

Voyager[®] E X P A N D your vision[™]

DVR2 MOBILE DIGITAL VIDEO RECORDER



- Thank you for purchasing Voyager DVR2 Series Mobile DVR.
- Before using the Digital Video Recorder, please ensure that you read and understand the User Guide.
- Please store the User Guide at an easily accessible location.
- Before connecting and installing any third party cameras, monitors, alarms and computers, please refer to the appropriate instruction manual for proper operation.

SAFETY PRECAUTIONS



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED
SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within a triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

TO PREVENT FIRE OR ELECTRIC SHOCK HAZARD,
DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

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Disclaimer

- The information in this manual is believed to be accurate and reliable as of the date of publication. The information contained herein is subject to change without notice. Revisions or New editions to this publication may be issued to incorporate such change
- We make no warranties for damages resulted from corrupted or lost data due to a mistaken operation or malfunction of the Mobile DVR, the software, SD Memory Card, personal computers, peripheral devices, or unapproved/unsupported devices. Please refer Warranty Agreement on the last page of the Manual.

Warning

- Do not cover the ventilation opening or slots on the outer casing. To prevent the appliance from overheating, provide at least two inches of air space around the vent and the slots.
- Do not drop metallic parts through slots. This could permanently damage the Digital Video Recorder. Immediately unplug the power cord from the power outlet. Please contact ASA Electronics (888)-283-7374
- Do not attempt to disassemble or alter any part of the equipment that is not expressly described in this guide. Disassembly or alteration may result in high voltage electrical shock. Qualified service personnel (Contact ASA Electronics (888)-283-7374) should conduct internal inspections, alterations and repairs.
- Stop operating the equipment immediately if it emits smoke or noxious fumes. Failure to do so may result in fire or electrical shock. Immediately remove the power cable from the power outlet. Confirm that smoke and fume emissions have ceased. Please contact ASA Electronics (888)-283-7374.
- Stop operating the equipment if a heavy object is dropped or the casing is damaged. Do not strike or shake. Failure to do so may result in fire or electrical shock. Immediately unplug the power cord from the power outlet. Please contact ASA Electronics (888)-283-7374.
- Do not allow the equipment come into contact with, or become immersed in, water or other liquids. Do not allow liquids to enter the interior. The Mobile DVR has not been waterproofed. If the exterior comes into contact with liquids or salt air, wipe it dry with a soft, absorbent cloth. In the event that the water or other foreign substances enter the interior, immediately unplug the power cord from the power outlet.

Continued use of the equipment may result in fire or electrical shock. Please contact ASA Electronics (888)-283-7374.

- Do not use substances containing alcohol, benzene, thinners or other flammable substances to clean or maintain the equipment. The use of these substances may lead to fire. Use a dry cloth on a regular periodic basis and wipe away the dust and dirt that collects on the device. In dusty, humid or greasy environments, the dust that collects around the ventilation or the slots on the outer casing over long periods of time may become saturated with humidity and short-circuit, leading to fire.
- Do not cut, damage, alter or place heavy items on the power cord. Any of these actions may cause an electrical short circuit, which may lead to fire or electrical shock.
- Do not handle the device or power cord if your hands are wet. Handling it with wet hands may lead to electrical shock. When unplugging the cord, ensure that you hold the solid portion of the plug. Pulling on the flexible portion of the cord may damage or expose the wire and insulation, creating the potential for fires or electrical shocks.
- Use only the recommended power accessories. Use of power sources not expressly recommended for this equipment may lead to overheating, distortion of the equipment, fire, electrical shock or other hazards.
- Do not place the device near a heat source or expose them to direct flame or heat. Neither should you immerse them in water. Such exposure may damage the batteries and lead to the leakage of corrosive liquids, fire, electrical shock, explosion or serious injury.
- Do not attempt to disassemble, alter or apply heat to the device. There is serious risk of injury due to an explosion. Immediately flush with water any area of the body, including the eyes and mouth, or clothing that comes into contact with the inner contents of the device. If the eyes or mouth contact these substances, immediately flush with water and seek medical assistance from a medical professional.
- Avoid dropping or subjecting the device to severe impacts that could damage the casings. It could lead to leakage and injury.
- Do not short-circuit the power terminals with metallic objects, such as key holders. It could lead to overheating, burns and other injuries.
- The supplied power supply and power cord are designed for exclusive use with the Mobile DVR. Do not use it with other products or batteries. There is a risk of fire and other hazards.

Caution

- Do not operate the appliance beyond its specified temperature, humidity or power source ratings. Do not use the appliance in an extreme environment where there is high temperature or high humidity. Use the device at temperatures within -20°C - +60°C (-4°F - 140°F) and humidity below 90 %. The normal operating power source for this device is DC 12V or 24V.

Preventing Malfunctions





- Avoid Strong Magnetic Fields. Never place the Mobile DVR in close Proximity to electric motors or other equipment generating strong electromagnetic fields. Exposures to strong magnetic fields may cause malfunctions or corrupt image data.
- Avoid Condensation Related Problems. Moving the equipment rapidly between hot and cold temperatures may cause condensation (water droplets) to form on its external and internal surfaces. You can avoid this by placing the equipment in an airtight, resalable plastic bag and letting it adjust to temperature changes slowly before removing it from the bag.
- If Condensation forms inside the Mobile DVR. Stop using the equipment immediately if you detect condensation. Continued use may damage the equipment. Remove the power cord from the power outlet and wait until the moisture evaporates completely before resuming use.

CAUTION

- Risk of explosion when if power cord is replaced by an incorrect type.
- The socket-outlet shall be installed near the equipment and shall be easily accessible.

Package Contents

Please check the package and contents for visible damage. If any components are damaged or missing, do not attempt to use the unit, please contact ASA Electronics (888)-283-7374 immediately. If the unit must be returned, it must be shipped in the original packing box.

Image	Contents	EA
	4-pin Power Cable (12Inch)	1 EA
	PC Viewer Software Install CD	1 EA
	User Manual	1 EA
	GPS Antenna	1 EA

1. Panel

1.1. Front Panel



① Slider-type SD Card Lock Cover and Lock-Switch

*The Cover must be locked after inserted SD card, and so the Lock-Switch can be on.

