# 8 Channel Vehicle DVR System

# **User Manual**



# 2016 MAY V1.0

Optional



# Safety Precautions

Take and review some testing video initially to make sure the images were recorded correctly. Please note that manufacturer, its subsidiaries and affiliates, and its distributors are not liable for consequential damages arising from any malfunction of main device accessory, including memory device that results in the failure of an image to be recorded or to be recorded in a way that is machine readable.

Before using the product, please ensure that you read the safety precautions described below. Always ensure that the product is used correctly.

- Please keep device away from children.
- Use only recommended power sources.
- Do not attempt to disassemble, alter or apply heat to the product.
- Avoid dropping or subjecting the product to severe impacts.
- To avoid the risk of injury, do not touch the interior of the product if it has been dropped or otherwise damaged.
- Stop using the product immediately if it emits smoke, a strange smell, or otherwise behaves abnormally.
- Do not use organic solvents such as alcohol, benzene, or thinner to clean the product.
- Do not let the product come into contact with water (e.g. sea water) or other liquids.
- Do not allow liquids or foreign objects to enter the VVR.
- Do not place the VVR near or in direct flame.
- Do not handle the power cord with wet hands.
- Do not use the equipment in a manner that exceeds the rated capacity of the electrical outlet or wiring accessories. Do not use if the power cord or plug are damaged, or not fully plugged into the outlet.
- Do not allow direct or metal objects (such as pins or keys) to contact the terminals or plug.
- Avoid using, placing or storing the product in the humid or dusty areas.

Before using 3G products, please ensure that you read the safety notifications described below.

- Company and user shall not modify certified low power radio frequency device the frequency, increase the power and change the characteristics and functions without permit.
- Use low power radio frequency device shall not affect flight safety and interfere with legal communications; when there is interference happened should be immediately suspended, and improve without interfering may continue to use.
- Legal communication means operation of radio communication in accordance with the provisions of the Telecommunications Act Low-power radio frequency device must endure the interference of legal communications, industrial, scientific and medical radiation wave equipment.

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A. Features

- 1. Support 8CH recording cameras at the same time to record driving images completely.
- 2. Wide range of power input, suitable for any kinds of vehicles.
- 3. Auto recording after power supplied.
- 4. Provide Video output for playing-back mode and operating in mainframe.
- 5. x4 I/O alarm input, x1 Audio input and x1 Audio output.
- 6. Built-in G-sensor, automatically detect crush, trig force recording.
- 7. Built-in WIFI and 3G network, different selection of connecting.
- 8. H.264 real time compression chip, Higher compression ratio and keep clear resolution.
- 9. Recording format: 960H \ D1 \ CIF, used for different demands.
- 10. Complete Video Record List. Overall quick search event log.
- 11. Completely record driving video and sound to make sure attribution of responsibility when accident occurred.
- 12. Provide AVI convert function to users playback on PC.
- 13. Power management function, Extended record after power off.
- 14. G-Mouse optional, completely record your driving position and speed.
- 15. 3G module optional, control driving situation of vehicles anytime.

**B.** Specification

ITEM	DESCRIBT	ION		
TV System	NTSC/PAL			
OS	Embedded Linux			
Video Input	8			
Camera Power Output	8x 12V / 40	0mA		
Video Output	1			
Audio Input	1			
Audio Output	1			
ALARM IN/OUT	4			
User Interface	GUI ICON C	ONTROL		
Languages	English Trac	d/Simplified	Chinese	
D. 1 EDC	NTSC	240 FPS		
Display FPS	PAL	200 FPS		
De condica e EDC	NTSC	8CH 960H@30FPS/CH		
Recording FPS	PAL	8CH 960H	1@25FPS/CH	
Display Mode	1, 4, & 9			
Simplex Mode	Record/Playb	Record/Playback		
	5: 1	NTSC	960 x 480	
	Display	PAL	960 x 576	
		NTSC	360x240@CIF	
			720x240@2CIF	
Resolution			720x480@D1	
Resolution			960x480@960H	
	Rerecording	PAL	360x288@CIF	
			720x288@2CIF	
			720x576@D1	
			960x576@960H	
Primary Storage	2.5" SATA Hard Disk Drive SD card			
Back Up Storage	USB 2.0 Disk · 2.5" SATA Hard Disk Drive			
Quick Search	Mode	Time/Date	e · Event	
Quick Search	Full Screen Yes			
LED Indicator	4 LED (LAN \ REC \ GPS \ Power)			
Signal Loss Detector	Yes			
Buzzer Alarm Output	Yes			
RS485	Yes			
GPS	Yes, Optional G-Mouse Required			

