)

Hicap100   : 4 Recording chips- 20~80MB/sec (Should be lower than 60MB/sec always)

Hicap200   : 8 Recording chips- 40~160MB/sec (Should be lower than 60MB/sec always)

MIG4ch   : 4 Recording chips- 20~80MB/sec+20MB/sec (Should be lower than 60MB/sec always)

MID series   : 1 Recording chip- 5~20MB/sec+20MB/sec (No problem with any resolutions mixed)

MIS series   : 4 Recording chip- 20~80MB/sec+20MB/sec (Should be lower than 60MB/sec always)

For Hicap100, Hicap200, MIG4ch and MIS series, you need to take care of the video resolutions per the group to avoid distorted videos.   As many as you mix different resolutions, the maximum recording speed you can get will be decreasing. So, if you need to record cameras at a different video resolution, it'd be better get same resolution cameras in the same video group so that you can avoid losing many frames from it.

You can select between 1~99 for Quality with MJPEG. The more you select high quality, the more you can get clear and vivid images, however its file size will be bigger.
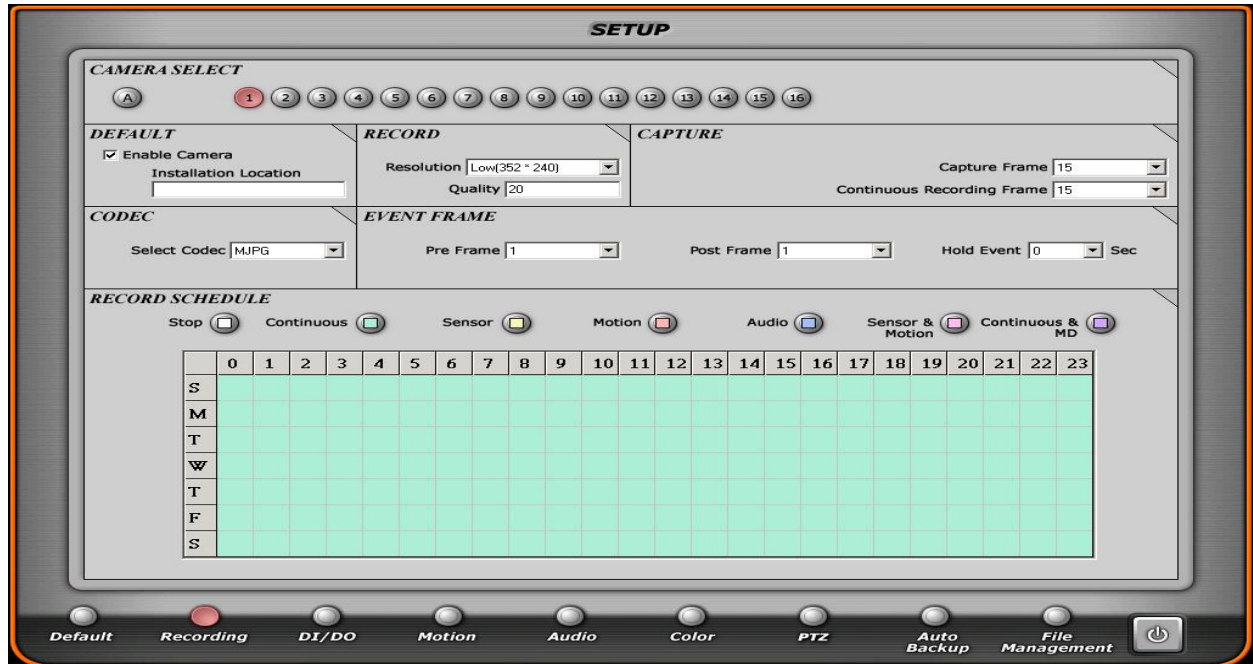

11-3.4   CAPTURE

Capture Frame is the frame rate per second that Hicap series display videos on the Main software in our application. You can add more frame rate on any channel after you reduce frame rates from other channels in the same Recording chip group. So, it displays and records videos at Capture Frame rate as it is set.

Continuous Recording Frame is used only when you schedule RECORD SCHEDULE with a Continuous mode while Sensor, Motion, Audio, and Sensor & Motion recording modes will record videos at Capture Frame rate. Continuous Recording Frame cannot be higher than Capture Frame so it depends on the Capture Frame rate.

Unlike Hicap series, the display of MIG4ch, MID and MIS series just provide real-live display for monitoring. In these models, Capture Frame does not have any relationship with their Live display at all but only with recording modes. Note that if there is no camera connection; please do not select "Enable Camera".

If you select enable camera which really have no camera input, it might cause unexpected operation
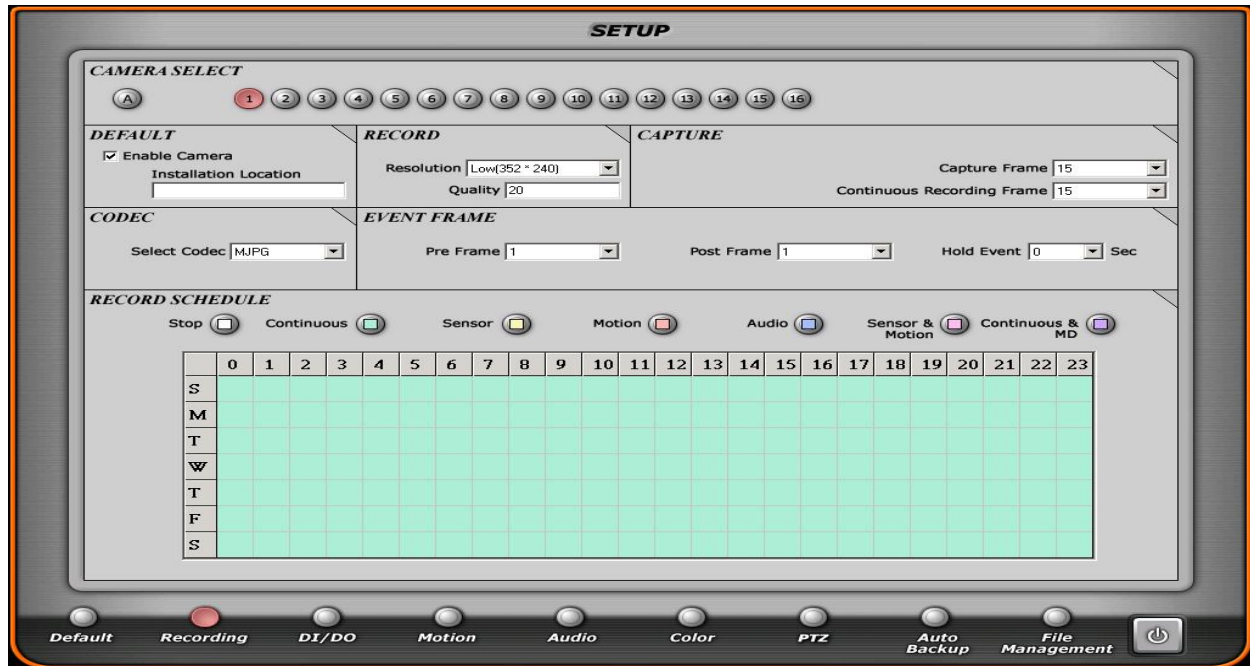
11-3.5   CODEC

You can choose Video Compression Codec we provide between MJPEG, Advanced MPEG4. If you choose MJPG as your video codec, you can get high quality images although the file size is bigger than Advanced MPEG4. Meanwhile, if you prefer smaller file size to the Video quality, we recommend you to choose MPEG4 as the compressed file size of MPEG4 is minimum three or four times smaller than MJPEG.

You can select video compression codec per each camera differently.

** Average File size per codec:

MJPEG	**6 ~ 12 Kbytes**
Advanced MPEG4	**2~5 Kbytes**

11-3.6   EVENT FRAME

In Sensor, Motion, Audio and Sensor & Motion recording mode, you can record up to 3 frames before and after the event triggering with Pre & Post Frame.

By using Hold Event, you can record more video frames when events from Sensor, Motion, Audio and Sensor & Motion modes are triggered.
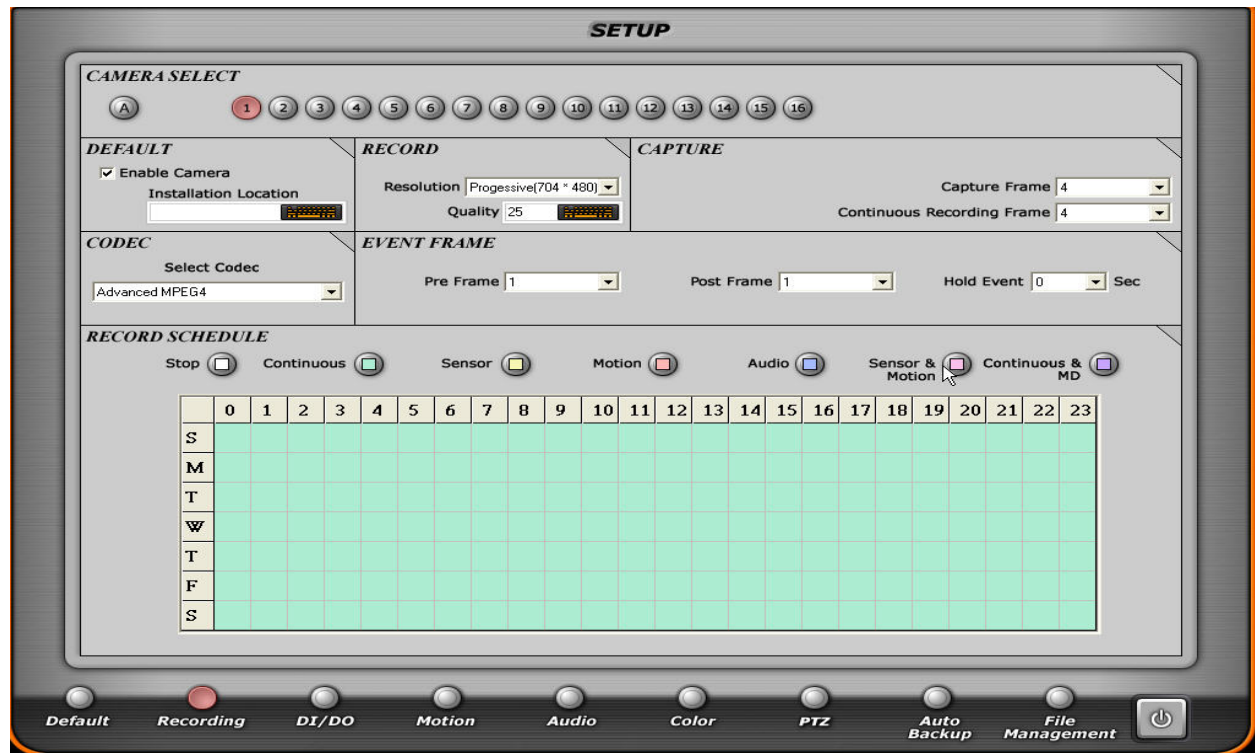
11-3.7   RECORD SCHDULE

You can set up schedules for recording in this mode. Schedule is divided by days and hours. You can select individual blocks or select all the days and hours by clicking the corner blank.

You can select recording modes:

* Stop   Does not record at all. Monitor only.

* Continuous   Continuously records images

* Sensor   Record images when DI sensor signals

* Motion   Record images when motion is detected

* Audio   Record images when Audio is detected

* Sensor & Motion   Record images when DI sensor signals or when motion is detected

* Continuous & MD   Record images continuously but it gives more frames where motion is detected.

When you select Sensor, Motion, Audio or Sensor & Motion for recording videos, it is very important that you also need to go to DI/DO, Motion and Audio sections for setting up conditions to record videos.

11-4. DI/O
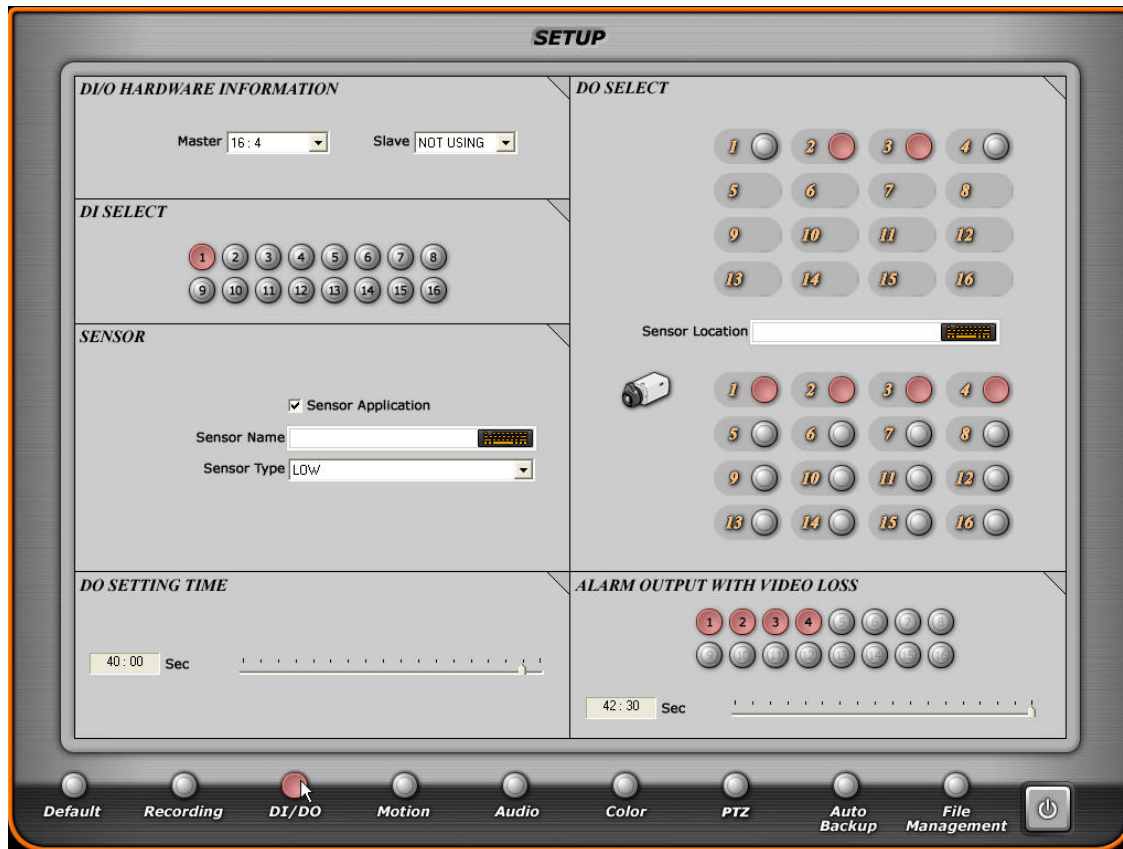
If you have installed our DIO guide or BNC back panel, you can use sensor input and alarm output functions. To use this mode, you have to have already selected the same video channel with Sensor recording mode in Recording setup.

11-4.1   DI SELECT: Select any of 16 Sensor Inputs.

11-4.2   SENSOR

Must click 'Sensor Application' to use this sensor.

Sensor Name   : You can name this selected DI kinds.

Sensor Type   : Choose sensor type between these below.