② LED Indicators (Power, Recording, Error, Networking Status)

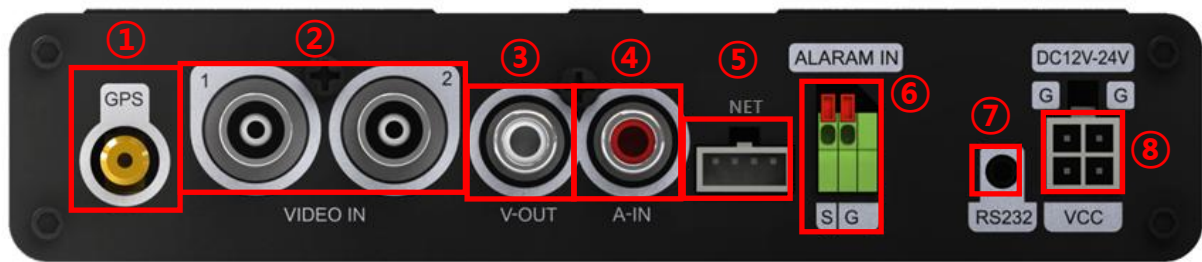
③ USB-type 3G or Wi-Fi Modem Connector

EXTERNAL NOTICE(LED, Buzzer) function

LED	PWR	Power on/off	On/off
		-Finding 'upgrade' file after booting - Changes detected in 'config' file - Running USB autorun script	Blink
	REC	Recording Start/End	On/Off
		EVENT recording(G-Sensor, accident, User)	Blink
	ERR	Low voltage after power cable disconnection	On
		-SD Card reading error or recording error - No SD Card or not locked	Blink
	STATUS	Networking On/Off	On/Off
		Connecting to ACMS	Blink

Buzzer	Power on	0.1 sec
	GPS sync	
	G-sensor Event	0.5 sec
	User Event	
	Accident	1 sec
	Hot-plug out	10 sec

1.2. Rear Panel Connectors



- 1) GPS : GPS Antenna connector
- 2) VIDEO IN : BNC input (Camera 1~2) connectors
- 3) V-OUT : Composite Out Video Connector
- 4) A-IN : AUDIO Input connector(RCA)
- 5) USB : Extension USB Connector for 3G or Wi-Fi USB-type Modem
- 6) ALARM IN : Single Channel Alarm Input
- 7) RS232 : RS232 connector (2.5mm 4-pin TRRS Type)
*This connector is used for Warranty Service Only
- 8) POWER : 4-pin DC power Jack

2. Installation & Connections

2.1. System Configuration Diagram

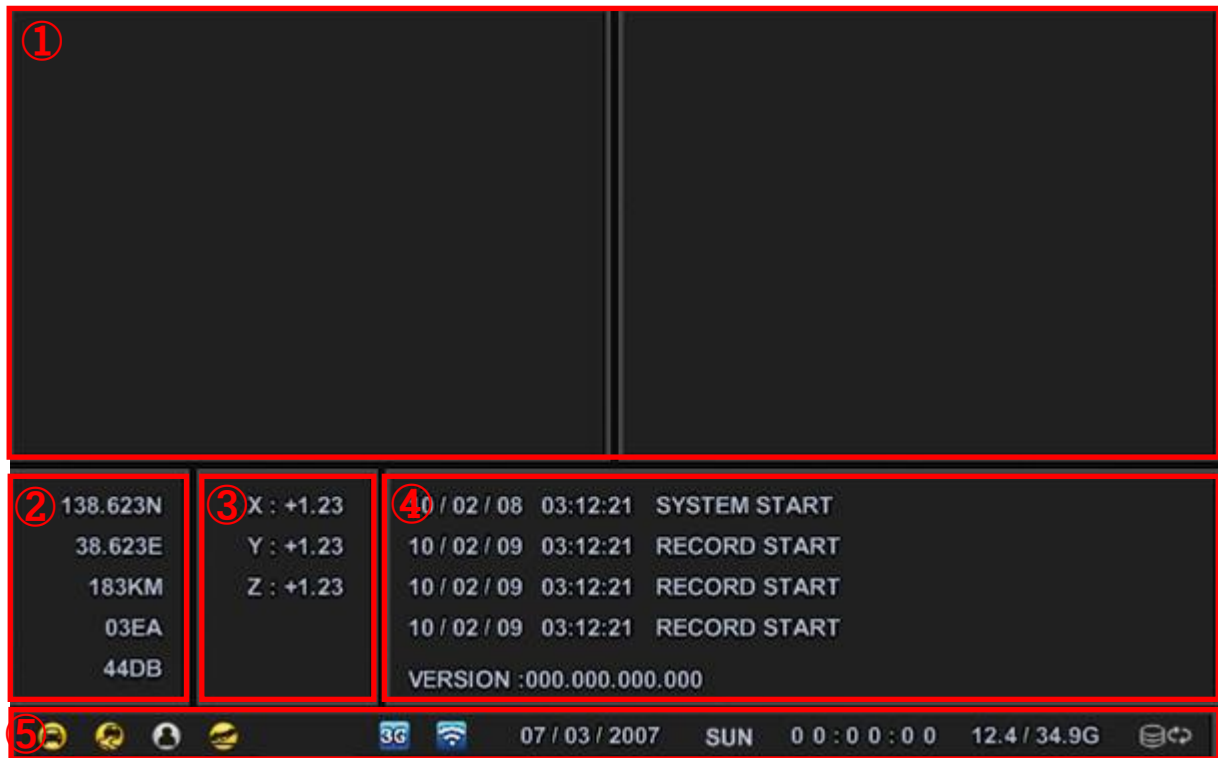
The following illustration is showing the fully installed system.



2.2. SD Card Requirements










- Over 1 GB of memory space on SD card
(Class 6 or better products from certified producers)
Class 10 SD cards are recommended for best performance.
- Format SD card as FAT32 before inserting the SD card in the PC .
*NOTE: 64 GB or larger sizes of SDXC cards should be formatted in PC.
- Requirements during Voyager DVR2 operation (REC, Network and Etc.)
 - If the regular recording file does not exist in the SD card, the memory space of SD card should be over 900MB.
 - If the regular recording file does exist in the SD card, total memory space and exist recording file of SD card should be over 500MB.
- SD cards are treated as expendable supplies; they require regular inspection and exchange. If the SD card is unreadable, it will need to be replaced. We do not take responsibility for SD card problems or data loss.
- Please purchase certified products. We recommend you to use SD cards of industrial or commercial grade for best DVR performance.
- Turn off the Voyager DVR2 before exporting the data.
- Do not disassemble the SD card. Our company does not take the responsibility for the problems caused by disassembly.
- The SD Cards must do format periodically in order to prevent read/write errors. Also, SD Card formatting should be deep level format.
- Please backup any important data before format work. We are not responsible for data loss.

3. Live Monitoring



When device is connected to a V-out monitor, user get a real-time monitor view as above.