G-SENSOR	Yes
3G	Yes Optional 3G Module Required
Wi-Fi	Yes Optional Wi-Fi Module Required
IR Remote Control	Yes
System Monitoring	Automatic reboot after unexpected power shutdown
Internet	Yes
Power	(1) DC 8V~36V (2)ACC ACC Off set via Player
Dimension	250mm x 174.8mm x 69.5mm
Operate temperature	-20°C~65°C
Weight	1.85kg(Including bracket & Hard Disk Drive)

<sup>\*</sup>Note: Hard disk drive and Cameras are not included.

<sup>2.</sup> No further notice for any modifications afterwards.

# C. Accessories

This product contains accessories as below:

#### • Standard:

Main Device / Power Cable 6P+5A / ALARM Cable / IR Extension Cord /16P Female-MINI x2 / IR Remote Control/Network Cable / Software Disc / RS-485 Cable(2 pin)

# Optional

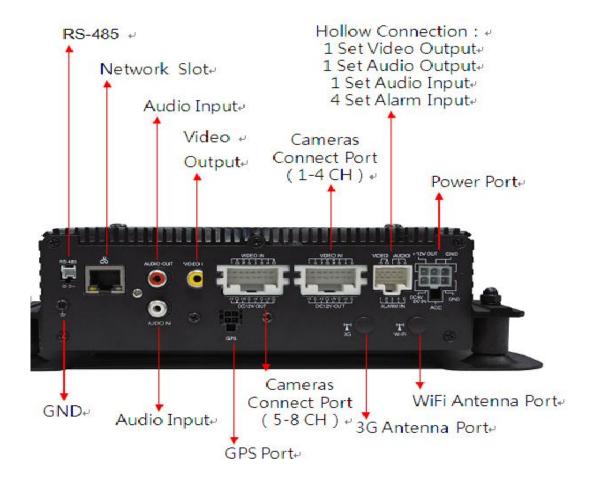
3G Module / WiFi Antenna / G-Mouse

# **Product Exterior**

Front Panel————

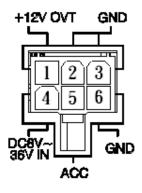


#### Rear Panel-



# 

#### Pin Define Power Connector



- 1. DC+12V Output
- 2. Signal & DC grounding
- 3. Signal & DC grounding
- 4. DC8~36V IN Vehicle Power(+)
- 5. ACC Control
- 6. GNDP Vehicle Power(-)

#### D. Power On / Power Off



#### (1) Power On

Put HDD into HDD slot and closet HDD slot lock, then turn on the power and it will take approximately 30 seconds. When lights start flashing as the recording is in progress.

#### (2) Power Off

Turn off the power; please wait for 10 seconds until super capacitor without electric. Then take the HDD out and playback the recording files in computer.

#### (3) Light Indicator

- Power Light(Green Light) :
  - Light Off  $\,\cdot\,$  means no power/power off.
  - Light On , means power supply normally.
- •GPS Light(Orange Light) :
  - Light Off , means GPS is not ready.
  - Light On , means GPS is locating position.
- Network Light(Blue Light) :
  - Light Off , means network disconnected.
  - Light On means network connected.
- Recording Light(Red Light) :
  - Light Off · means non-recording.
  - Light Flashing, means recording.
- When Light Fast Flash · means Force recording is caused by manual or G-Sensor
  - ( Remark: While using playback function in DVR, it cannot take live recording at the same time. )

### E. IR Remote Controller

Vehicle DVR can be operated through two methods: IR remote controller and PC software application.