0 : Low-active(1→0)   1 : High-active(0→1)
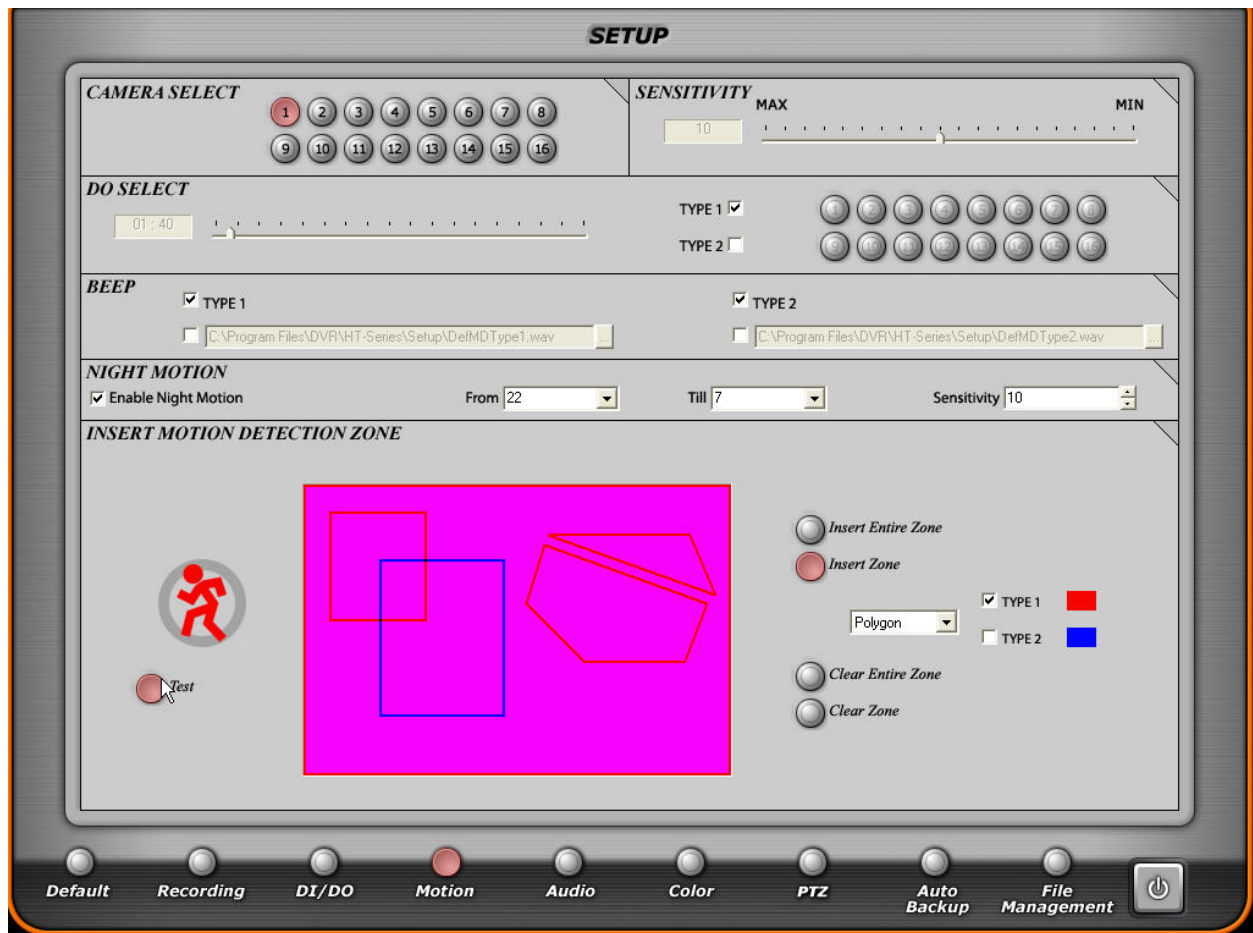
11-4.3   DO SELECT : Click DO numbers you want to hook up with the selected DI

Sensor Location   : You can name where the DI is installed.

Camera Number   : Select cameras that you want to record videos with the selected sensor triggered.

DO setting time   : Select how long you want to give signals to DO sensors.

11-5. MOTION

11-5.1   CAMERA SELECT

Select a camera to trigger Motion Detection.

11-5.2   SENSITIVITY

You can adjust the sensitivity on detecting Motions. As closed to 1, the sensitivity level goes more sensitive.

11-5.3   DO SELECT

If you installed Comart DIO board or Back panel, you can use DO to assign Alarms to trigger with Motion Detected. Click DO numbers you want to connect with the selected camera. Then, select how long you want to assign for DOs you select.

11-5.4   NIGHT MOTION

During night times, it depends on camera quality but they usually take a lot of video noises. So, although you set up a right value for day times for Motion Detection, this video channel may keep recording videos all night long. To avoid this problem, you click Enable Night Motion. Then, you can set times and different value for night times.

11-5.5   INSERT MOTION DETECTION ZONE

You can select each individual camera one by one and insert motion detection zones (up to 16 zones) by clicking on the "Insert Zone" box and drawing in boxed zones. Then, click "Test". It will display motion signs as shown above if there is any motion detected. By clicking "Insert Entire Zone", you will select the whole box automatically.

- Insert Entire Zone

  You can select when you wish to set whole area as motion detection zone.

  However, as the motion detection zone is smaller, it is much more sensitive than when it's not set as motion detection zone at the same condition of sensitivity.

- Clear Zone

  You can remove motion detection zone you created one by one by clicking left mouse button.

- Clear Entire Zone

  You can remove whole area you created by setting Insert Entire Zone

Moreover, there are two selectable types its Red and Blue. The main difference is as user indicate specific zone, user can decide important level with sound. User can set the different alarms with different types.

For example, there is room with safety then user indicates safety zone with red line and other areas with blue line on the screen. Therefore, user can distinguish what happen and which area is detected by sound.

The sensitivity of Motion Detection in our application is from the percentage of changed pixels in selected Zone. This is very important to understand this concept clearly so that you use our application well without any problem with your customer.

When you insert a small zone in the box, let's say there are 500 pixels and you set the sensitivity level as 1 for example. In this case, our application will detect Motions when at least over 5 pixels are different from the very previous video frame.

At the same video camera above, you insert a smaller zone this time and let's say there are 100 pixels at the same sensitivity level condition. In this case, our application will detect Motions with at least over 1 pixel is different from the very previous video frame.

As it describes above, a smaller MD zone is more sensitive than big one at the same sensitivity condition. If there is more than 1 MD zone in the box, our application set the condition with the smallest MD zone for the percentage concept.

If it monitors kind of a long range, objects are probably smaller than one in real. In this case, although you set the sensitivity level as 1 with an entire zone selected, it will not detect video motion detections at all. So, you'd better break some more zones instead of one although CPU becomes a bit busier.

11-6. AUDIO
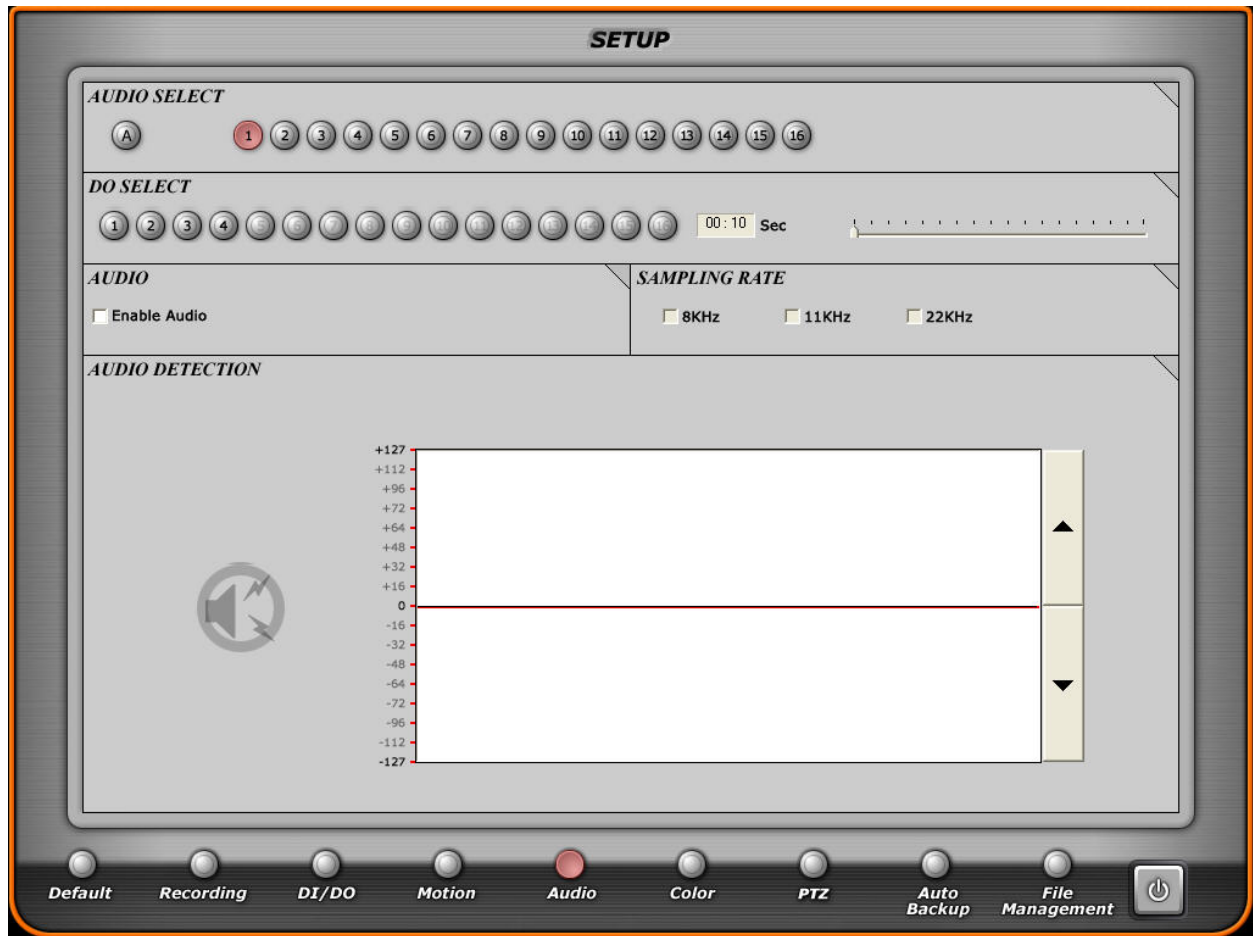
11-6. AUDIO SELECT

If you have installed Hera or AC97 and select AUIDO channels here, you will be able to record audios with videos. Like Recording and DI/DO, if you have set Audio Recording mode with Audio Detection, you must select the same audio channel with video here and set the options as you like.

11-6.1 DO SELECT

If you installed Comart DIO board or Back panel, you can use DO to assign Alarms to trigger with Audio Detected. Click DO numbers you want to connect with the selected camera. Then, select how long you want to assign for DOs you select.

11-6.2 AUDIO

If you use a Hera board, you can select all audio channels but you will be able to select only one with AC97. The data from each audio channel will be together with the same channel video. Click "Enable Audio" to use and set "Recording Time" to record audio data for the seconds you set up with Audio Detection.

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11-6.3   SAMPLING RATE

'Sampling Rate' is referred to the Audio sound level to record. The higher you select the rate, the clearer the recorded sound you'll get. In the mean time, the size of recorded Audio file will be bigger when you select a higher bit rate.

11-6.4   AUDIO DETECTION

If you want to record Audio data by using this Audio Detection function, you need to adjust the height of two red lines for the sensitivity of Audio detection. Audio data between two red lines will be ignored. The data out of two red lines as you can see above will be detected and recorded in our application. Once it is detected, you will see signs like left.

The default setting of this Audio Detection window is referred to 0. There is no gap between two red lines. In this case, our program could detect Audio data although there is no Audio input with some noisy. Then, the system will recognize it as Audio detected.

## 11-7 COLOR
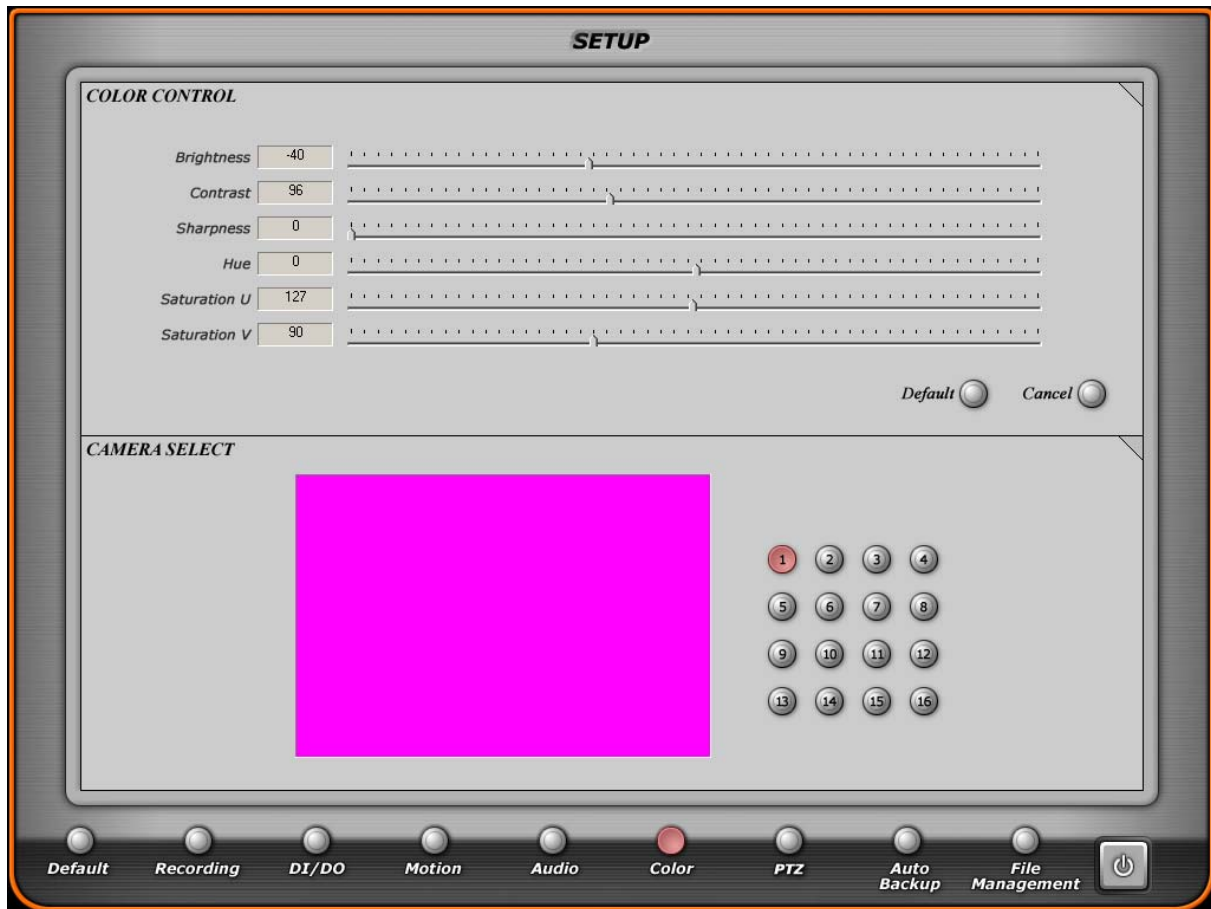
11-7.1   COLOR CONTROL

You can adjust Brightness, Contrast, Sharpness, Hue, Saturation U, and Saturation V independently for each camera as you like.

Saturation U is referred to control brightness of blue color and Saturation V is referred to control brightness of red color.

11-7.2   CAMERA SELECT

Select camera number that you want to adjust the color setting.

11-8 PTZ
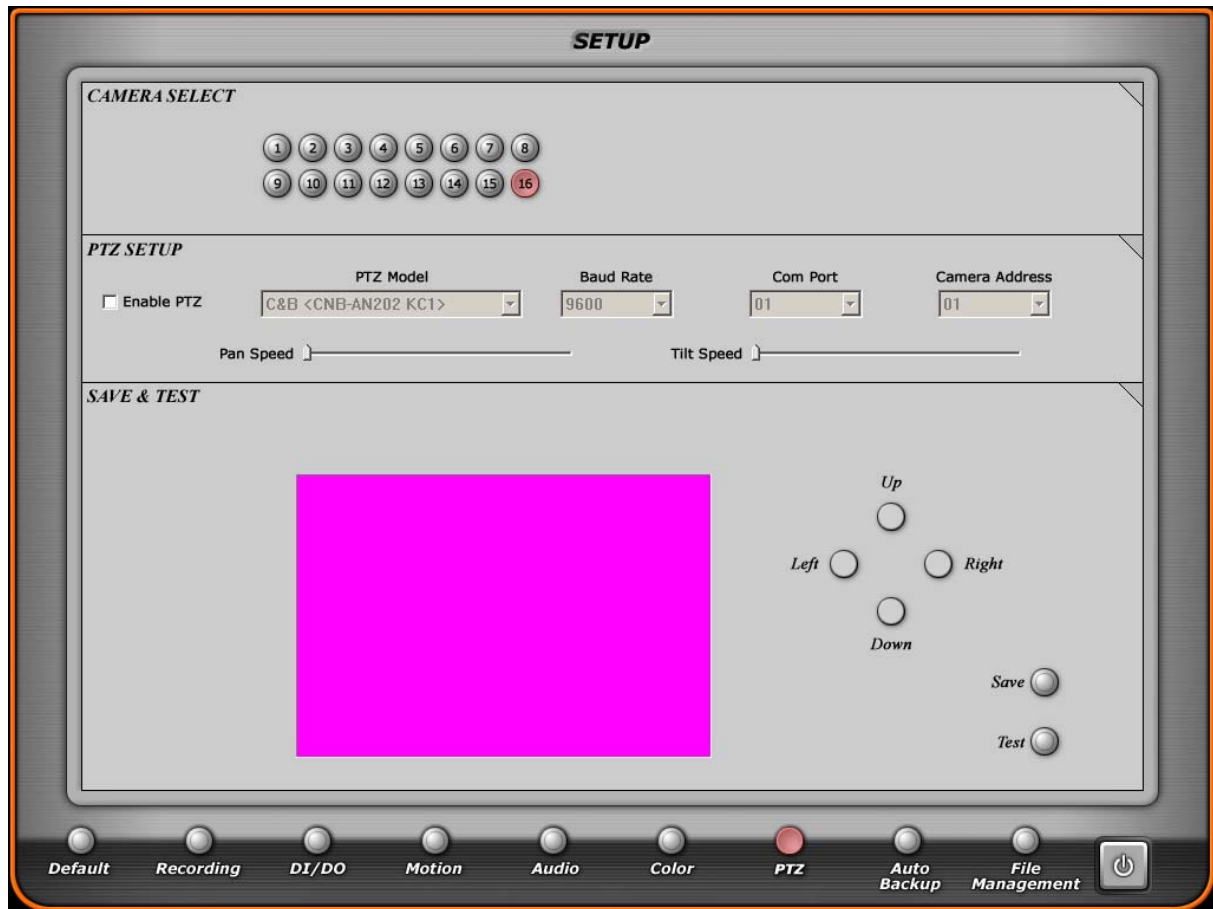
If you have pan/tilt devices you want to control, click 'Enable PTZ' and choose the right protocol and the port you want to use among those we support and click **Save** to confirm. If you have any Pan/Tilt brand you wish to use, we can implement the brand into our Application software but need you to send us a sample PTZ and its protocol.