- ① 2 – Channel real-time video view
- ② GPS Information : GPS Coordinates, Speed, Connected satellites numbers, Signal strength of GPS
- ③ G-Sensor information (Axis of X, Y, Z)
- ④ Device status and logging information, F/W Version
When networking, displays networking method and IP address.
eg) WIFI : ###.###.###.### / 3G : ###.###.###.###
- ⑤ Event Status Icons, Time/Date, Storage Space(Remain/Max), Recording Mode

Event Status Icons (On when Yellow)		Normal Recording
		Impact / Sloshing
		Manual(USER) Event
		Vehicle Rollover
Recording Mode Status		SD Card Not Inserted
		Overwriting Enabled
		Overwriting Disabled
Networking Status		Wifi is connected to AP
		3G USB modem is connected

<Note>

- The device can only be controlled via pre-set SD card. User have no control over the above screen.
- Settings will be controlled and applied through included software. Details are mentioned below in **“4.4. Option”**

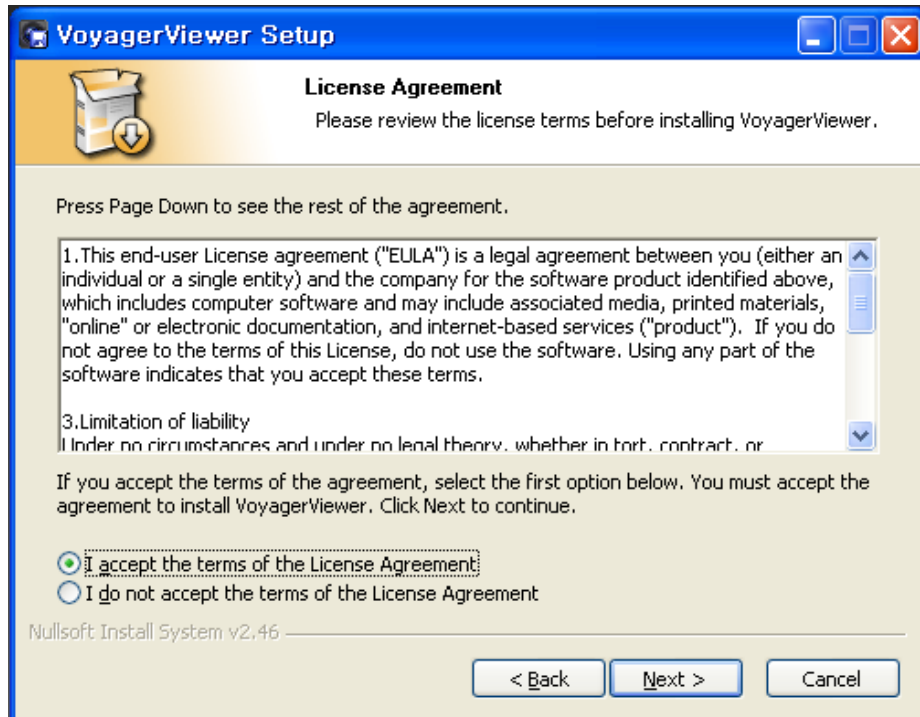
4. DVR2 Viewer

4.1. Installation

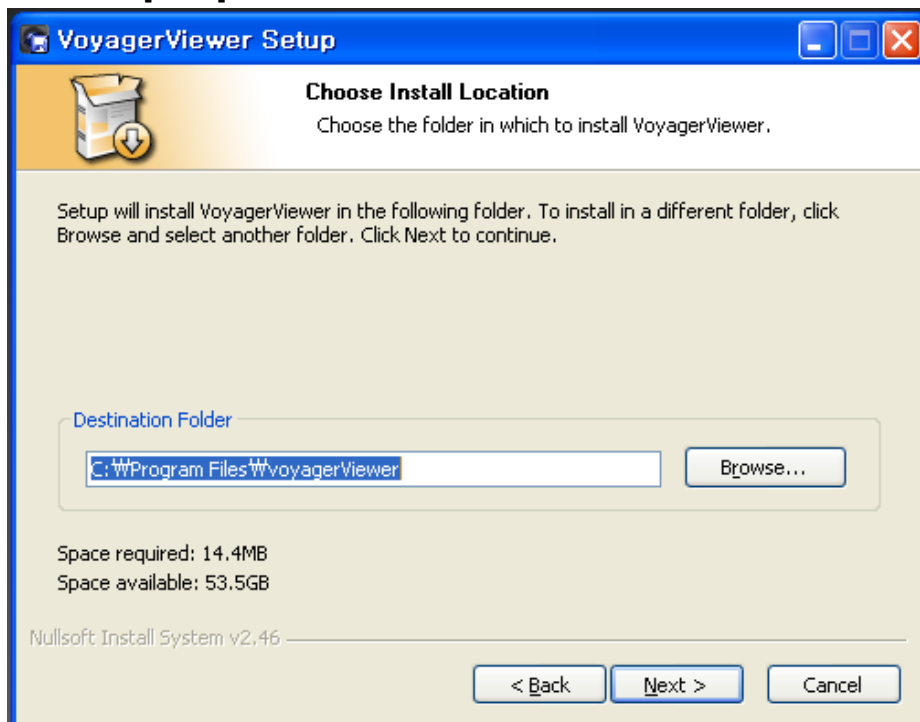
(1) Select the install program icon and double-click.



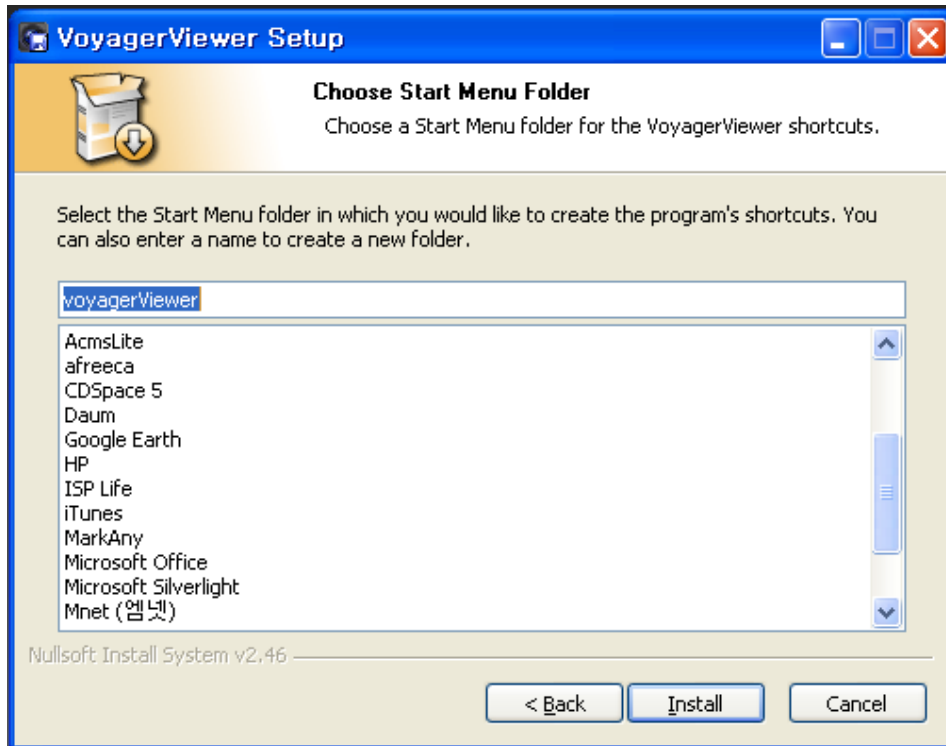
- (2) If you agree to the License Agreement, select **[agree]** and click **[next]**.