◆ Through IR Remote controller instruction



	Buttons Instruction				
No.	Function Description	No.	Function Description		
1	1CH Screen Display	7	Confirm Button		
2	Force Recording Button	8	Backward		
3	4CH Screen Display	9	Playback · Play		
4	Mute	10	Pause		
5	Menu	11	Stop · Left		
6	Arrow				



## Remote control inspection

- Check the battery's positive and negative polarity.
- Check the battery if run out.
- Check the sensor of remote control if be obscured.
- Check if there are fluorescent lamps are used nearby.

# F. System Interface and Operation

◆ Live Monitoring Mode Display



Live Monitoring Mode-8 Split Display (1~8ch)

- (1) Display Description:
  - Press Ch1~Ch8 button or select on menu for single display.
  - Press quad split screen button for 4Ch display
  - Press quad split screen button repeatedly to show CH1~4 display or CH5~8 display
  - Press menu button to enter menu option.
  - Press play button to enter playback mode.
- (2) Icon Description:
  - **!** Recording

  - **!** Voice Recording On
  - ©: Event Recording On
  - **III**: 3G Connection On
  - 🖴: Alarm Trigged

# ◆ OSD Menu Operation and Parameters Setup Description

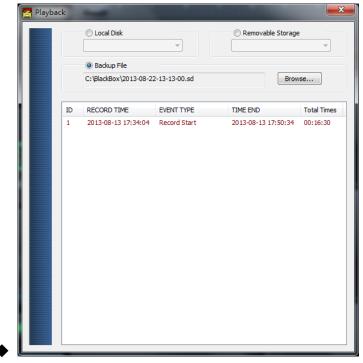
		ſ	1	I	
	Recording Frame	NTSC Recording	960H	- 5-20 fps	
			D1		
			CIF	30fps	
Recording Setting		PAL	960H	5-20 fps	
			D1		
			CIF	30fps	
	.Resolution	Normal	Better	High	
Video Setting	Select 1~8CH	to adjust	Bright, Co	ontrast and C	olor
Time Setting	The time setting will be automatically calibrated by GPS signal. If no GPS signal, time and date can be set manually.				
GPS Setting	Select show speed and speed unit setting on live view display or Not.				
Plate Number Setting	Input range: A~Z and 0~9				
Working Mode	<ol> <li>Setup channel mode when system starts.</li> <li>Select extensional time after ACC Off</li> <li>Sound recording ON/OFF</li> </ol>				
Alarm Setting	Setup the mode after alarm trigged.				
System Protection	Low voltage protection(trigged at ACC mode)     Notice of HDD protecting.				

3G Network	3G function ON/OFF · show setting information at present(Optional)
G-Sensor Setting	Once the function is activated, when the car collision happened, Force Recording mode will be automatically triggered, to prevent complete recording event not be overwritten.
Data Backup	Select necessary files to backup.
Restore Default	After restore default setting, machine will be restarted and cleaned original setting.
Format HDD	Recording data will also be formatted at same time
Firmware Update	Save the firmware update program into USB device and use USB device to update firmware. When update firmware please keep power supply. It will restart automatically after finishing update.

- ◆ Playback Mode
  - Live screen on the device or on PC
  - On the Device
    - (1) Click play button on the remote control during live monitoring mode, to enter playback page.
    - (2) To select search type then click enter button, to enter playback list



- (3) To select the playback file, then click enter button to enter the playback video file.
- Playback on PC: To enter playback by unplug and read HDD
  - (1) To read the HDD with saving data on PC, then run the player software CarBox2.exe.
  - (2) Click "Playback" to open playlist menu.
  - (3) Select HDD, the video files will be shown in the playlist, Click the video file to play.



◆ Playback List Display

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◆ (Remark:If the playback list cannot be read in Win7 system. Solution: click right button and execute CARBOX as Administer identity.)