11-9 AUTO BACKUP
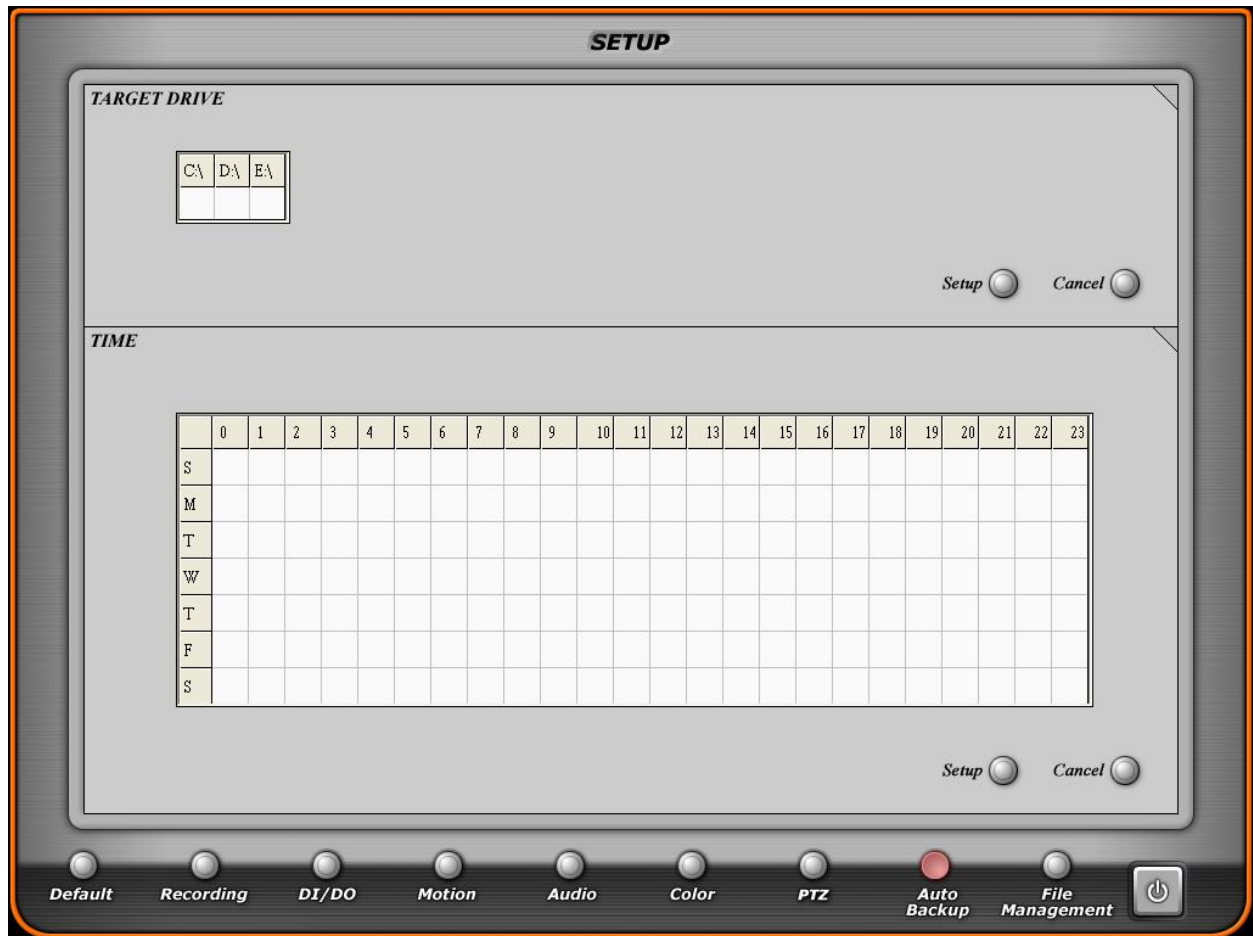
You can backup automatically as you set the day and time in this setting.

11-9.1   TARGET DRIVE

You can select physical drive to backup recorded videos and it's possible to select a multitude of drives. However, our application program does not support CD-RW directly for now.

11-9.2   TIME

It will automatically backup at selected time to the target drive as you set.

11-10   FILE MANAGEMENT
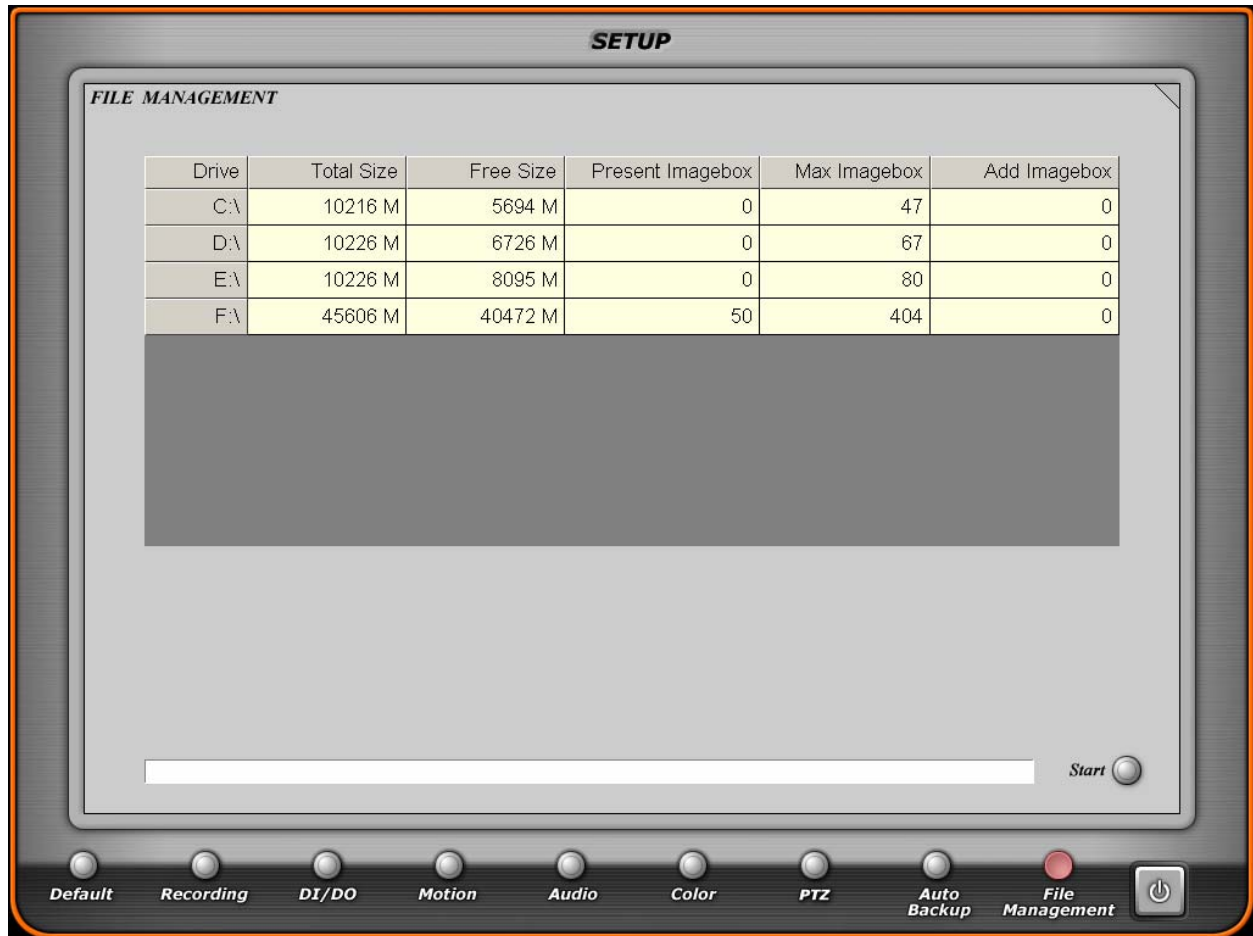
The file management function allows you to efficiently use your hard drive space. It displays the size and location of hard drives in use and free space remaining. The size of one image-box is about 100M bytes. You need to create image-boxes that the application program uses to store images. The application program only saves images in the image-boxes you create. When all the image-boxes are full, the program deletes the one the oldest video of the image-box and can write new images. Therefore, if you want to save old image data longer, you need to add more image-boxes on your hard drive.

If you use HERA audio board to record 16CH audio with image, you need to remain maximum 30% of total HDD capacity. For example. If you're going to create 100GBytes Image box for Video Recording space, we recommend you to have more 30GB space for 16ch audio recording.

   Present Image-box   : shows you how many image-boxes you have made.

   Add Image-box   : shows the number of image-boxes you can add.

To add more image-boxes, click the box that is below 'Add Imagebox'. Scroll down and select the number of image-boxes you wish to make. Then, you must click 'Start' button.

When you install hard drives with a CD-ROM drive, the CD-ROM drive should be installed as the last drive. If you install a CD-ROM drive before any hard drives, our application can not really check HDDs after CD-ROM.

We are using a special data recording system using Image box.

In this system, until you fill one image-box up with video data, you are not able to playback the videos in the current image box you are using to record videos.

If you have must-see videos in the current image box, you need to exit the main application first and run the Search program only if one image box is not full. Then, you can playback videos.
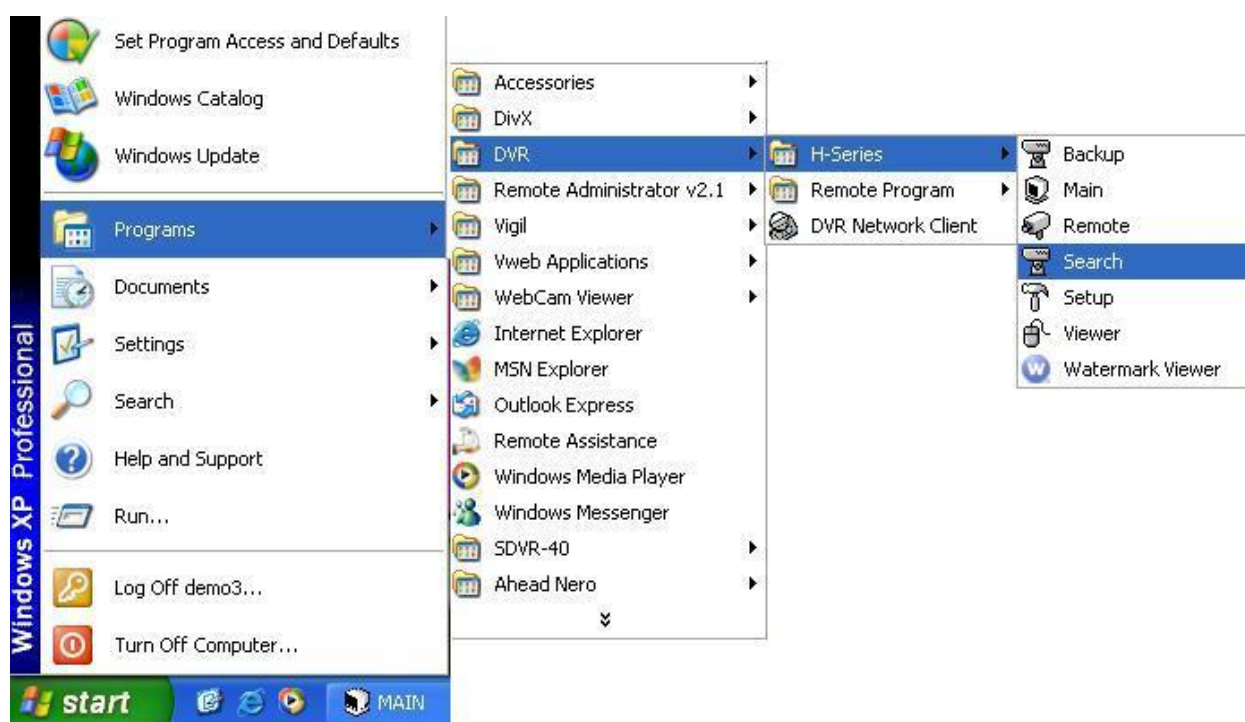
Click start button and you can 'Run' our Search program only to playback.

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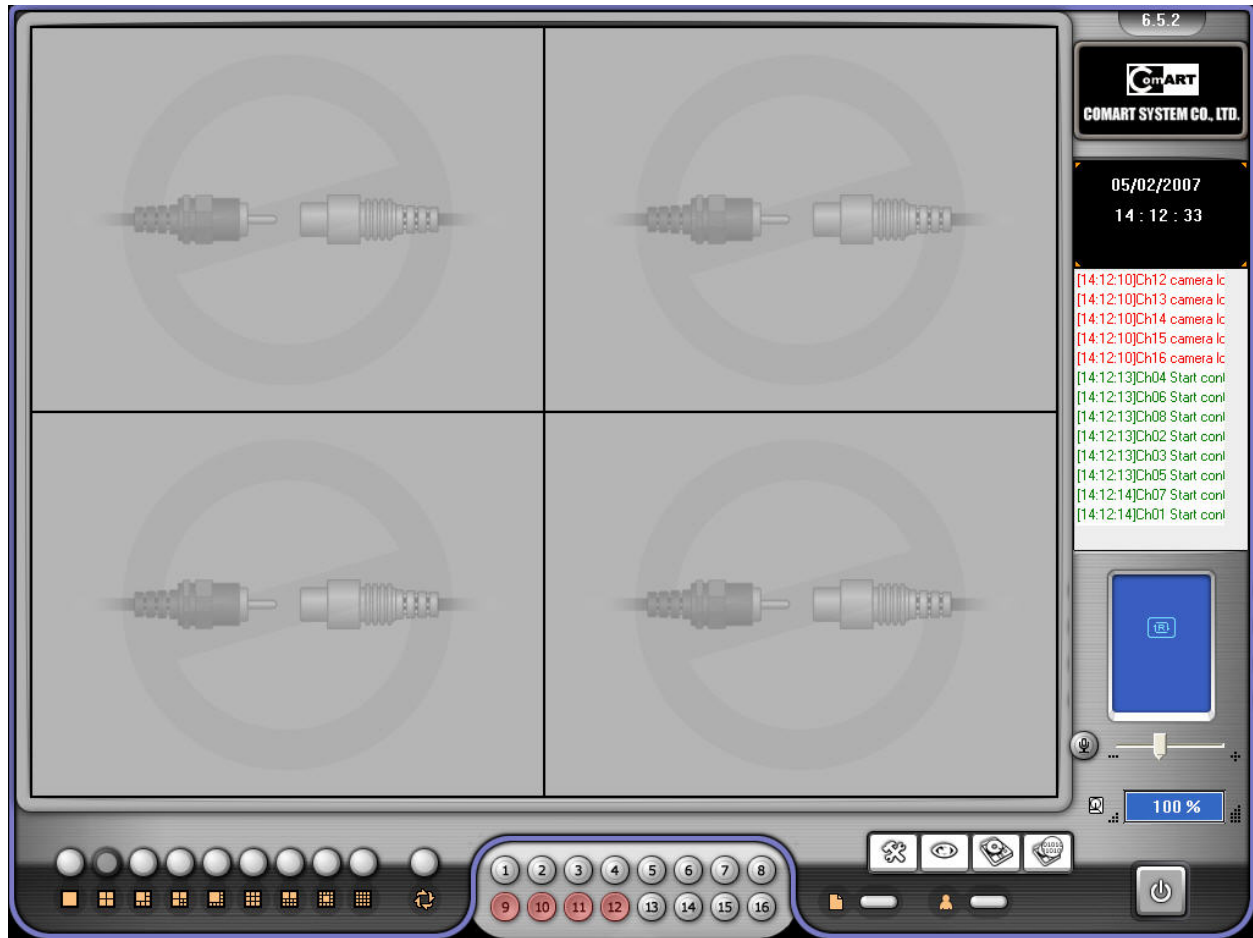
12   MAIN PROGRAM

When you are done setting in the setup screen, click 'EXIT' button. The screen will change to the main application program as above.