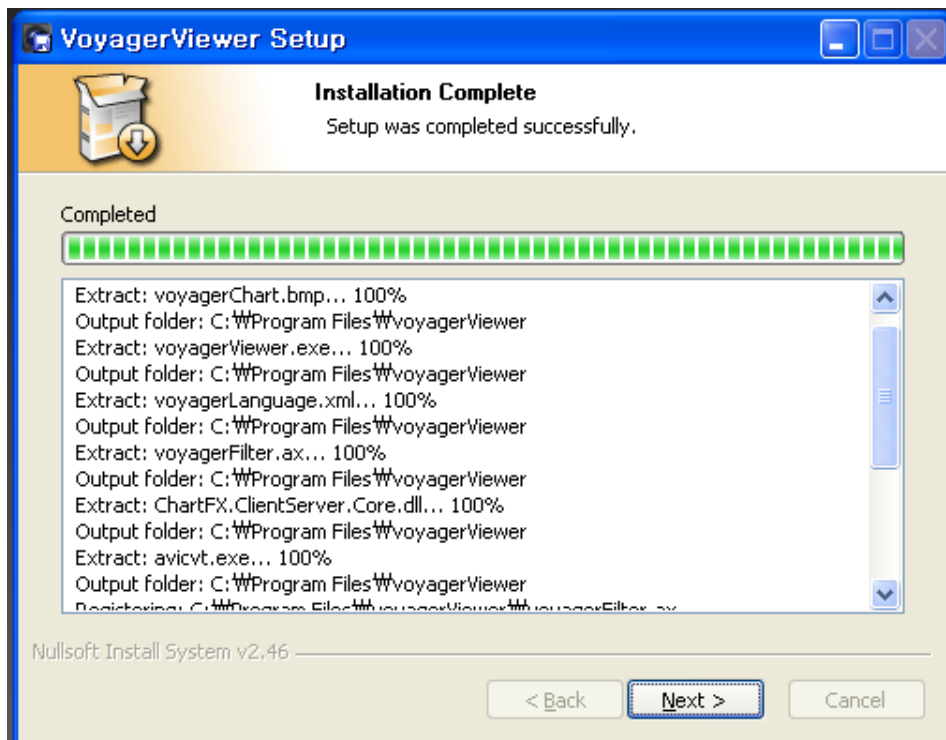
- (3) Select the folder on your computer that you want to install the software and click **[Next]**.



- (4) Select or rename the Start Menu Folder and click **[Next]**.



- (5) Click **[Next]** when installation is completed. The installation may take a few minutes.



(6) Click [Finish] to complete the installation Process



4.2. PC System Requirements for Mobile Viewer Software.

- (a) Core 2 Duo 2.4 GHz or higher
- (b) Over 100MB HDD Memory
- (c) 1,024 MB System Memory or higher
- (d) 1,024 x 768 Display Resolution, 32 Bit color
- (e) Windows XP, VISTA, 7
- (f) Spare 10/100-BaseT Ethernet Port
- (g) Microsoft DirectX 9.0c or higher

It is recommended to have DirectX 9.0c version in Client PC. DirectX 9.0c is available for download from Microsoft homepage

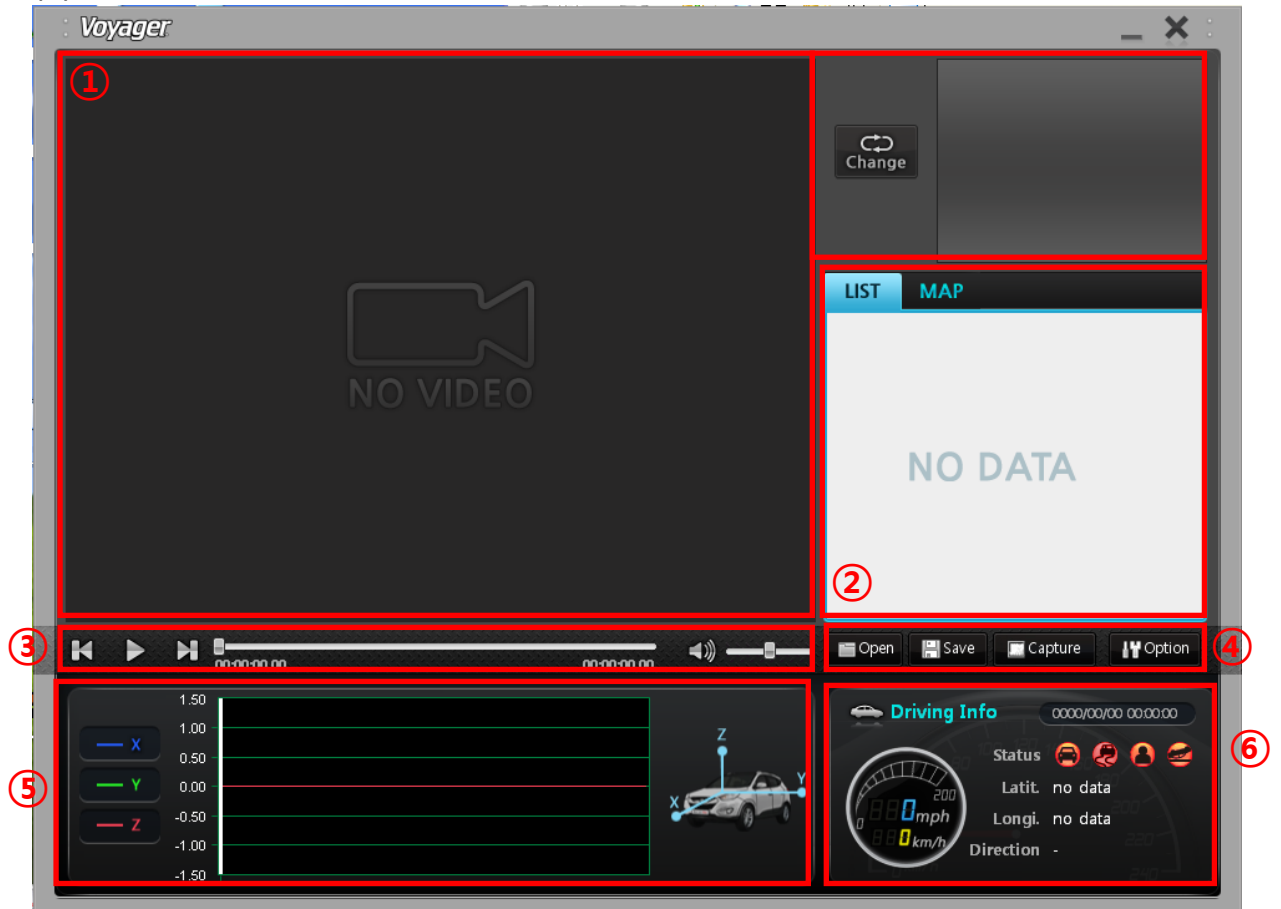
(<http://www.microsoft.com/en-us/download/details.aspx?id=35>)

<Disclaimer>

The remote viewing on network connection may not work on all personal computers due to difference in personal settings and hardware configurations.