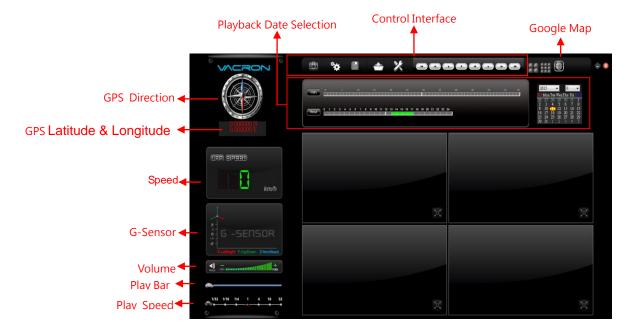


# G. CARBOX Player on PC

Execute player software CarBox2.exe

**★**Caution: It needs to install DirectX 9.0 or above before running CarBox2 software.

Operating Instruction



# (1). Control Interface Description

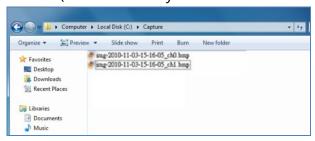


Ö	Snapshot: Capture the footage screen.
**	Configuration
0	Disk Backup: Select backup location to
٥	save files.
<u>*</u>	Playback: Select files in HDD or PC to
	playback.
X	Tool, HDD format, language setting.

14	Previous File: Play previous video.		
•	Previous Frame: Backwind previous frame in Pause situation.		
	Save as SD files, Video backwind play.		
	Pause: Pause playing video		
	Stop: Stop playing video		
	Play: Play pause video		
	Next Frame: Forward next frame in pause situation.		
<b>*</b>	Next file: Play next video		

### **♦** Snapshot

Screen shoot: Click the icon, to capture the footage screen. The Image will be save as .bmp file format. Player will show the backup folder automatically. The default directory is the Snapshot folder. (Under the Player installation folder).

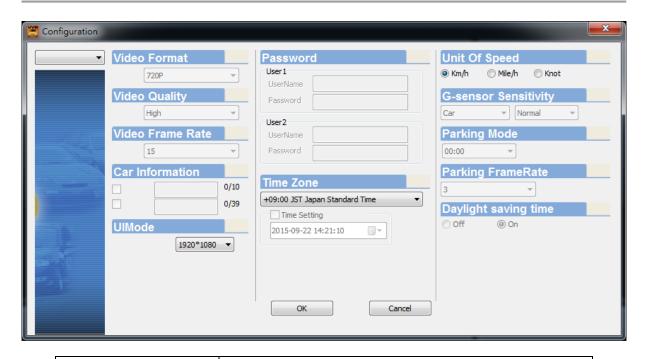


# **♦** Configuration

: Setup the HDD Setting.

Before execute this function, please insert the HDD device into your computer. When finish all setting and click <code>"Save\_"</code>, all the setting will save to the HDD device. When you insert the HDD device into your DVR, the DVR will read the setting and follow the setting to start recording.

Remark: Using SATA convert USB Cable Device to read HDD on PC.



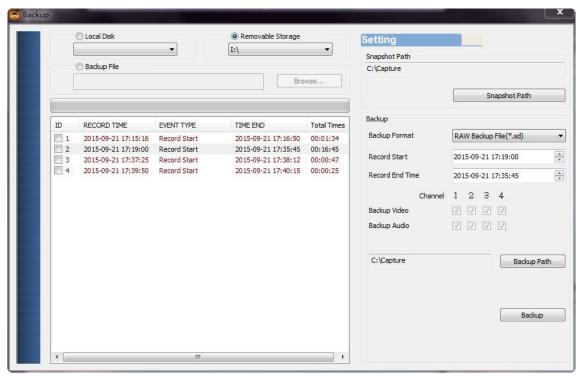
Resolution	960H / D1 / CIF
Video Quality	Choose the resolution: High / Normal / Low
Video Frame Rate	Set the fps from 5 to 20 fps
Car information	Car License, Driver (For Company car, Taxi, or fleet)
UI Mode	Setup Player Size.
Password	Encrypt the HDD device to prevent others who not permitted to access the HDD device. String length:  15 character. After setting the password, all actions, like Playback footage, setting, format HDD device, need the password.  * Note: Upper character and lower is different.
Time Zone	GMT setting, to adjust the time zone.
Unit of Speed	Set the speed unit Km/hr Mile/hr Knot
G-sensor Sensitivity	G-sensor sensitivity setting mode Sensitivity setting: (Min/Low/Normal/High/Max)
Parking Mode	Setup Extend Recording Time after Engine off
Parking Frame Rate	Setup Extend Recording Frame after Engine off

### ◆ Backup

Backup folder: Choose the folder that backup file will save.