Changing Mode Button

    Click to go to the 'Setup' screen

    Click to go to the 'Search' screen.

    Click to go to the 'Backup' screen

     Click to go to the 'Backup viewer' screen

12-1 MANUAL RECORDING BUTTON

Click this button to begin recording as continuous mode.

Click this button to see current IP and connected IP address information.

Click this button to displays the information of current user. Moreover, user can add new user so that allow others to access DVR..

12-2 PTZ CONTROL BUTTON

To use this function, you must click 'Enable PTZ' in the Setup program and select a protocol you like to use.

Note that some buttons may not work per protocol model because every protocol does not have all the functions listed on PTZ Control Button below.

Double click to go to PTZ control mode as you see this right screen.

Pan/Tilt Camera Number: You can select number installed pan/tilt camera device.

Auto Pan: The Pan device will move automatically

Camera light: Enables night lighted flash function for PTZ camera with night flash function.

Near/far: Pan/Tilt focus controls for near/far videos

Zoom In/Out: Zoom In/Out controls

Power and Direction Keys: Controls Pan/Tilt movement

1	2	3	4	5	6	7	8	9

c.f.) From our 6.2.3 version, we have added both Sanyo P/T/Z Protocol and ACS P/T/Z Protocol in the Setup Program as in the below:

SANYO <VM-300>   ACS PTZ Protocal

12-3 SCREEN DISPLAY BUTTONS

MIS and MID DVR Boards provide you various monitoring screens as above. Unlike MIS and MID, Hicap series provide 1, 4, 9 and 16 screens only.

If you double click the display screen, it will change in a full screen mode.

When you select unbalanced screens such as no. 3, 4, 6, 7, and 8, if you click right mouse button on any small sized cameras, the camera will be changed into the big screen.

12-4 ROTEATE BUTTON

Click this button to switch automatically, it will automatically switch video monitoring type one video,4 videos, 8 videos as you click the screen display button.

When you click this button above to use this function, you will see this button changed red. If you want to stop this function, just click this button again.
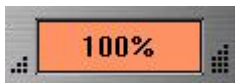
100% Displays current amount of hard disk used by the DVR footage.

03_01_2005
18 : 17 : 02
Ⓡ Displays date, time and status of the DVR.

Ⓐ Indicates images being recorded in 'Always' mode while monitoring

Indicates images being recorded in 'Motion' mode while monitoring

Indicates images being recorded in 'Sensor' mode while monitoring

Ⓜ Indicates images being recorded in 'Manual' mode while monitoring

Indicates images being recorded in 'Audio' mode while monitoring

Audio Input Button: Click to control Audio input volume.

Live audio volume: If you click this button, it will change to this live volume button

This screen will be shown, if there is no camera signal.

This screen will be shown, if there is no camera signal.

.

- Exit Button: Click to exit. The below screen will be showed.

+ System Restart

+ System Shutdown

+ Program Exit

You will see the screen as below, when you click the 'EXIT' button on our main program, if you checked 'Activate Password Request'.

User Name

Password

OK ◯   CANCEL ◯

User name and password should be in accordance with you set at 'LOG IN'

12-5 SYSTEM LOG FILE

Below log widow presents your system status when it has events or any problem.
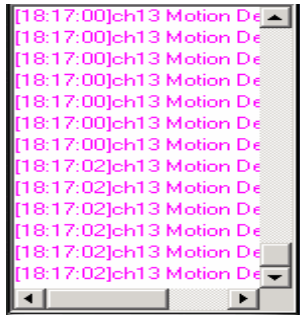
* Note: User need to delete Log File regularly to prevent from being filled to HDD capacity by Log File.

To delete Log File, go to Drive C: and find [ComArtDVRLog] folder and double click.

Then below window of Log File list will be displayed.

If you double click Date, Log File will be displayed as below and check the Log file.

Then please delete as you wish.
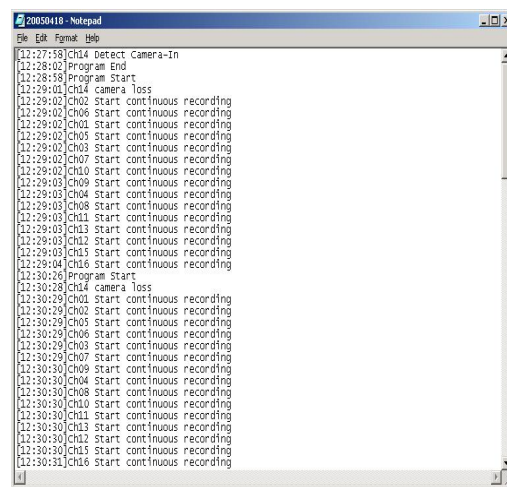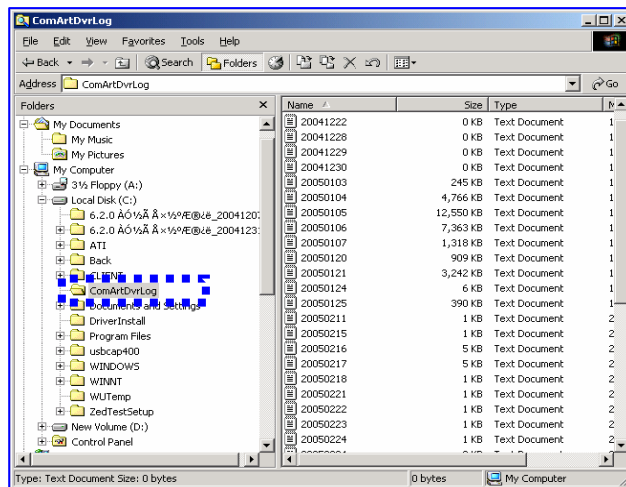
12-6 EASY OUTPUT FUNCTION

If you click right mouse button, you'll see red, green and blue outlines of the picture. This presents you TV Out, Audio Out, TV Out & Audio Out function.

Red outline: Red outline shows you this channel is engaged to TV out. Double click with mouse to change channels. This is only for Hicap series that have a composite video out in full screen.

Green outline: Green outline shows you this channel is engaged to Audio out. You'll hear real-live Audio sound by Audio out function. Click mouse button to change channel. This is for all Comart DVR models.

Blue outline: Blue outline shows you this channel is engaged to TV out and Audio out both at the same time. Since MIG4ch, MID and MIS series do not provide a Hicap video out, this blue screen will not be shown in these models.

Double click left mouse button on screen, will change videos in full video screen.
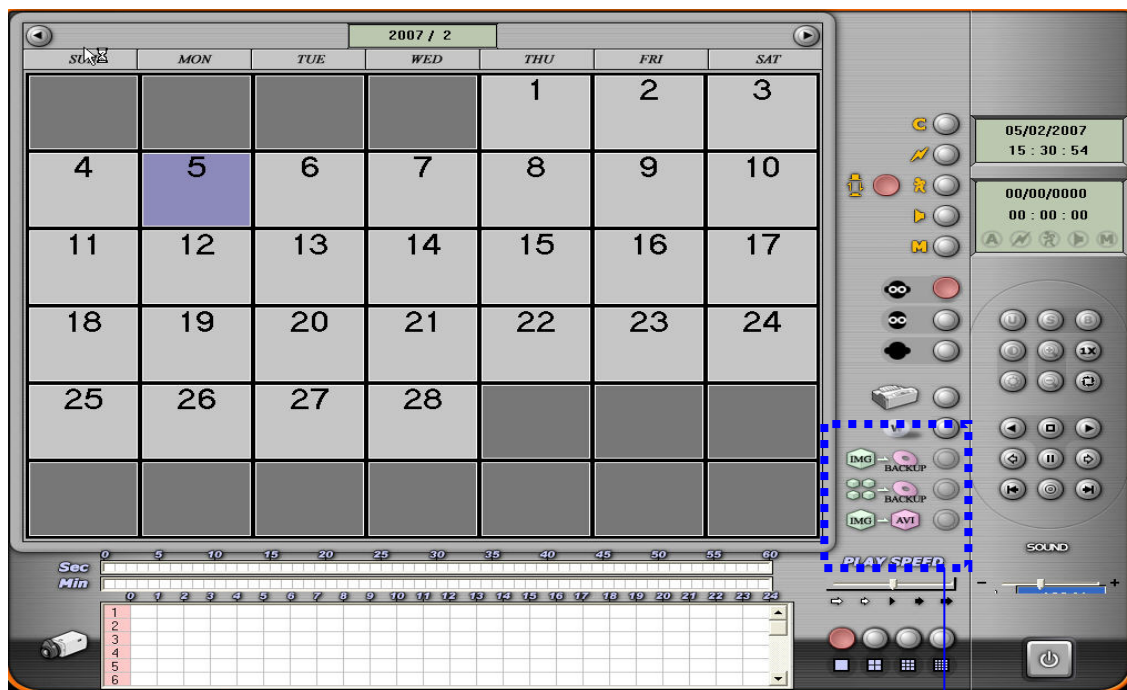
13 SEARCH PROGRAM

Click this button to search. Then below window will be displayed same as back up.

1. Recording is still processing when you enter this window by clicking   button. But recording will be stopped upon clicking back up button.

2. Recording will be stopped when you enter this window by clicking   backup button.

You can search recorded images by Date. If image data is saved in hard drive, the day will be indicated on the calendar with blue-purple.

Clicking a date in blue-purple will bring up Image boxes for the date.

When user has image boxes for a date, click an image box user want to playback. Then, you can see recorded cameras in green color at the bottom of Window.

**Note: You can do search and back up the data simultaneously on this section.

You can choose image box and total image boxes or AVI format. Note that you can choose only one image box to back up for AVI backup.

Click this button to Image box back up

Click this button to AVI back up.

Click this button to back up all image boxes.

To View the footage for October 13, 2005 at 11:14am of camera 2:

1. In the Month Calendar, search for the month of January 2005 by clicking the left or right arrow buttons until the display change to "2005 / 10".

2. Double-click the date "13" on the main calendar. This will display a list of recording for the date October 13, 2005 such as below

File Name	Start Time	End Time	Image Frame	Audio
C:\Imagebox\IMG00000.IDX	15:42:03	17:20:40	13195	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00001.IDX	17:20:40	18:15:01	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00002.IDX	18:15:01	19:15:24	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00003.IDX	19:15:24	20:10:11	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00004.IDX	20:10:11	21: 5:24	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00005.IDX	21: 5:24	22: 0:36	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00006.IDX	22: 0:36	22:55:51	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00007.IDX	22:55:51	23:51:10	32763	O.XXXXXXXXXXXXXXX
C:\Imagebox\IMG00008.IDX	23:51:11	23:59:59	5216	O.XXXXXXXXXXXXXXX

Camera Select and Time Select

3. Search for the filename with the Start Time "11:14:28". Double-click the filename. The Camera Select and Time Select tables will have boxes highlighted in green.

4. Double-click the highlighted box on camera 2 under the "11" column. This will display the first frame in the footage for camera 2.

5. Click the "Play" button denoted by the button similar right :

Then it starts playback as shown below.

* The sign, o/x, shows whether Audio is recorded or not. Above data shows that Audio channel1 was recorded but else were not.
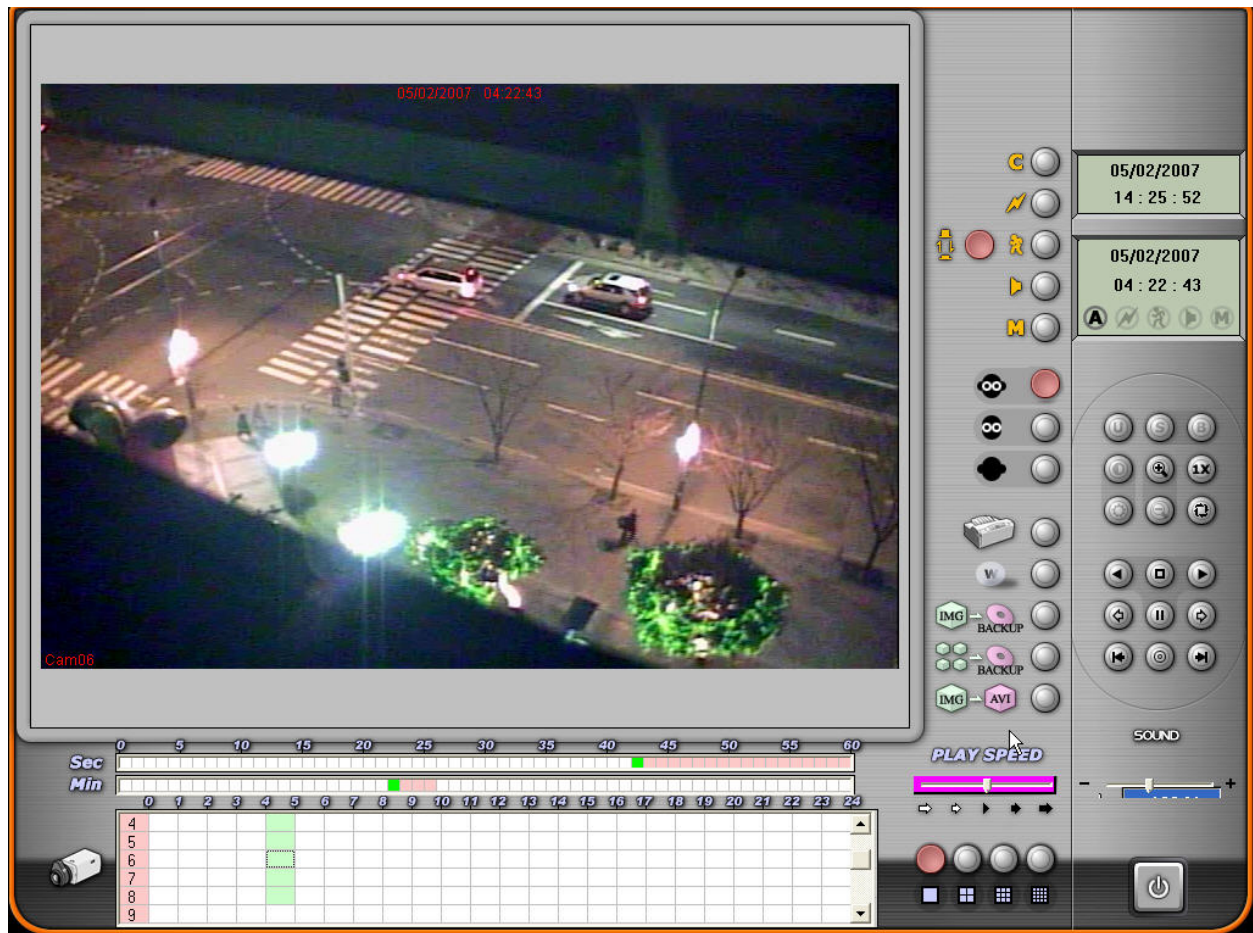
When it starts to playback videos, it starts from the beginning of the time you select.

If you want to playback any specific minute or second, click 'Pause' first and select a time you like to playback in pink color.

Then, when you click 'Pause' key again, it will display the right time you picked. With a vertical side bar, you can select among the 16 cameras to playback if those have some recorded images.

When you wish to playback more than one camera channels, you need to set video playback size to 1X first. Then, select screen division.

When you playback videos, the following information will be provided on the right side of GUI.
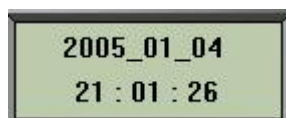
Shows current time and date.

Shows recorded time, date and recording status of playback data

Indicates recorded images were recorded in 'Audio' mode

Indicates recorded images were recorded in 'Motion' mode

Indicates recorded images were recorded in 'Sensor' mode

Indicates recorded images were recorded in 'Always' mode

Indicates recorded images were recorded 'Manually'

Resets recorded image to default

Sharpens recorded video image

Softens recorded video image

Adjust contrast

Adjust Brightness

Enlarge a video image up to four times(200*200)

1 X default display size

Enlarge display size. Note: works only in single display mode

Go back to previous mode

Save button: To save the current frame onto a floppy disk, click 'Pause' then 'Save' button.