4.3. Viewer Software

(1) Main Window



① Video View

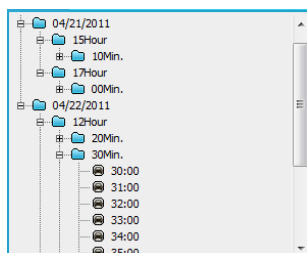
- 2 Channel Video view with “Change” button to enhance the size of the main channel the user intends to observe.

② List/Map



Select the tab to show the desired information

- LIST : List of recording files



User can browse through the files in order to select recording of certain time

-
- MAP : Real-time location view at the time of recording



③ Playback Control Bar



: Skip to Previous / Next Recording File



: Play / Pause the recording



: Mute / Volume Control

④ File Options



: Open a new set of recording files.

(The software auto-detects inserted SD card with recording files.)



: Export and Save the Video



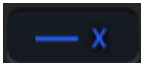
: Captures the video to BMP image files of the enhanced channel view.



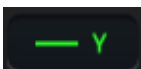
: Settings for device.

⑤ G-Sensor information

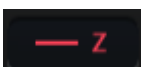
⑥ User can check G-sensor(X, Y, Z) value at the time of recording



: SENSOR X records velocity changes for front and rear

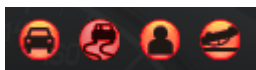


: SENSOR Y records velocity changes for left and right



: SENSOR Z records velocity changes for up and bottom

⑦ GPS information + Event Information



User can click on each icon to select conditions of recordings shown on the LIST.

– Driving (moving)/Impact Event/User Event/Accident

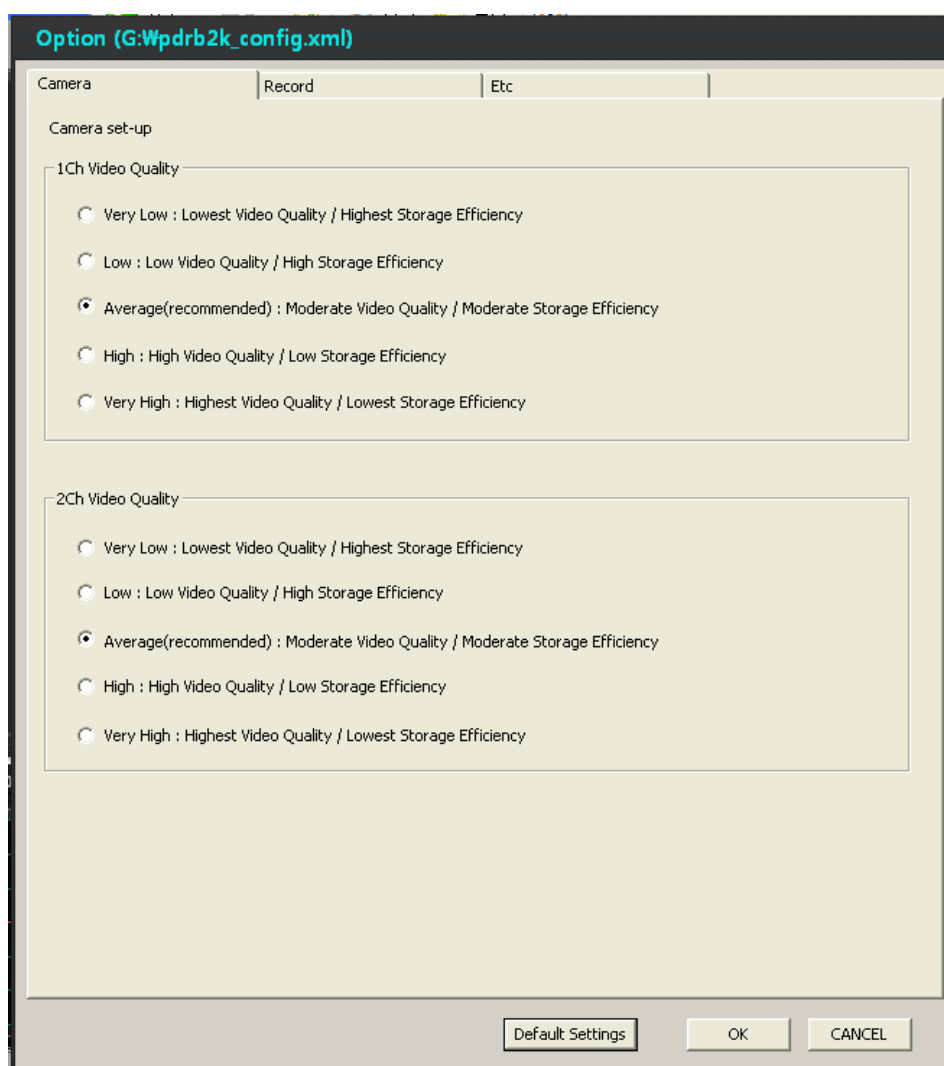
The icons are activated when red and deactivated when grey.

4.4. Option

User can set up Device or Viewer

4.4.1. DVR 2 Option

4.4.1.1. Camera Option (DVR2)



4.4.1.1.1. Cam 1 / Cam 2

Set-up of Recording Quality of Video Channel 1 & 2

Very Low	Very Low Quality / Very High Storage Efficiency
Low	Low Quality / High Storage Efficiency
Average	Moderate Quality / Moderate Storage Efficiency
High	High Quality / Low Storage Efficiency
Very High	Very High Quality / Very Low Storage Efficiency

Recording of each video quality

Quality	Bit rate (KB/sec)		Maximum Recording Hours					
			8GB (hour)		16GB(hour)		32GB (hour)	
	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
Very Low	264	136	9	17	18	34	35	69
Low	359	180	6	13	13	26	26	52
Average	483	242	5	10	10	19	19	39
High	542	271	4	9	9	17	17	34
Very High	857	429	3	5	5	11	11	22

* Above results may be differ depending on the video signal or other conditions.

* Resolution – D1 (NTSC: 720x480, PAL: 720x576)

4.4.1.2. Record option(DVR2)

The screenshot shows a configuration window titled "Option (G:Wpdrb2k_config.xml)" with three tabs: "Camera", "Record", and "Etc". The "Record" tab is active, displaying "Event Recording Configuration".

Impact Rec.

- Recording Time**
 - Pre-recording Time: Slider set to approximately 20 seconds, with a button labeled "20Sec."
 - Post-recording Time: Slider set to approximately 60 seconds, with a button labeled "60Sec."
- Sensitivity Setting**
 - X axis: Slider set to 2.000G, with a button labeled "2.000G"
 - Y axis: Slider set to 2.000G, with a button labeled "2.000G"
 - Z axis: Slider set to 2.000G, with a button labeled "2.000G"
 - Sensor Sensitivity: Slider set to 0.010Sec., with a button labeled "0.010Sec."

User Rec.

- Recording Time**
 - Pre-recording Time: Slider set to approximately 240 seconds, with a button labeled "240Sec."
 - Post-recording Time: Slider set to approximately 60 seconds, with a button labeled "60Sec."