Backup the footage on the HDD device to your computer for data backup.

Select icon to start the backup function as the following:



Step1.Choose the Local Disk, Removable Storage or Backup File.

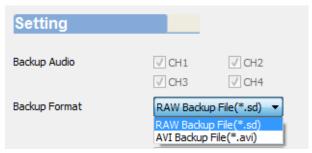


Step2.Choose the file you want to backup on the HDD device.

ID	RECORD TIME	EVENT TYPE	TIME END	Total Times
1	2015-09-21 17:15:16	Record Start	2015-09-21 17:16:50	00:01:34
2	2015-09-21 17:19:00	Record Start	2015-09-21 17:35:45	00:16:45
3	2015-09-21 17:37:25	Record Start	2015-09-21 17:38:12	00:00:47
4	2015-09-21 17:39:50	Record Start	2015-09-21 17:40:15	00:00:25

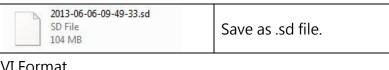
17

# Step3. Choose backup file format.



#### Backup Format:

#### SD Format



#### AVI Format

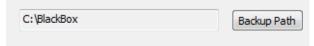


Note: \*.sd format file contain image/speed/location and G-SENSOR data. \*.avi format only can backup the video and audio. We recommend you backup as \*.sd format.

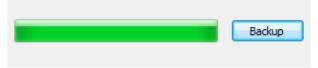
# Step4. You also can choose a period to backup the footage during the period



Step5. Choose the backup folder.

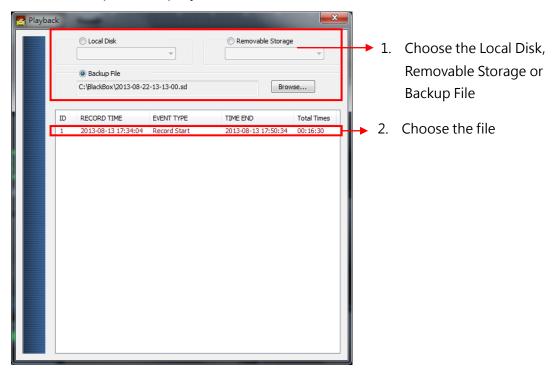


# Step6.Start to backup.



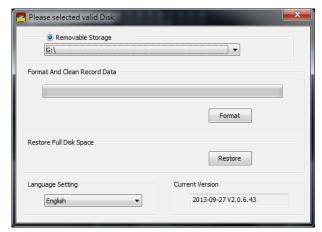
## ◆ Playback

Playback the footage: Choose the file in HDD device or in the computer to playback.



#### **♦** Format

Format: Format the storage and Restore the storage format to windows format. Language setting, Firmware version. For Format and restore storage, please reference the next item.



#### (2). GPS Latitude & Longitude Coordinates



GPS Latitude & Longitude Coordinates: Display driving location and latitude & longitude with G-mouse (Optional)

### (3). G-SENSOR



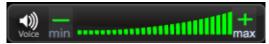
#### G-SENSOR:

X: The G-force from left & right of the car.

Y: The G-force from front & back of the car.

Z: The G-force from upside & downside of the car

# (4). Volume Control



Volume BAR: Click the left button of mouse control to adjust the volume degree.

### (5). Video Search



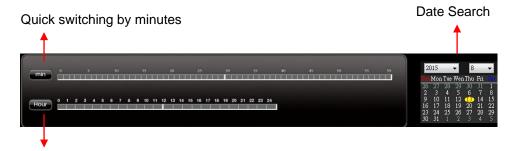
Video Searching: You can use the mouse to drag the bar to search the video quickly.

# (6). Play Speed:



Play Speed: Support 2x, 4x 8x fast forwarding and -1/2x, -1/4x -1/8x slow play mode.

# (7). Playback Date Selection



Selecting by Hours/Minutes (24-hours)

### H. Format/Restore HDD

#### Format HDD

Q: When should you format the HDD?