Shows previous or the next frame

Rewind the video data to the beginning or the end

Play and reverse play button. You can use reverse play button only when it's one full screen mode.

Note that in case you want to hear recorded Audio data, the split screen mode should be one screen mode and Play Speed should be set on 0. Also, you cannot apply it when you're using Reverse Playback.

One-video display

Four-videos display

Nine-videos display

Sixteen-videos display

Indicates that you want to playback videos with audios

Indicates that you want to playback videos only

Indicates that you want to playback audios only

Print the video image, Note: you must stop playback or pause.

Watermark: Watermark function prevents you from being cheated on falsified image data. In order to use this function, you need to click pause button first during playback since it works for only still image before saving in BMP format.(Refer to page 59. for more details). Then, click the Watermark button. And when you apply this function, the image you apply will be turned out to prove it's the original. At first, you will see the Watermark on the left of upside which means you have applied this function. If someone has falsified the image you applied, falsified zones will be changed into white color so that you can distinguish it's been falsified. To use these functions shown above, you need to click 'Pause' button first.

Adjust the Play Speed

Exit

13-1 EVENT SEARCH
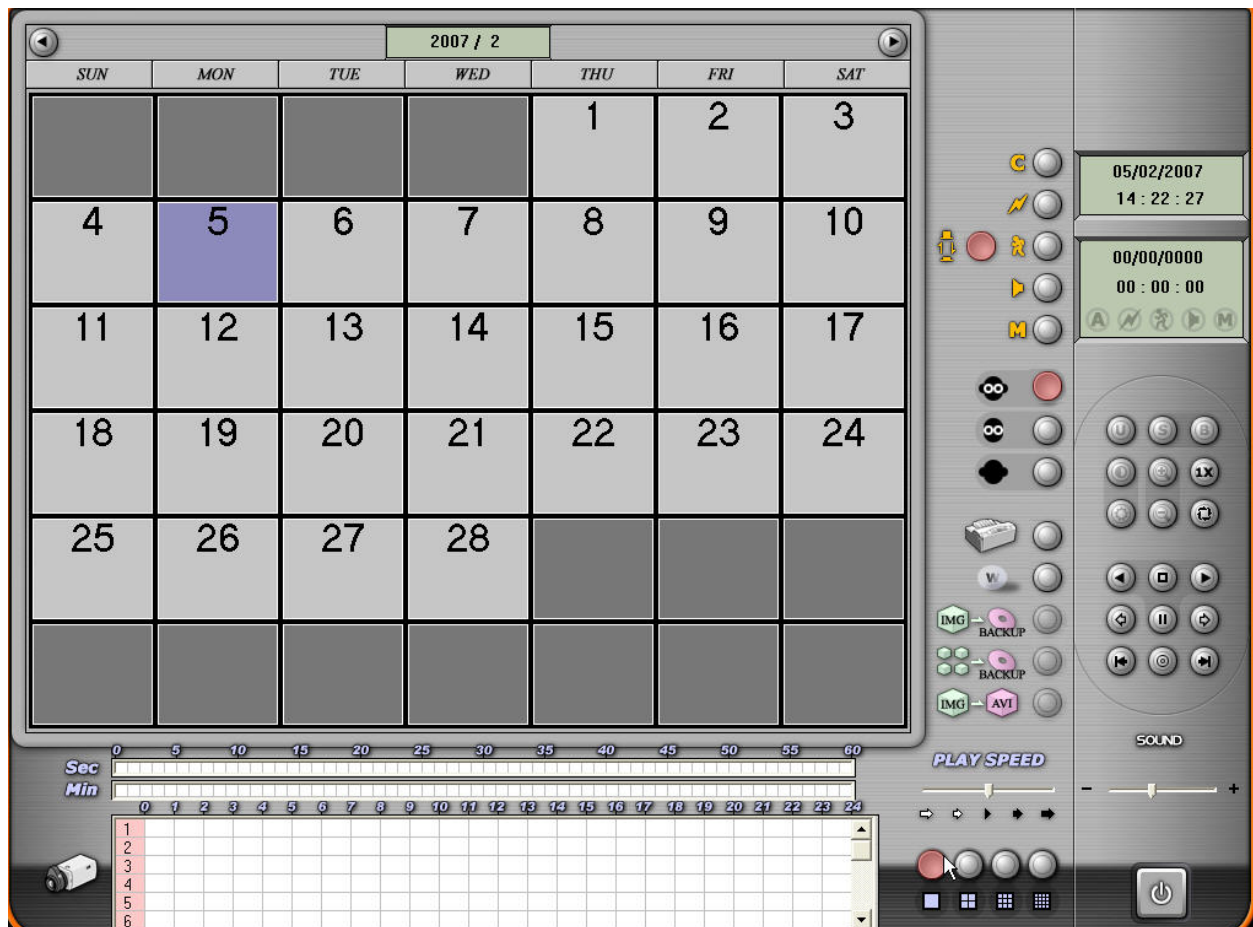
The following buttons are indicated as event search buttons.

 Search by all events

 Continuous recording

 Sensor detection recording

 Motion detection recording

 Audio detection recording

 Manual Recording

If you out how your image box recorded, deselect the buttons above. For example, the green box will disappear by deselecting manual recording button if your image box has been recorded with Manual recording mode. In that way, you can find out how your image has been recorded.

13-2 SAVING IN BMP FORMAT
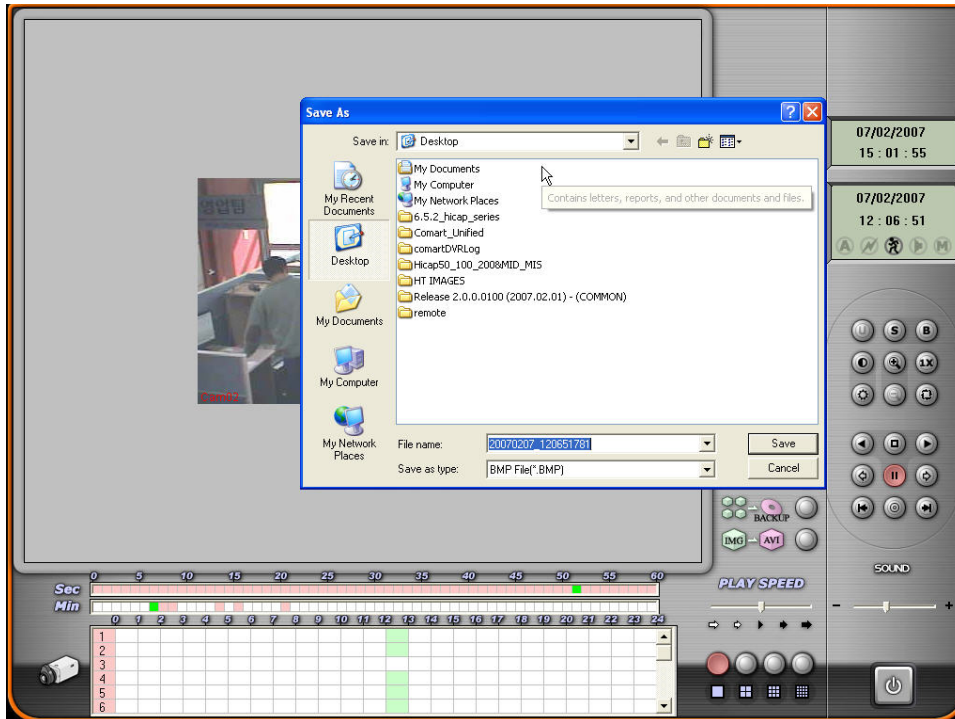
When you want to save a still video image in BMP format to other drives, you need to click 'Pause' button first during playback and then click 'Saving ⊙ Button'.

Then, it creates an automatic file name with the date and the recorded time. According to the same method, you can print a video as well. Our Application is designed to keep recording although you are in this search mode. However, when you go to Setup and Backup mode, the main DVR Application will not be working.

13-3 PRINT
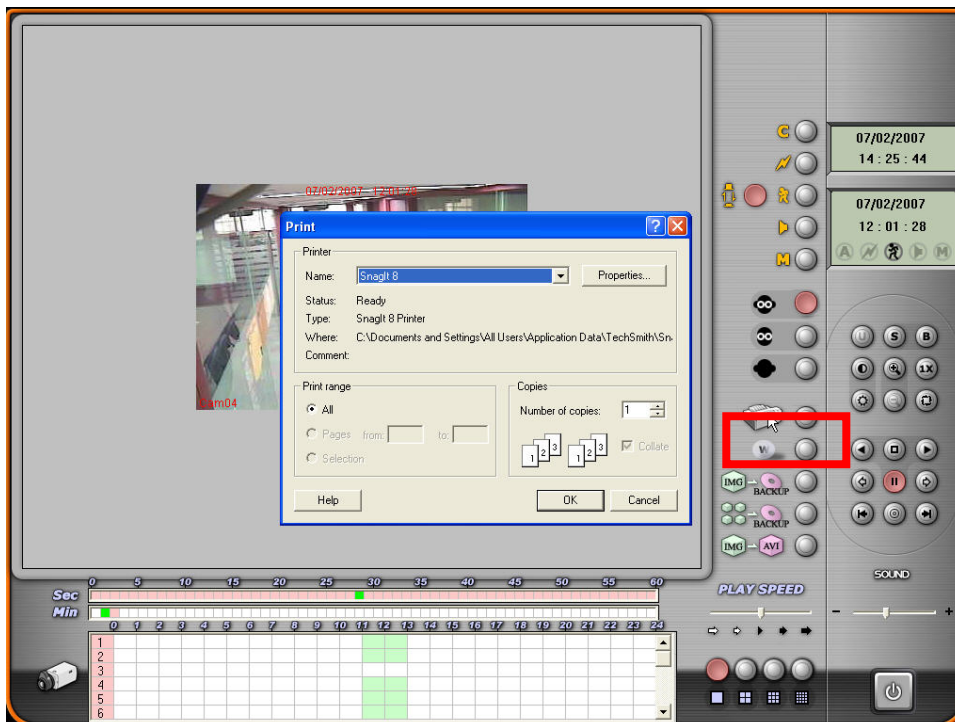
13-4 WATERMARK
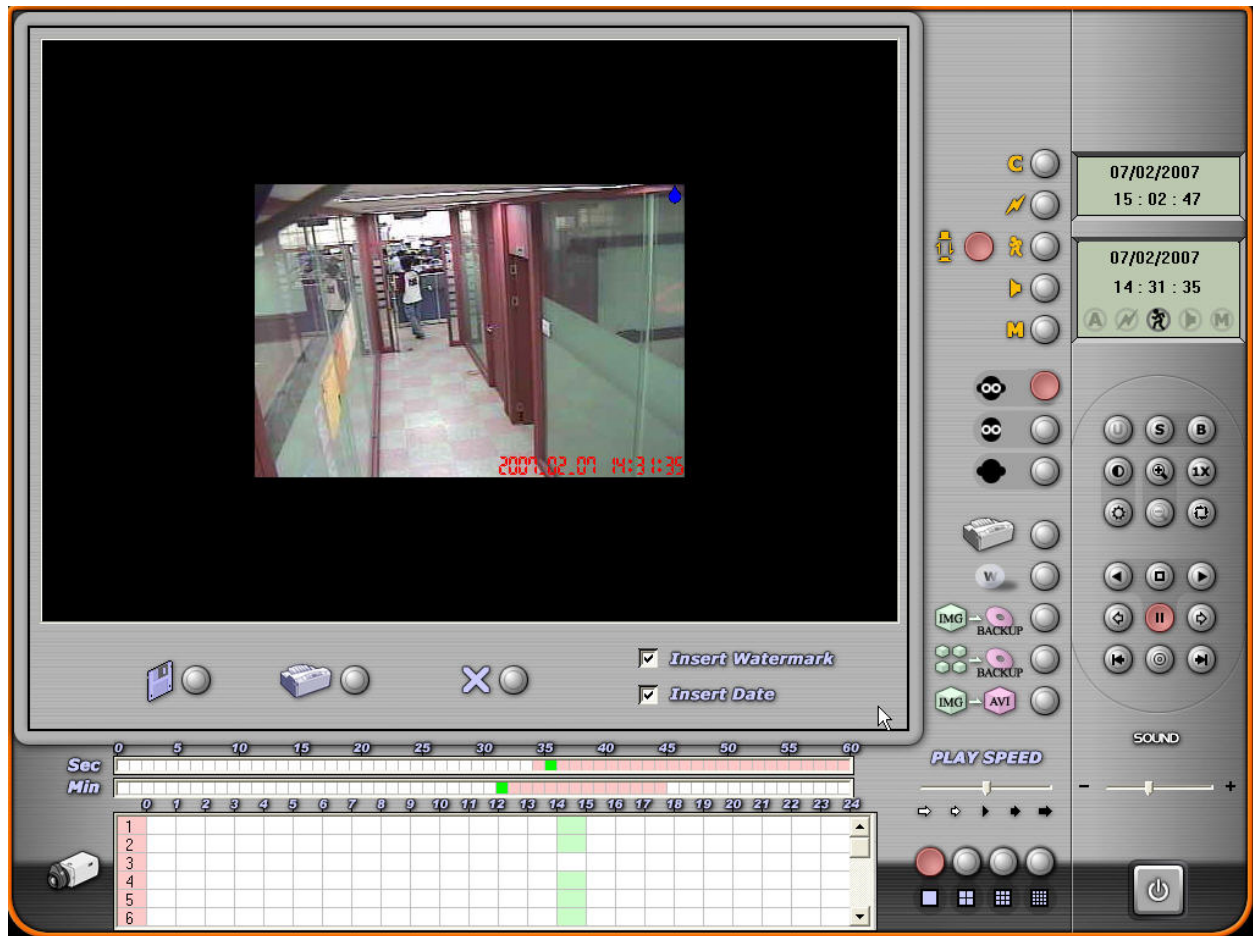
This watermark function is to check whether still image recorded is falsified by someone or not. Then you can verify this still image through watermark viewer whether it is falsified or not. Click watermark button.

Note that you must activate it after pressing Pause button since it works for only still image before saving in BMP format.

Then check "Insert Water mark" and "Insert Date"

Click [button icon] button to save image and click [button icon] button to close the window.