Crash Rec.

- Recording Time**
 - Pre-recording Time: Slider set to approximately 60 seconds, with a button labeled "60Sec."
 - Post-recording Time: Slider set to approximately 60 seconds, with a button labeled "60Sec."

At the bottom, there are three buttons: "Default Settings" (highlighted with a dashed border), "OK", and "CANCEL".

4.4.1.2.1. Impact record set up

- User can set up options related with impact recording as an event.
 - Recording Time: Set up the recording pre/post time. (10 ~ 300 Sec.)
 - Sensitivity Setting: Select sensitivity of G-sensor. (0.1 ~ 5.0 G)

<Note> the "Event Recording", which is set by above menu will be stored separately in the "Event" folder in order to prevent being overwritten.

4.4.1.2.2. User record set up

- User can set up options related with event which user already set up.
 - Recording time: Set up the recording pre/post time. (10 ~ 300 Sec.)

4.4.1.2.3. Crash record set up

- User can set up option related with crash record.

Recording time: Set up the recording pre/post time. (10 ~ 300 Sec.)

<Note> Crash record will be activated when device recognizes over 5.0G

4.4.1.3. Etc.

Option (G:\Wpdrb2k_config.xml)

Camera | Record | Etc

Configuration : Language and Others

Region Setting

Language: English

Standard Time: GMT+00:00 (Standard)

Date Format: YY:MM:DD

Video setting

Screen Flip: NONE

Screen Mirroring: NONE

Video Mode

Video Out Mode: NTSC

Information

FPGA	0.0.0.0
BIOS	0.0.0.0
KERNEL	0.0.0.0
APPLICATION	0.0.0.0
CLIENT	0.6.4.5

Log

```
[2012/07/12 16:38:30] REBOOT (1)
[2012/07/23 19:11:13] -----< LOG START >-----
[2012/07/23 19:11:13] SYSTEM START (1)
[2012/07/23 19:11:16] RECORD START
```

Default Settings OK CANCEL

4.4.1.3.1. Region setting

- a. Language/Time Setting : Select Language of Software
- b. Standard time : Select GMT set up
- c. Date Format : Select date format

4.4.1.3.2. Video setting

- a. Screen Flip: Reverse playback image vertically.
- b. Screen Mirroring: Reverse playback image horizontally.

4.4.1.3.3. Video Mode

- a. Select video format (NTSC / PAL)