A: For brand new HDD or an used HDD which is used in other equipment before, it should be formatted before using. •

\* Before format please backup the important data in your HDD.

### Format HDD by Device or PC.

(1) Format by Device

Step 1: Use remote controller to enter DVR menu and choose Format Disk.



Step 2: Select "Yes" and Click "Enter' ' to start formatting.

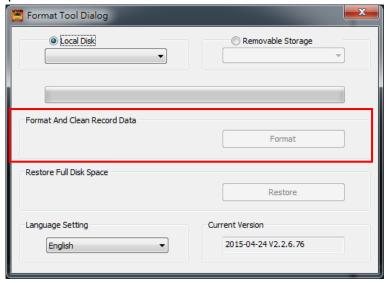
Step 3: When the screen back to LIVE mode, the formatting is completed.

#### (2) Format On PC

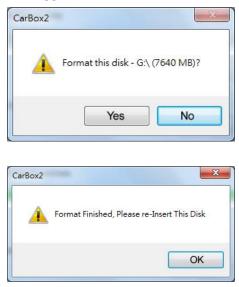
Step 1: Connect the storage device / hard disk to PC. Execute the CarBox2.exe software

Step 2: Click icon to enter format tool menu.

Step 3: Click "Format" button.



Step 4: Click "Yes"



(After format, re-plug the storage device, then you can set up related parameters and save. After setting, Install the HDD into the DVR and it can start to work.)

#### Restore HDD

Q. When you need to restore the Storage?

A. If the storage device(HDD) will be used in other purpose., please back-up record footages to PC firstly and then restore it.

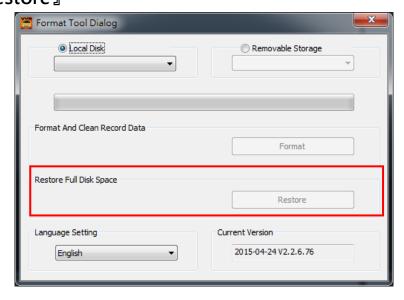
\*\*Before Restore please backup the important data in your HDD.

(1) Restore the Storage on PC Player Step 1: Connect the storage device (hard disk) to PC. Execute CarBox.exe

Step 2: Click icon, choose the Storage, then press

Restore 

Rest



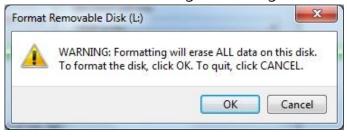
Step 3: The following window will pop up, Click 『Yes』 to start restore the Storage.



<u>Step4.</u>Now system will pop up the window to proceed the format procedure, please choose "Quick format". then click "Start".



Step5. Click 「Yes」 to start formatting the Storage



Step6. Click "OK" to finish restore HDD device.



Step7.After finished, press  ${}^{\mathbb{F}}OK_{\mathbb{Z}} {}^{\circ}$  Then the Storage format is normal windows format.



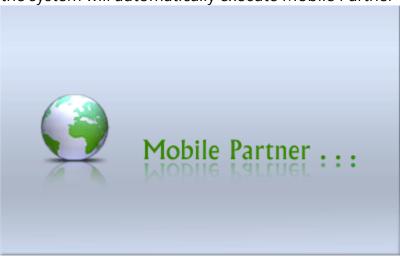
# I. 3G Internet Setting

### (1) SIM Card Setting

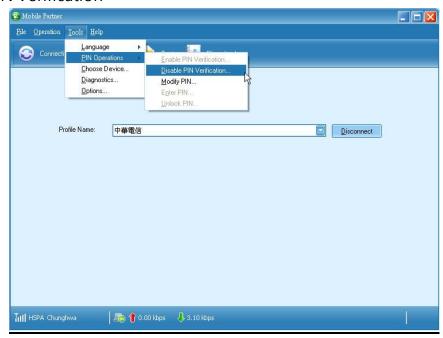
During using SIM card, the protected pin code must be turned off, please refer to the following steps.