If you want to check the image whether it is falsified or not, click "Start" button and choose "Watermark Viewer" as follows.
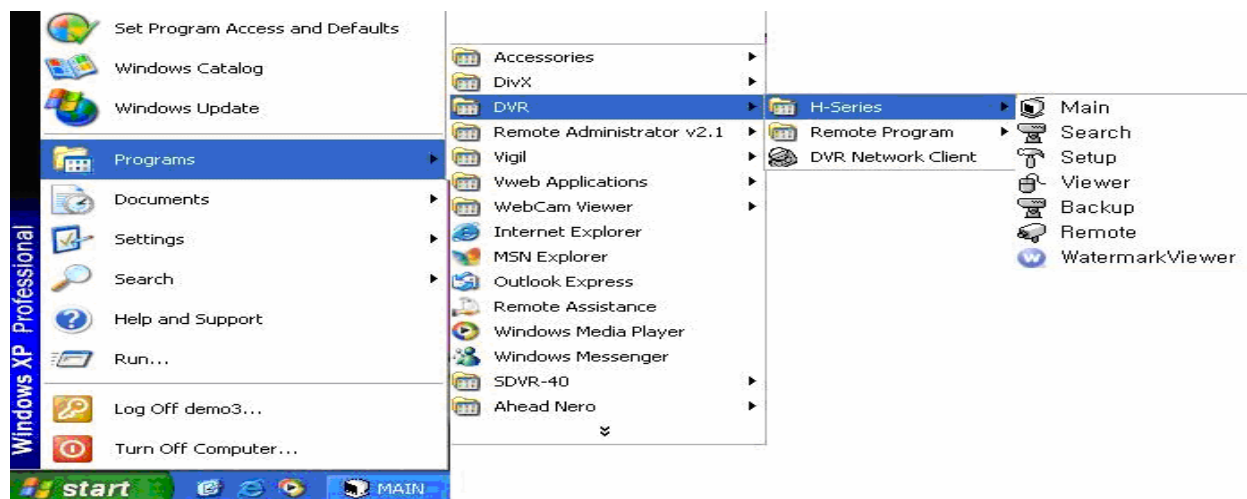
Then watermark viewer will be shown as follows and click [File Open] button to open file.
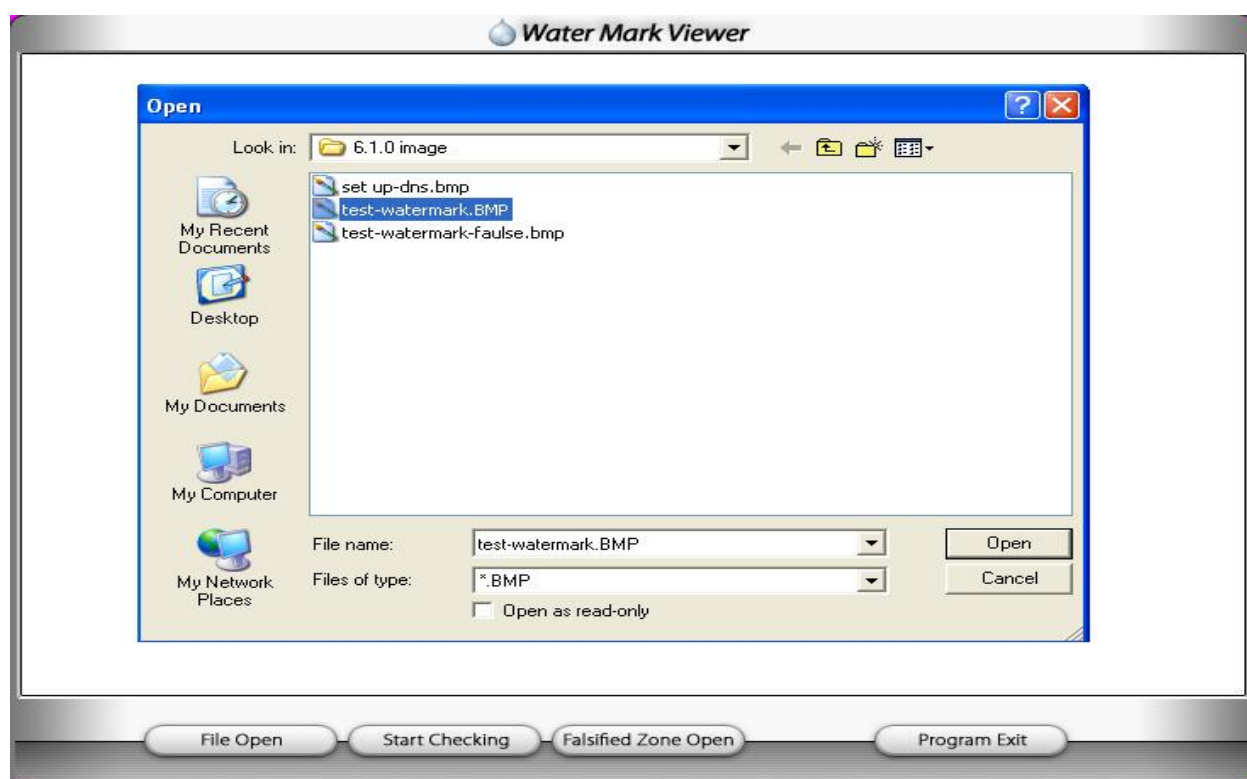
File will be shown as follows and click [Start Checking] button to check falsified zone.

If there is falsified part on the image, it will be boxed as follows;

If you wish to see in detail, click ⟨Falsified Zone Open⟩ button, falsified part will be flickering as follows;
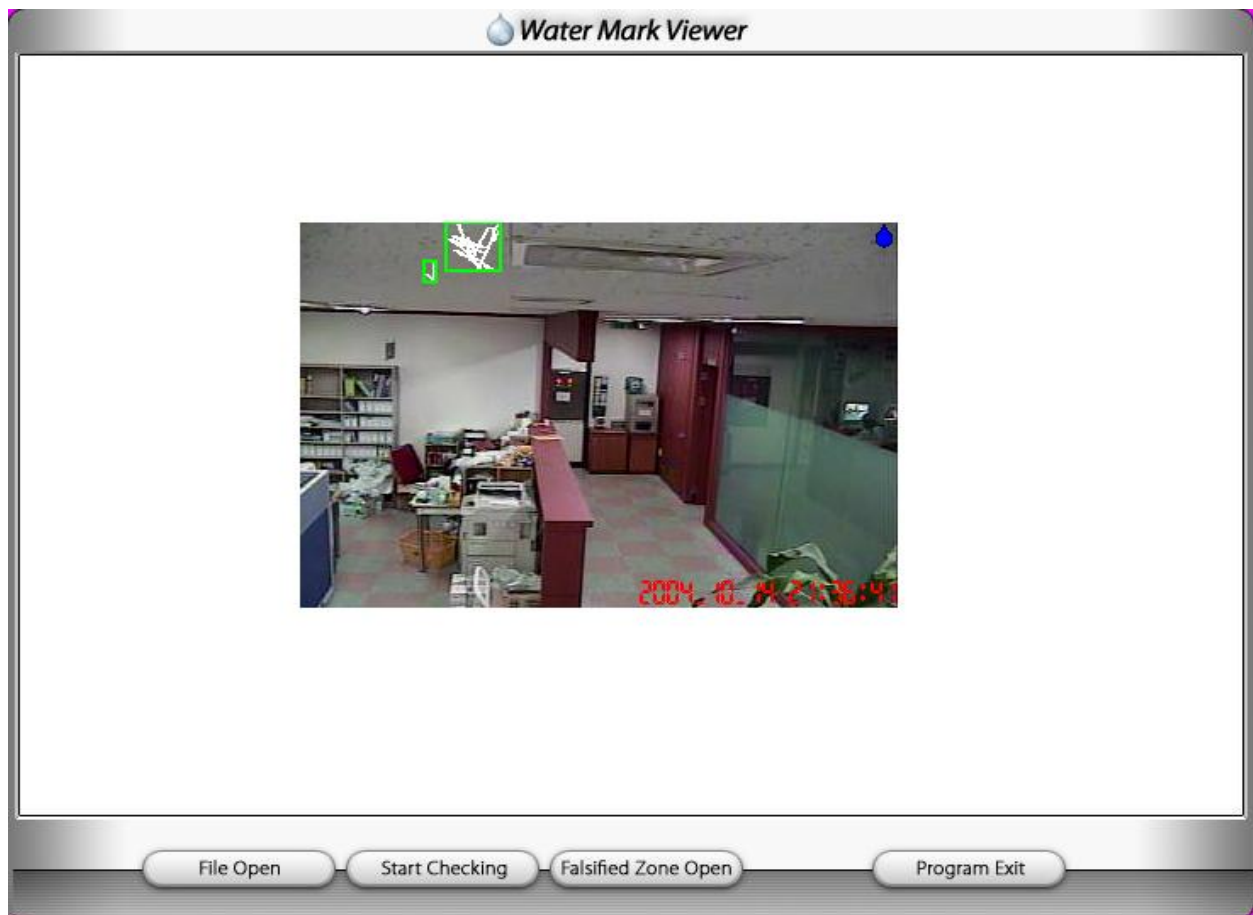
Click ⟨Program Exit⟩ button to exit this viewer.

14. BACKUP PROGRAM

**Note: You can back up after search by clicking [icon] button as follows;
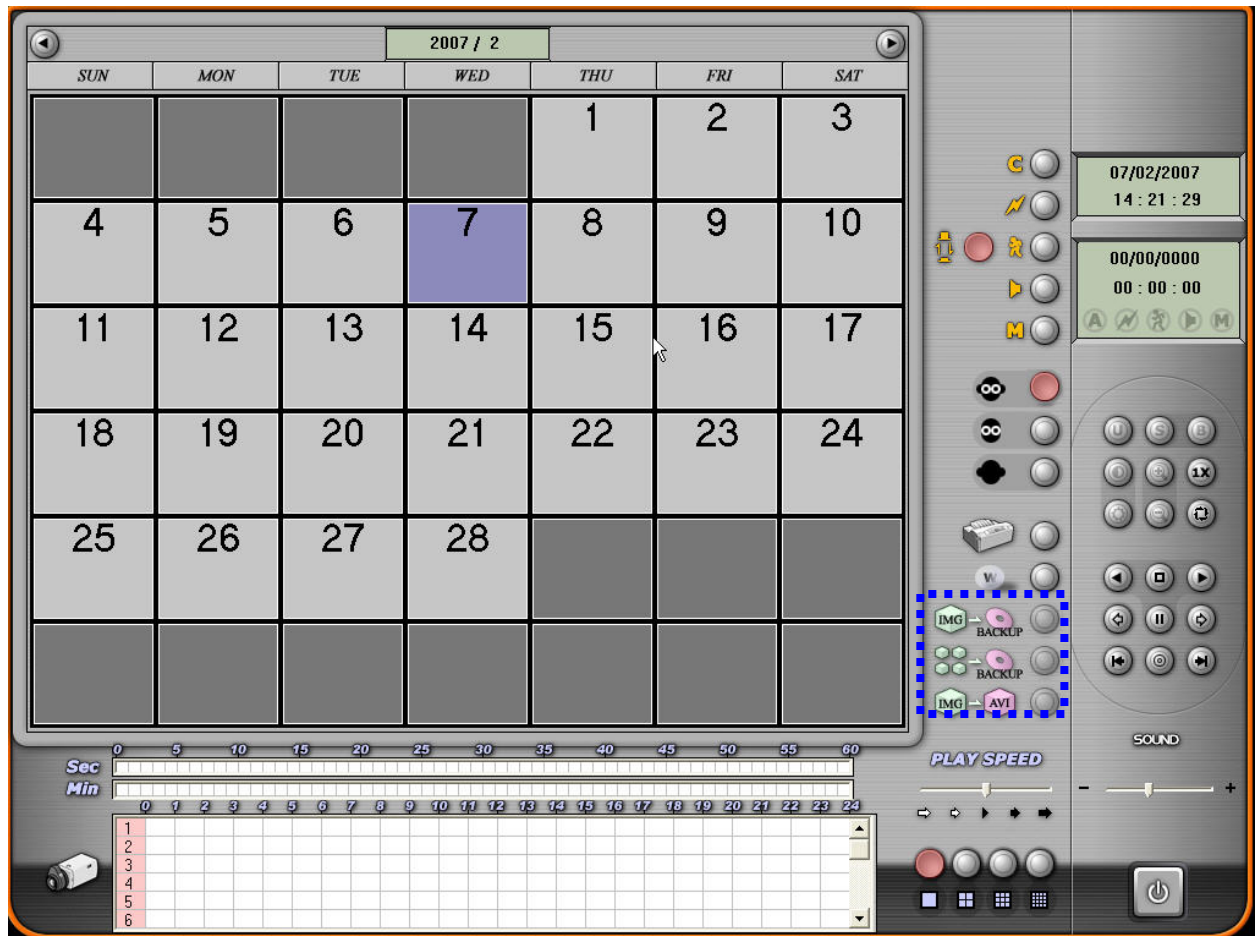
User can search recorded images by Date. If image data is saved on your hard drive, it will be indicated on the calendar with blue-purple color.

Clicking the date blue-purple will bring up Image boxes for the date.

Then it will show Image box lists then select image box(es) as you want to backup.

Then click backup button one of Backup type between IMG(Image box) and AVI(AVI format) backup.

You can select more than one image box but, only one image box selection is possible for AVI backup.

To backup recorded video data, we support physical hard drives (Should be installed Nero version for CD-RW, DVR-RW backup) and AVI format backup.

Our backup program will copy image boxes selected to target Drive after creating a directory '**Back**'.

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Backup type

In our back up program, you can choose either image box or AVI format.

 Click this button to Image box back up

Then below window will be showed. Select the target drive and click 'Backup'. Then, it starts to copy selected image-boxes to the Destination drive.
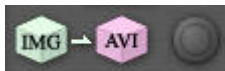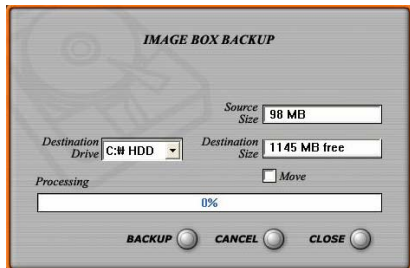
 Click this button to AVI back up. Note that you can choose only one image box to back up for AVI backup.

Then below window will be showed. Select the target camera and click 'Backup'. Then, it starts to copy selected image-boxes to the Destination drive.
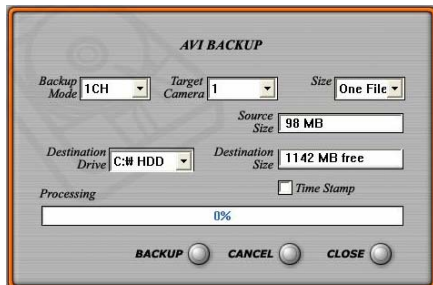
 Click the button to back up all image boxes.
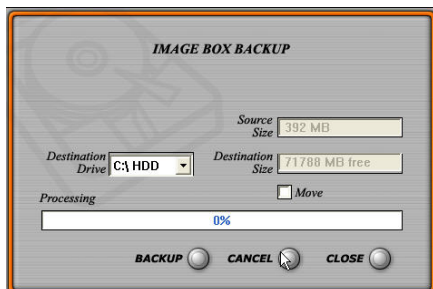
- **BACKUP VIEWER**

To playback videos you had backup, you can [icon] click this backup-viewer button or select back up viewer on "Start" menu.

Then "Back" folder will be shown, choose directory and double click file what you wish to see and click box in green at the bottom of program same as search mode.
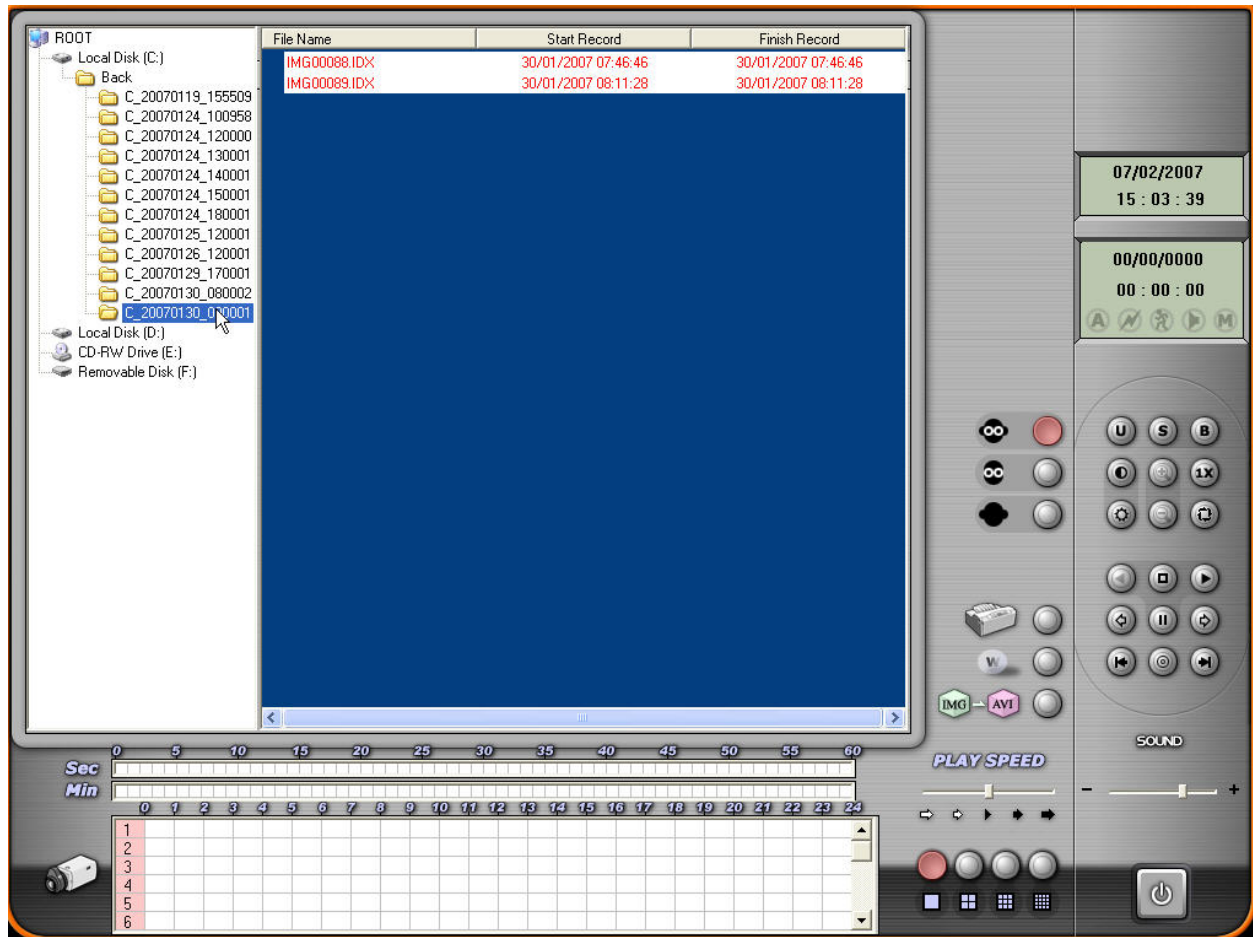
15. REMOTE PROGRAM