4.4.1.3.4. Information


- Viewer version information

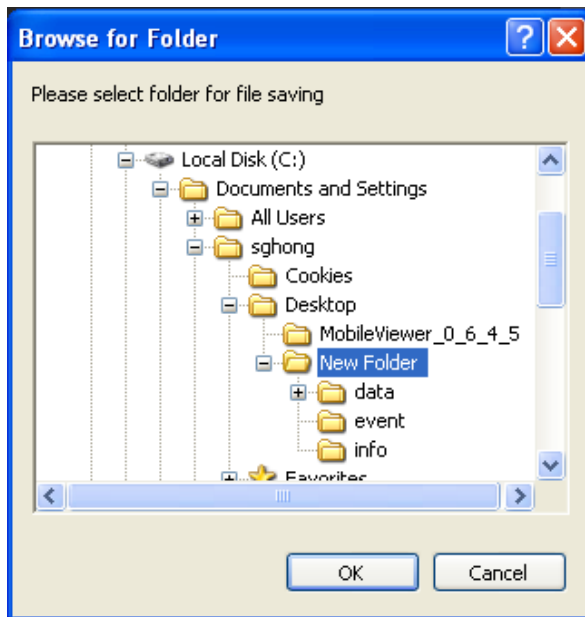
4.4.1.3.5. Log

- Device log

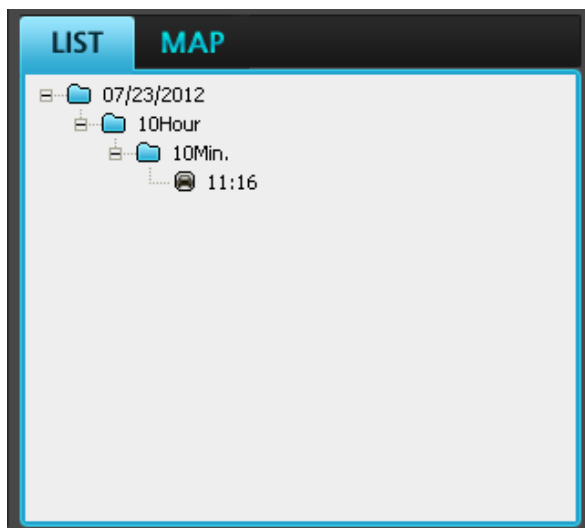
5. How to

5.1. Open the Video File



1. Press  button on the Voyager Viewer Software.
2. Select the folder to open the recorded files

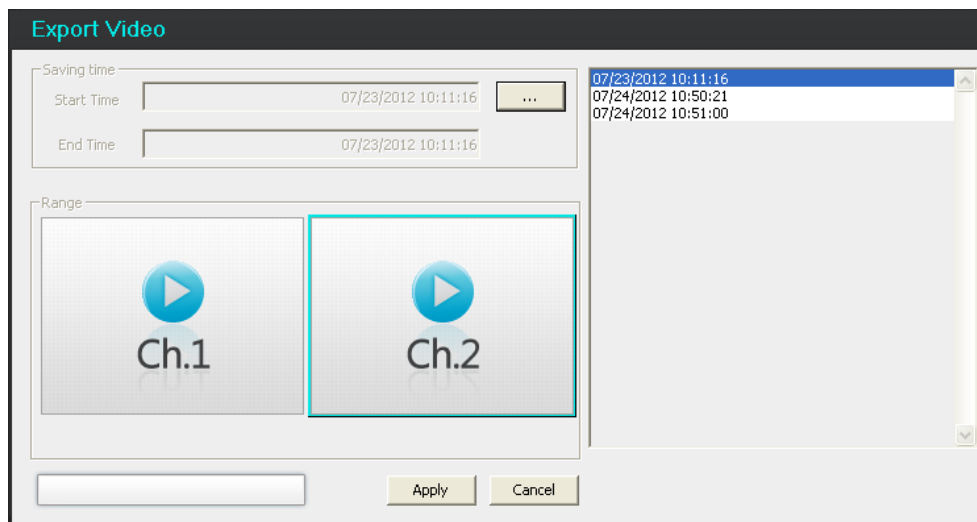



3. After press "OK" button, recorded file will show on the "LIST" tab. Double click the file to play on the Viewer.

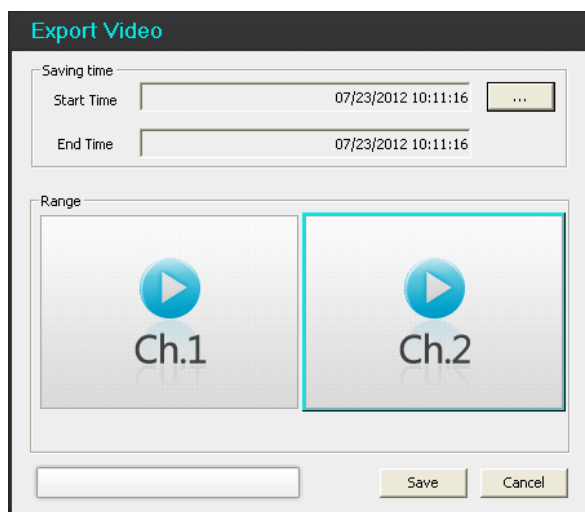


5.2. Export and Save the Video File

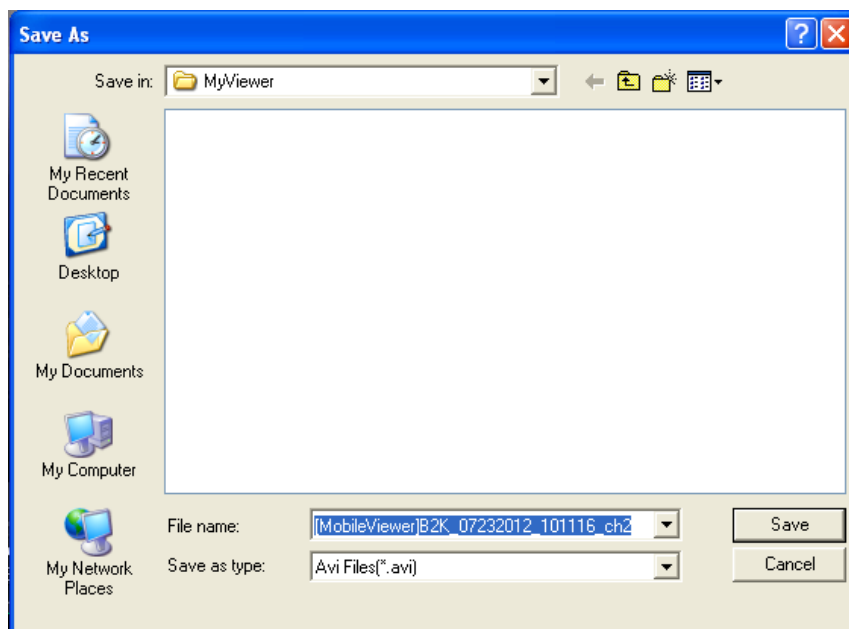
1. Press  button on the Voyager Viewer Software.
2. Press  button to select the recorded file to export and save.



3. Press  button to choose the file.
4. Select the desired channel icon between "Ch.1" and "Ch.2" to export and save. And then press "Save" button to open the "Save As" window.

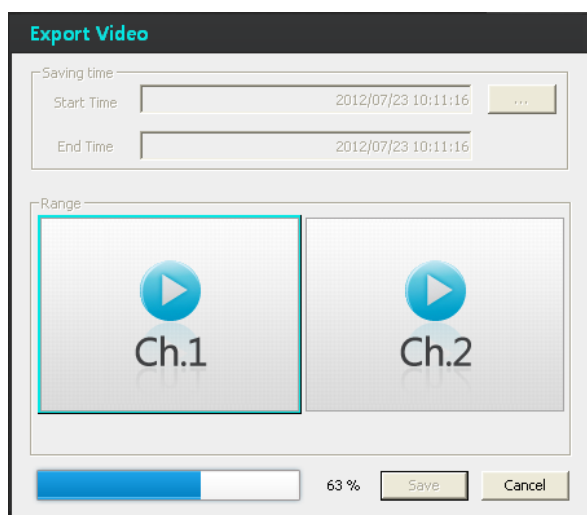


-
5. Choose the folder where the exported file will saved. And then press “Save” button to save the recorded file.




<Note> Recorded file will save as **.avi** file type only.


6. After exporting is complete, the “Export Video” window will disappear.

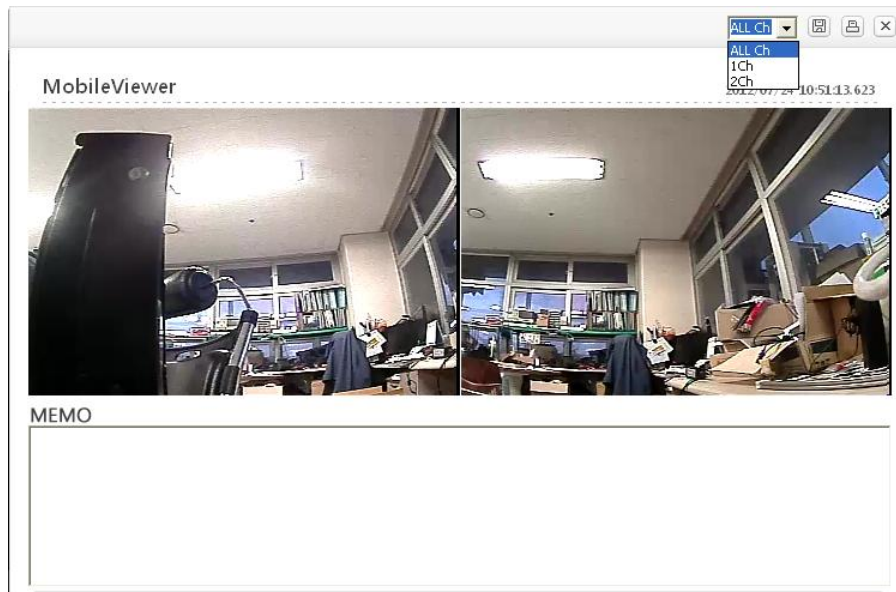


5.3. Save the Capture Image

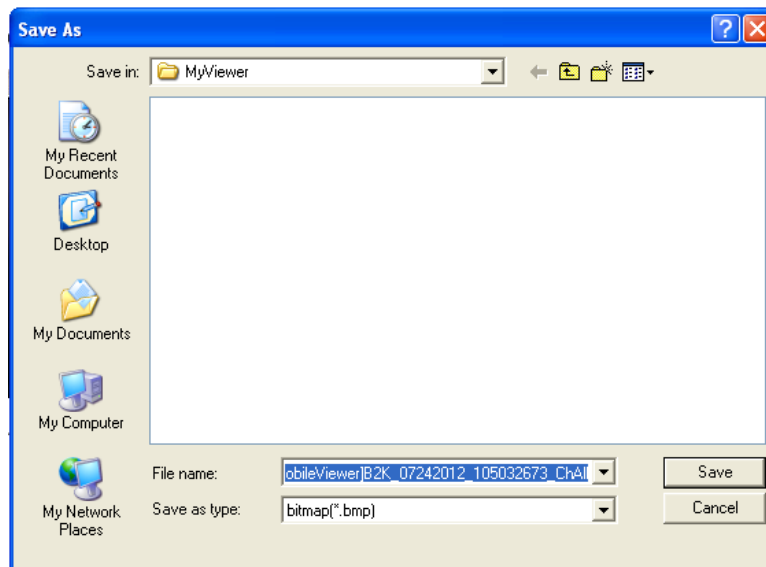
1. Press  on the Voyager Viewer Software.