Our remote program includes some functions such as monitoring videos and control PTZ cameras from a remote site(s), saving videos transmitted from Main DVR and playback in a remote site(PC), and playback recorded videos of the main DVR at Remote PC.
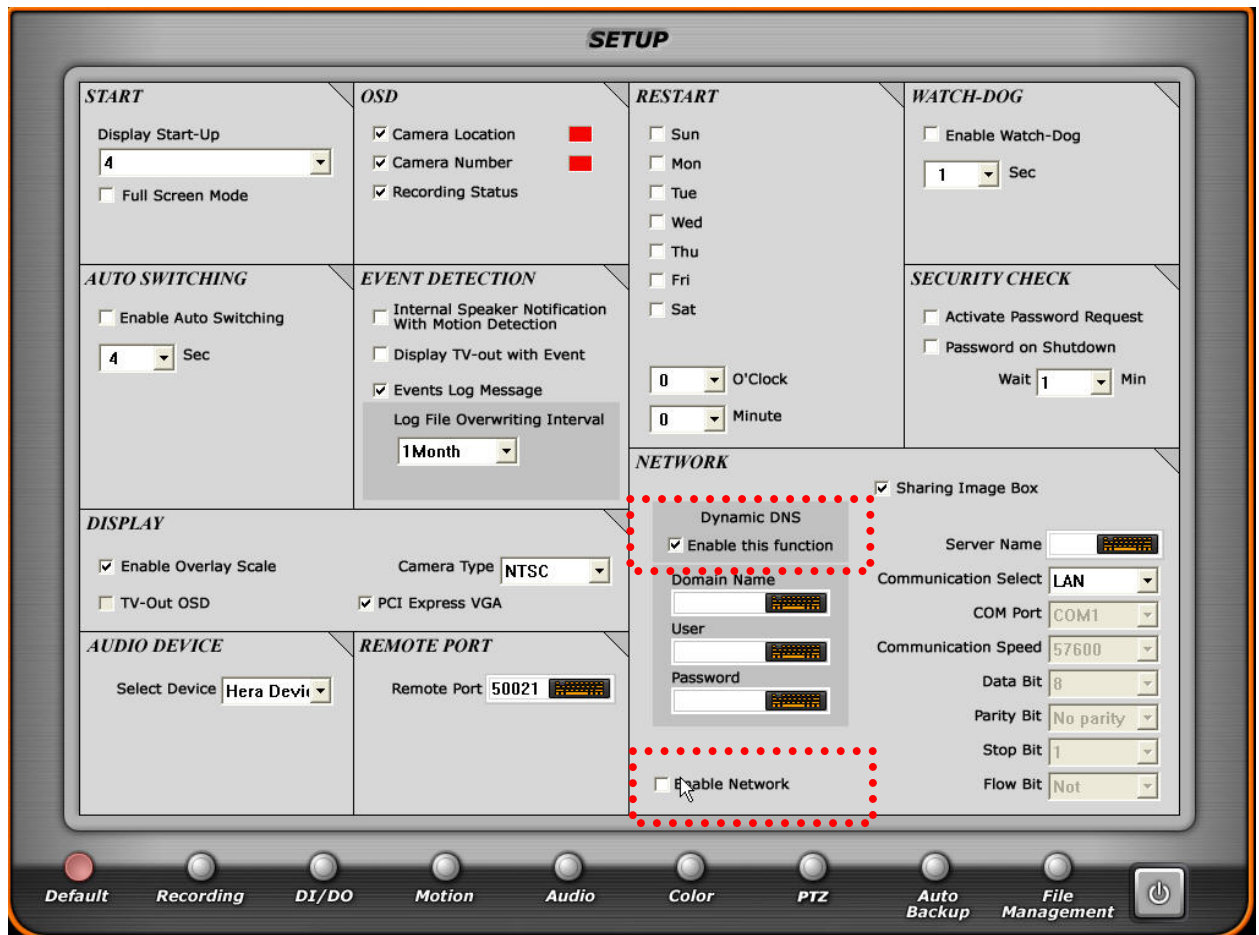
Before install our Remote program, check if you have clicked 'Enable Network' in the Setup mode of your main DVR system and selected the right Network type.

'Enable Network' should be checked to work between Main and Remote program.

Then, check there is a server sign on the bottom of your main screen when you press a windows key of your keyboard. Once you install our Main Application, our Server program will be installed in your pc automatically, so you don't need to install Server program additionally. You just need to check 'Enable Network' and select the right Network type.

Once you enable network setup you can see the server sign which is located on the right bottom of main window screen, while main DVR program is running, it means that the main DVR program is ready to send videos and our server program is activated.
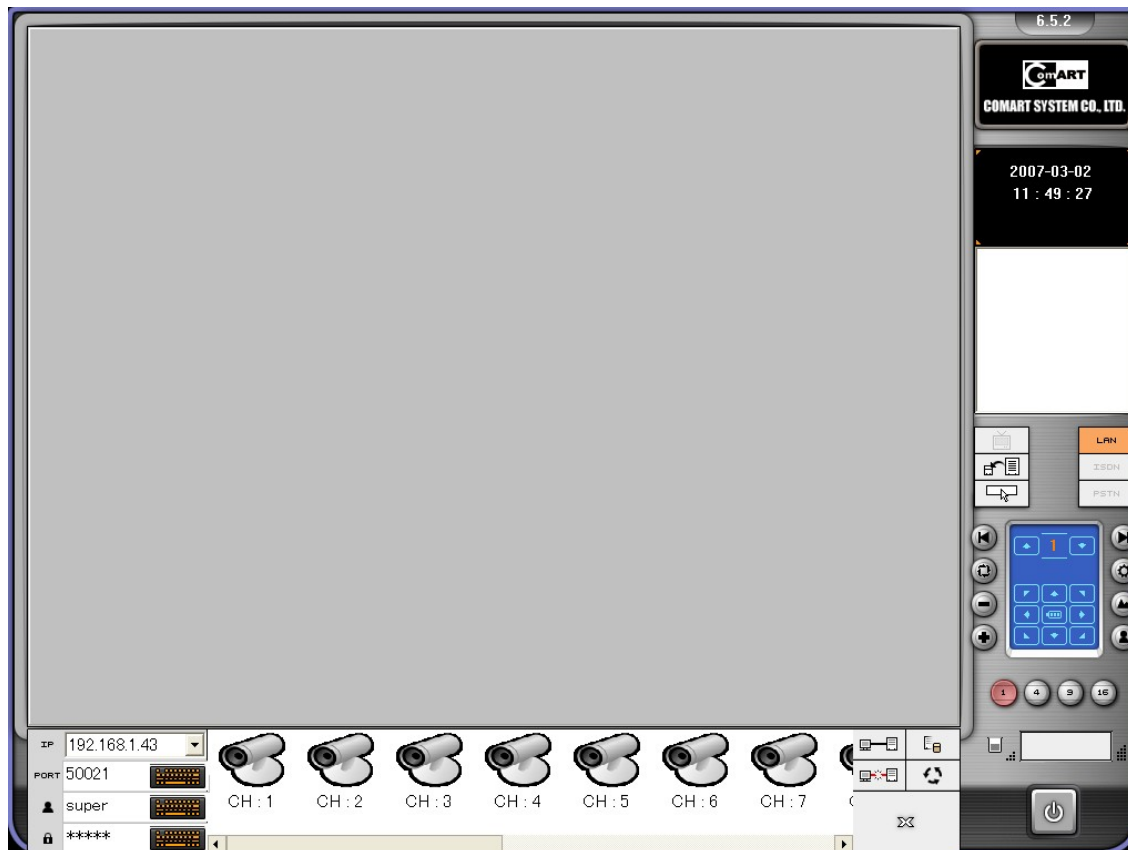
There is a Remote program on the CD we provide.

In the Remote program directory, you can simply install our remote program on your remote system clicking 'Setup.exe' to install.
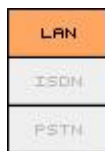

Remote   After installing, you will find this shortcut icon on your windows screen.

Then, double-click the icon and you will see this window on the next page.

Please click the right button as your connection type between LAN, ISDN, and PSTN.

LAN users,

[1] Click 'LAN', and then type Remote Port number of main DVR (default : 50021).

[2] IP Address: We support both Static IP address and Dynamic DNS.

If you type IP address, it should be static IP address of Main DVR.

If you type Domain Name, it should be DNS of Main DVR.

[3] IP address: ID and Password being used in the main DVR,

Domain Name: ID and Password should be same used in Dynamic DNS of Main DVR .
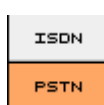
● ISDN or PSTN users,

[1] Click 'ISDN' or 'PSTN'

[2] Choose modem options of PSTN or ISDN and telephone number

[3] You need to type the ID and Password being used in the main DVR.

Every country has different ISDN systems. Since Korea do not have ISDN services and could not test ISDN connections, we have just followed our PSTN format to support ISDN.

Customers have reported that our Client program works for some PSTN brands only. You now how to monitor videos remotely under LAN but it does not work for you under PSTN. Then, try to change a PSTN modem into a different version or try to change Communication speed lower.

Note: If both atz or at&f0 are not acceptable as an Initialize Command, find a proper one from the manual of your modem and type it there.

-LAN user connection.

Click [LAN] to go to 'Setup' mode. Then, you will see this screen below.

IP   : Type static IP Address of Main DVR or Dynamic DNS.

Port   : Internal port number of server which installed DVR Board to network.

👤 ID Name   : Type the ID being used in the main DVR.

🔒 Password   : Type the Password being used in the main DVR.

Then, press 'Enter' button or 🖳—🗐 button to connect.   Then live image of server will be showed as follows

Since this central monitoring remote software supports you to access up 16 different Main DVRs simultaneously, once you setup before then, if you want to access same main DVR again which you connected before then

it will show IP address List of Main DVR you connected before. Choose one of the IP addresses, then just put password since it has port number and user ID name.

And if you want to delete all registered IP address data, please click button.

User can monitor videos from different Main DVRs with our " Central monitoring program", if user wish to monitor video in specified position(channel number) form different server PC, please drag right file from below still cut image window to be displayed on the screen as you want.

This function will help you to monitor videos of each Main DVR(Server PC) on specified position such as parking lot, office in one screen.
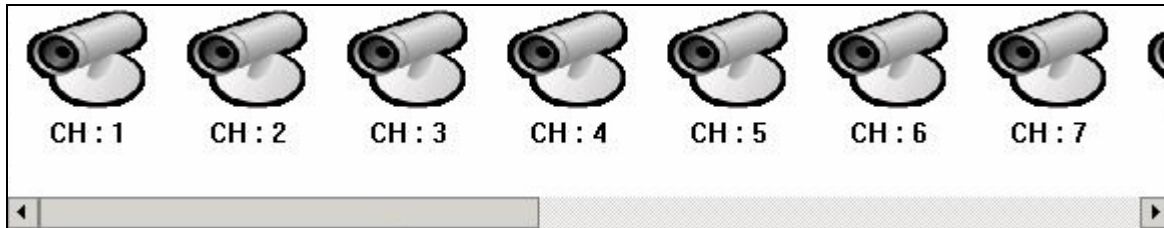
To get new still image will be showed on above window, you have to click 'update still image' button.

-PSTN user connection.

First of all, you need to check Enable Network in the Default Setup page and click PSTN as Communication Select.

Then, click to go to 'Setup' mode of remote program. And you'll see this screen below.

Com Port	: Select port of the modem you're using.	
Communication Speed	: Select Speed of the modem you're using.	
Initialize Command	: Type the Initialize Command of the modem you're using.	
Connect Number	: Type the telephone number you want to connect.	
ID Name	: Type the ID being used in the main DVR.	
Password	: Type the Password being used in the main DVR.	
Data Bit	: Select Data Bit of the modem you're using.	
Parity Bit	: Select Parity Bit of the modem you're using.	
Stop Bit	: Select Stop Bit of the modem you're using.	
Flow Bit	: Select Flow Bit of the modem you're using.	

Note: If both atz or at&f0 are not acceptable as an Initialize Command, find a proper one from the manual of your modem and type it there.

Then, click enter or button to connect.

If there is a problem on connecting between client and server, error message will be showed as below,

A connection attempt failed because the connected party did not properly respond after a period of time, or established connection failed because connected host has failed to respond.

22 Sec   Close
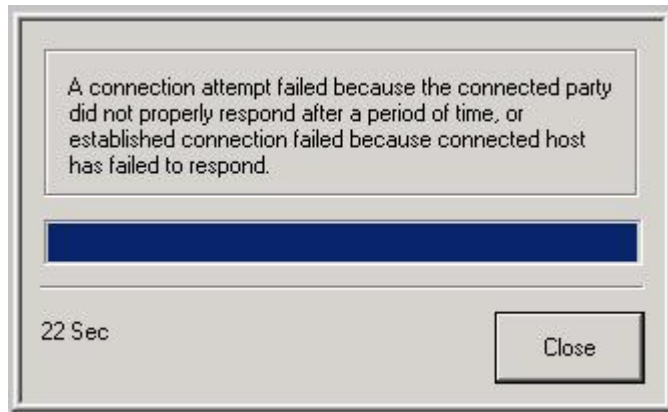
15-1 EVENTS NOTIFICATION FROM MAIN DVR

This function is to notify the events of Main DVR(s) to a remote PC with Image pop-up, Log file or warning sound as you set. So, you can see with this function what's happening in Main DVRs wherever you installed remotely.
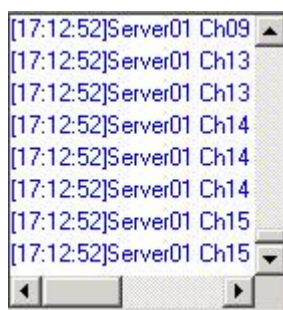
Click " " then set up window will be showed as below;

EVENT

☐☐
AA ☐
◀)) ☐   C:\Program File ...

: Events Notification with Image Pop-up.

If you check on it, the image on any events such as motion detection, audio detection etc. triggered in Main DVR will be showed in full screen.

: Events Notification with log file.

[17:12:52]Server01 Ch09
[17:12:52]Server01 Ch13
[17:12:52]Server01 Ch13
[17:12:52]Server01 Ch14
[17:12:52]Server01 Ch14
[17:12:52]Server01 Ch14
[17:12:52]Server01 Ch15
[17:12:52]Server01 Ch15

: Events notification with audio.

If you check on it, we provide default warning sound.

However, you can make your favorite sound clicking **C:\Program File** **...** to select alarm sound at windows directory.　　Note that it supports only wav. format.

15-2 MONITORING VIDEOS AND CONTROL PTZ CAMERAS FROM A REMOTE SITE(S)

To use this function, click [📺] button. Then, you can monitor videos remotely. You can select a screen division as you wish to monitor.

If you have installed a PTZ camera with your main DVR system, you can also control the PTZ camera remotely.

Click to go to PTZ control mode as you see this right screen clicking [⒭] button and also you should make a PTZ control mode in the Main same as right screen.

15-3 RECORDING VIDEOS OF MAIN DVR IN REMOTE SITE(PC)

You can record videos from Main DVR in your remote PC as well. Click right button of the mouse on the screen you wish to record during monitoring. Then RED recording mark will be shown on the top of the right and click right button of the mouse again to stop recording.

15-4 SCREEN DISPLAY

If you want to full screen mode for each channel, click then, below channel button will be display. Click the No. as you want to see in full screen size.

And click to return to the central monitoring display.

15-5 REMOTE SEARCHING VIDEOS RECORDED IN BOTH MAIN DVR AND REMOTE PC.

To search videos remotely recorded in both Main DVR and Remote PC, click [icon] monitoring button.

-To search videos recorded in Main DVR: Select 'Server' . [icon]

-To search videos recorded in Remote PC: Select 'Remote' [icon]

To search image-box of Main(Server) DVR, click ´Server PC´ [icon] then it will show the list of image box

information of the Main DVR system. Double click an image-box you want to playback.

ServerName	Start Date	End Date	Start Time	End Time	Image Frame	Audio
218.38.35.107	2007. 3. 2	2007. 3. 2	10:25:56	10:31:19	10150	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	10:31:19	10:36:38	10058	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	10:36:38	10:42:00	10073	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	10:42:00	10:47:41	10063	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	10:47:41	10:53:18	10133	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	10:53:18	10:59:15	10148	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	10:59:15	11: 5:08	10106	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11: 5:08	11:11:00	10274	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:11:00	11:16:42	10205	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:16:42	11:22:18	10064	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:22:19	11:28:04	10030	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:28:04	11:34:04	10066	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:34:04	11:39:46	9979	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:39:46	11:45:22	10062	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:45:22	11:50:52	10111	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:50:52	11:56:17	10085	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	11:56:17	12: 3:30	10076	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	12: 3:30	12: 9:12	10100	X,X,X,X,X,X,....
218.38.35.107	2007. 3. 2	2007. 3. 2	12: 9:12	12:16:08	10151	X,X,X,X,X,X,....