<Note> Capture function will only work during the video play back.

2. Choose the desired channel of captured image from the drop down selection on the window. And then press  button to open the "Save As" window.

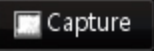



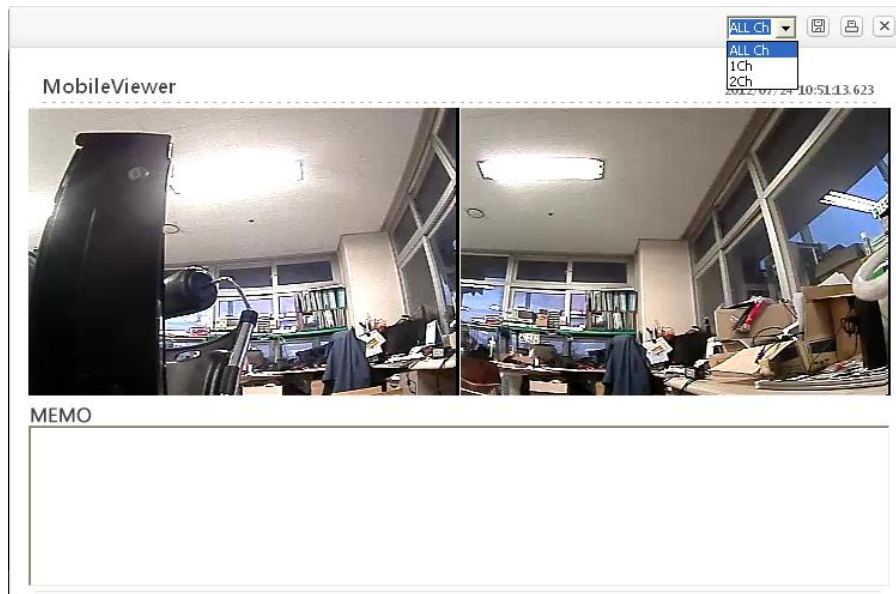
3. Choose the folder where the exported file will be saved. And then press "Save" button to save the captured image.



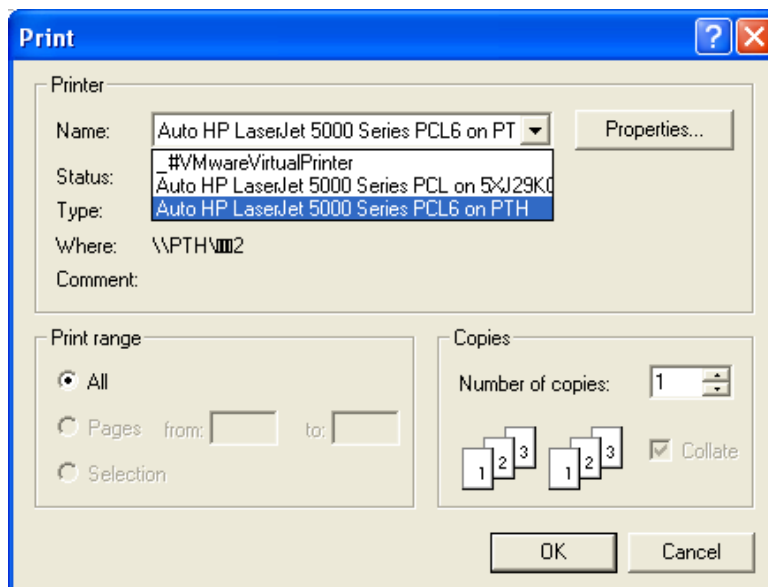
<Note> Captured image will be saved as **.bmp** file type only.

5.4. Print out the Capture Image

1. Press  on the Voyager Viewer Software.
2. Choose the desired channel of captured image from the drop down selection on the window. And then press  button to open the "Print" window.



3. Choose the printer from the drop down button on the window. After printer selection, press "OK" button to print out the captured image file.



6. Specifications

Video Input	2 CH BNC
Video Live Output	1 Port (CVBS-RCA)
Compression	H.264
Rec. Mode	Real Time Recording (Overwriting) Event Recording (Protected)
Operating System	Embedded Linux
LED Indicators	Power, Recording, Error, Net
Sound	Buzzer
Recording Speed	720 X 480 / 30fps
Audio Input	1CH RCA
Alarm Input	1CH Terminal Block
G-Sensor (Accelerometer)	±8g (3-Axial)
GPS	External U-Blox Engine Module
USB Port	USB type 3G Modem Compatible
RS-232	1 Port Phone-Jack Type
Storage	SD / SDHC Memory Card (2G~64G)
Power (Voltage / Consumption)	12V~24V / 4.56W
Weight	410g
Dimension	155*80*30(mm)
Operation Temperature	-20 ~65°C

WEEE Symbol Information



Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking shown on the product or its literature, indicates, that it should not be disposed with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.



12 MONTH LIMITED WARRANTY

ASA Electronics (ASA) warrants to the original retail purchaser of this Voyager product that should this product or any part thereof, under normal use and conditions, be proven defective in material or workmanship within 12 months from the date of original purchase, such defect(s) will be repaired or replaced (at ASA's option) without charge for parts and repair labor.

To obtain repair or replacement within the terms of this warranty, contact ASA at (888) 283-7374. The product is to be delivered with proof of warranty coverage (dated bill of sale), specification of defect(s) with purchaser's name and return address, transportation prepaid to ASA at the address shown provided at the time of return authorization.

This warranty does not extend to the effects of this device on other devices, to costs incurred for removal or reinstallation of the product, or to damage of any product, accessories, or electrical system(s). This warranty does not apply to any product or part thereof which, in the opinion of the company, has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

THE EXTENT OF ASA'S LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT PROVIDED ABOVE, AND, IN NO EVENT, SHALL ASA'S LIABILITY EXCEED THE PURCHASE PRICE PAID BY THE PURCHASER FOR THE PRODUCT.

This warranty is in lieu of all other express warranties or liabilities. ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. ANY ACTION FOR BREACH OF ANY WARRANTY HEREUNDER INCLUDING WARRANTY OF MERCHANTABILITY MUST BE BROUGHT WITHIN A PERIOD OF 30 DAYS FROM THE DATE OF ORIGINAL PURCHASE. IN NO CASE SHALL ASA BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, WHATSOEVER. No person or representative is authorized to assume for the company any liability other than expressed herein in connection with the sale of this product.

ASA Electronics
(888) 283-7374

IMPORTANT WARRANTY INFORMATION

**DO NOT RETURN DEFECTIVE PRODUCT
TO YOUR PLACE OF PURCHASE**

CONTACT VOYAGER @ 1-888-283-7374

**Please place this Warranty Agreement and a copy of your sales
receipt in a safe and secure location, along with your other valuable
documents.**



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