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 : Shows recorded file lists again.

 : Stop or Playback button

 : Shows data buffering status from Main DVR.

Since videos are transferred from Main DVR to this remote site, it starts to playback

when percentage window climbs to 100%.

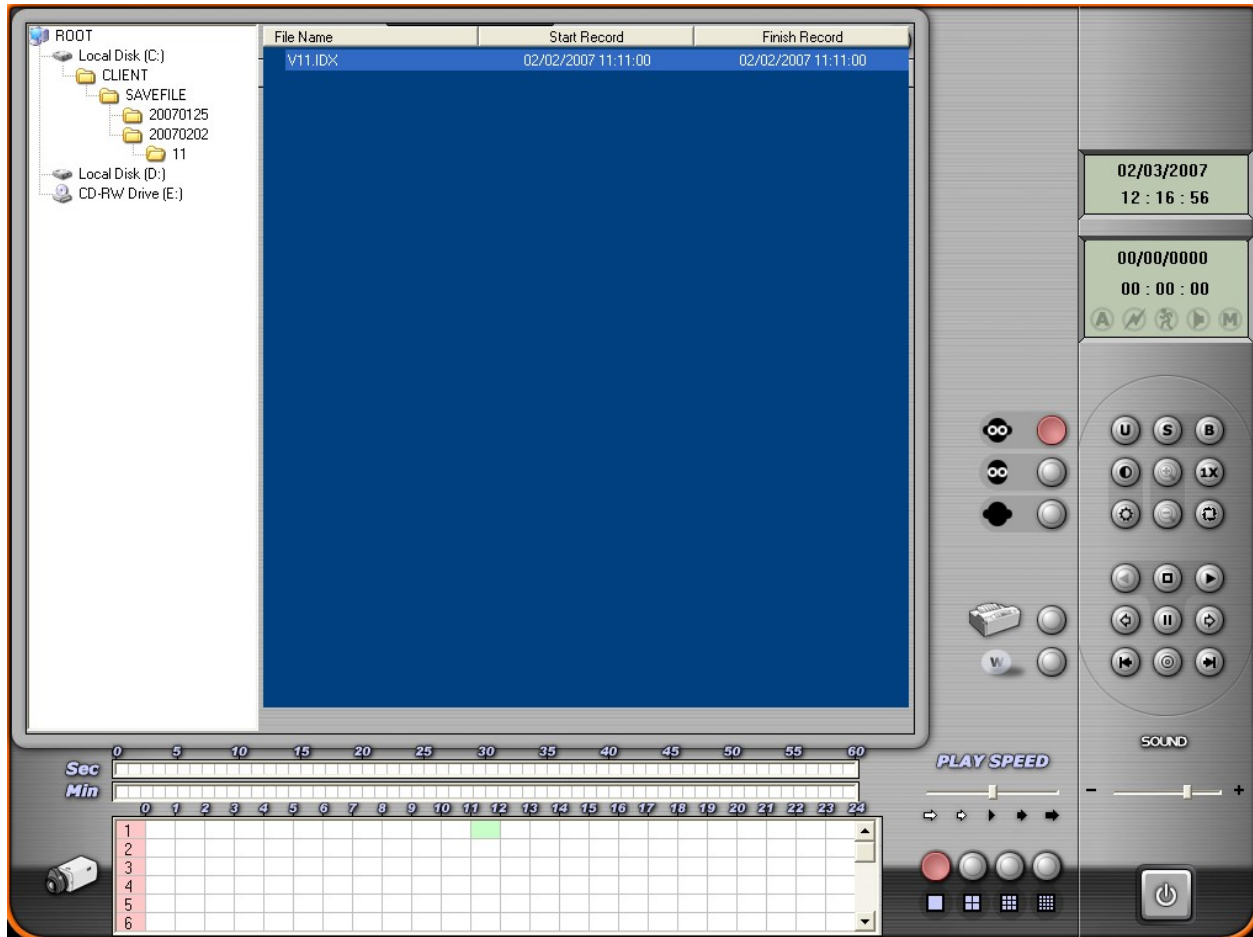To search recorded videos in Remote PC, click [   ] button, and click ´Remote PC´ [   ] then it will

show recorded data information as below. Double click one of file names you want to playback.
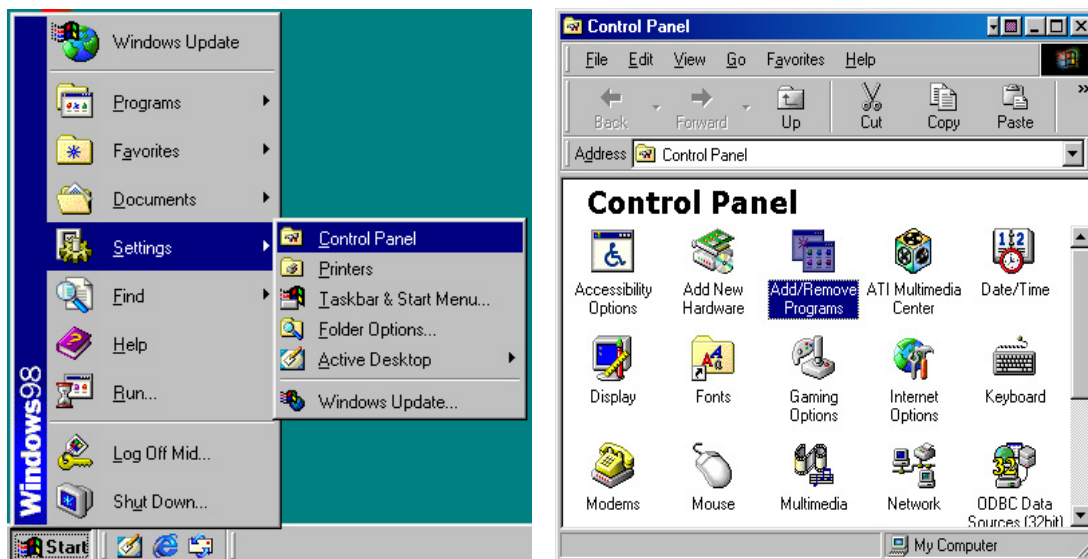

Note: it records videos only in C Drive of remote pc but it does not overwrite when C driver is full.

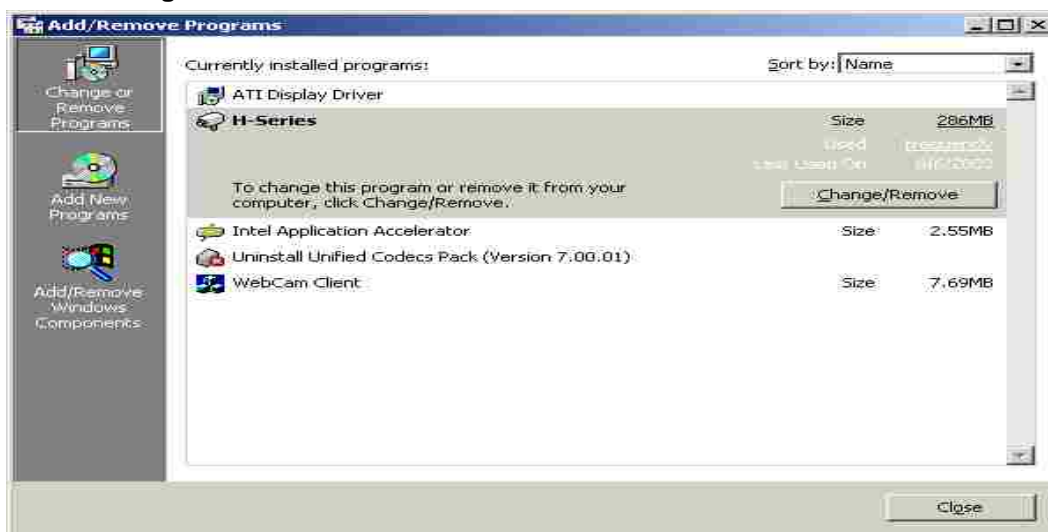You must delete recorded files in C drive of remote pc in windows explore.
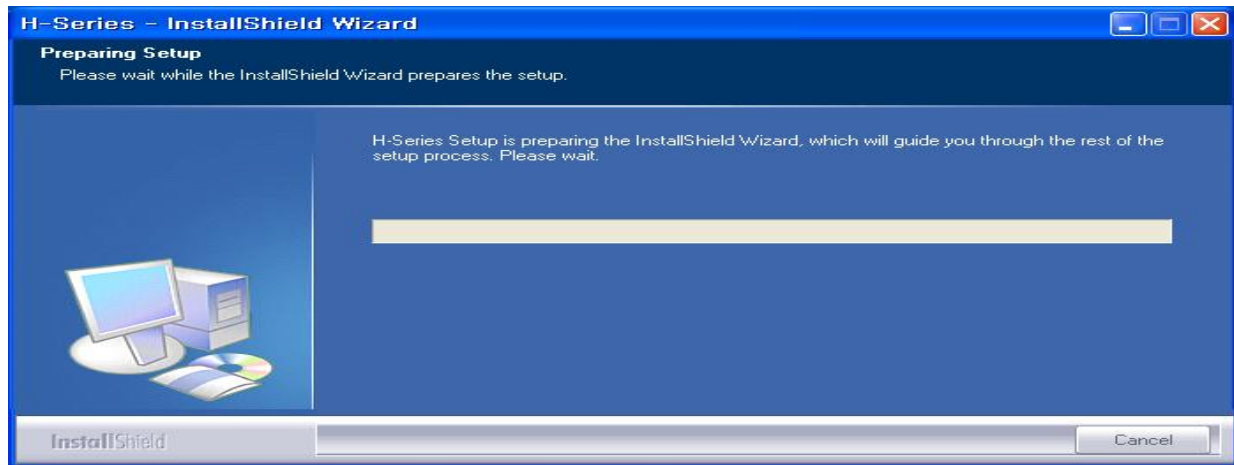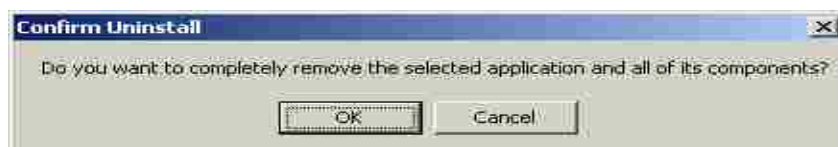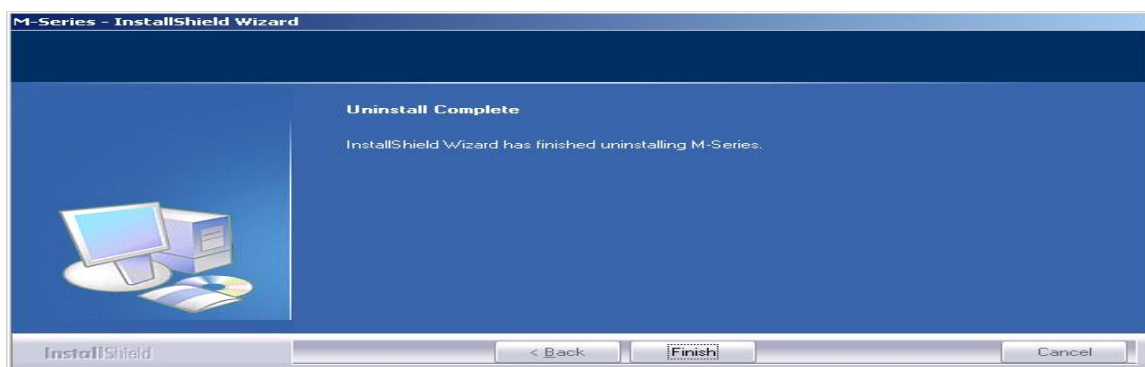
Check on "Remove" to continue.
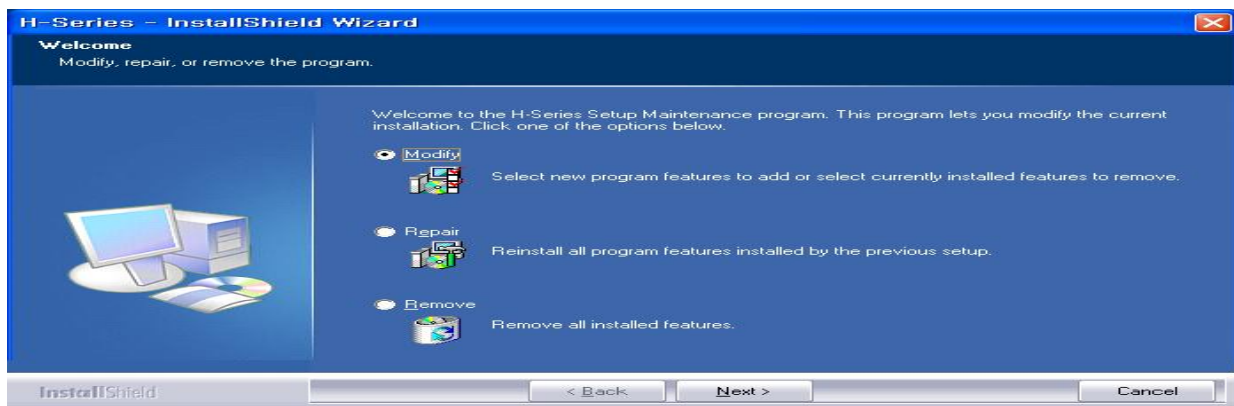
Click "OK" to remove DVR application. Then DVR application will be removed.

Click "Finish" to complete uninstall.

16-2   Run 'Comart DVR Init' in the setup directory of your CD provided.

If you want to reinstall program, maintaining Image boxes, you just click 'Delete only setup information".

Exit the program.

- Click 'Delete all information' to remove both our program and all imageboxes from your PC.

- Click 'Delete only imagebox information' if you want to just delete all imageboxes,
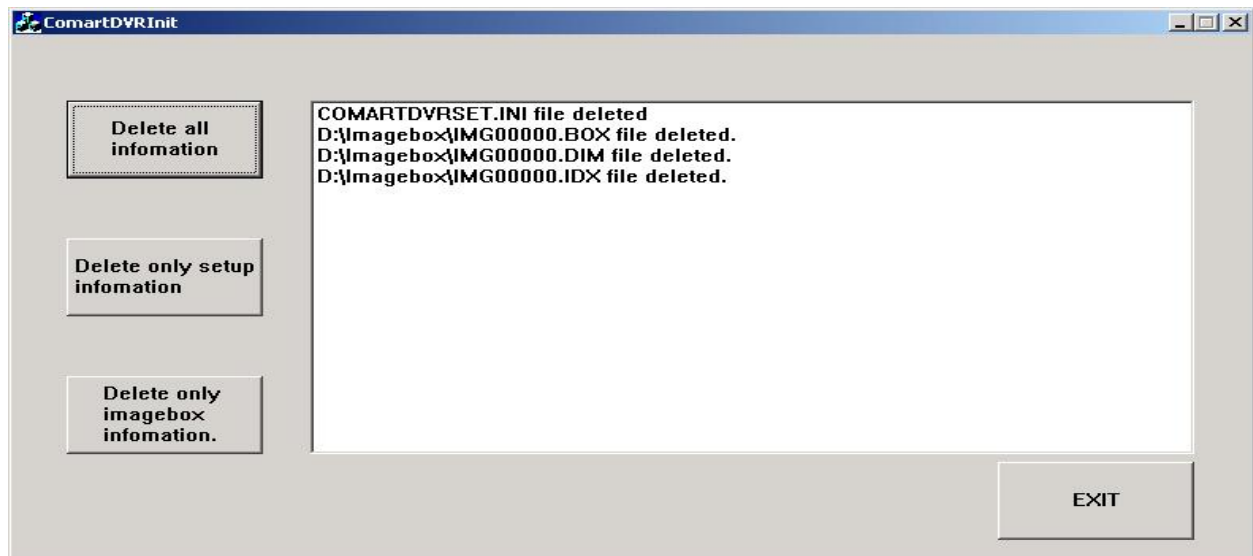
Warranty

All comart system products go through various processes and has tough product quality test.

All comart system products are subject to a 15 months limited warranty as designed and supplied by Comart system co. ltd.

This warranty does not cover: .

- Failure resulting from misuse, accident, modification, unsuitable and improper maintenance by you
- Failure caused by alternation of the parts
- Failure to follow the manual

Product Name		
Product No.		
Warranty period		Valid for 15 months from product purchase
Purchase date		Date:
Purchaser	Company Name	
	Name	
	Address	
	Phone No.	
Vendor	Company Name	
	Name	
	Address	
	Phone No.	

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