(For example like HUWEI CHT-E180 model, 3.5G USB wireless adaptor)

<u>Step1.</u> Plug in SIM card into 3G dongle then connect 3G dongle to PC, the system will automatically execute Mobile Partner



<u>Step2.</u> Once enter the system, go to Tool-> PIN operations-> Disable PIN Verification



Step3. Input the correct PIN numbers, Default Setting: 0000



<u>Step4.</u> After input PIN numbers, it will have a pop-up message to complete disable PIN numbers

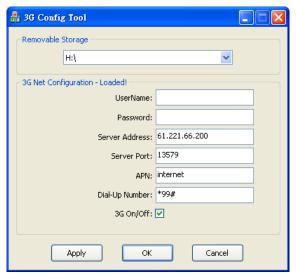


<u>Step5.</u> After complete these steps, reinsert SIM card to the socket on the device to activate.

- (2) 3G-Network Setting
  Setup the relative parameter of 3G-Network.
  - Step1. Please double click and open the setting page as below:



<u>Step2.</u> Insert USB to PC and select USB flash driver to enter relative parameter.



Config tool				
Removable Storage	Source of Device			
UserName	Default Setting			
Password	Default Setting			
Server Address	Server IP Address			
	Default Sever Port is 13579, Not			
Server Port	recommend changing the original			
	setting).			
	3G APN, generally preset to be Taiwan			
	Telecommunication providers, if in			
APN	other area, Please check local			
	Telecommunication providers offered			
	APN setting name.)			
	Dial-Up Number: 3G Dial-Up Number,			
	generally preset to be *99#, if in other			
Dial-Up Number	area, Please check local			
	Telecommunication providers offered			
	3G Dial-Up SETTING Numbers.			
3G On/Off	3G On/Off: To choice whether star the			

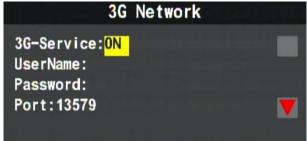
3G tele-connecting function or not.

"Pick" (V) mean "Star" commonly,
if not willing to use tele-connecting
function, please directly neglect it.

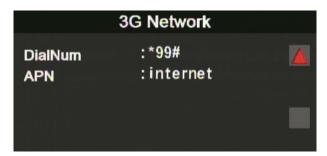
<u>Step3.</u> After finishing all the input information, click "OK" to save the information into USB drive. Click USB drive to check if the file already exists. (File name is net3g.ncf)

<u>Step 4.</u> Insert USB drive into DVR USB port then restart; after restart, if the parameter is successfully configured, the system will automatically restart in 10 seconds.

<u>Step 5.</u> After the system restart, please go into 3G Network in the main menu to check if the parameter is successfully configured.







(Once the configuration is done, it will show the information on the screen)

# J. 3G Client Remote Monitoring

(1) Login

Execute 3GClientApp.exe and login



Enter the username and password and then press "Login" button to login screen.

Note: To perform this software will require DirectX 9.0 or more.



User Name	User Account Name	
Password	User Account Password	
ContarConver Address	3G Server IP Address	
CenterServer Address	(Default: 202.39.134.134)	
CenterServer TcpPort	Server TCP Port (Default: 24680)	
CenterServer UdpPort	Server UDP Port (Default: 24681)	

### (2) Live View Display



Equipments list display all the connecting equipments. Be able to play real-time image form all channels. Lift click mouse to open equipment channel than click on channel to view the real-time image.

#### ■ Device List



# ■ Live View



■ Split screen display mode button



	Single Display		Quad Display	
	9 divisions Display		16 disvisions Display	
<b>™</b>	Muti-divisions display,25/36/49/64			

Live View-Single Channel Display





Live View- Quad Channels Display

# ■ Live View Function buttons



Recording	Signle snapshot as AVI file
Snapshot	Snapshot
Auto-flip	Auto flip to next page
Stop auto-flip	Stop auto-flip to next page
Monitoring Status	Save the current live viewing channels to be able to retrieve it next time
Go to previous page	Manually go to previous page
Go to next page	Manually go to next page

1. Recording: To record the selected channel, the red recording signal will show up at the bottom of the screen.



2. Snaptshot: To take the snapshot of the selected channel, it will automatically go to the saving directory.



- 3. Start Auto-flip: Once auto-flip is triggered, it will go to next page in a period of time.
- 4. Stop Auto-flip: Auto-flip function will stop..

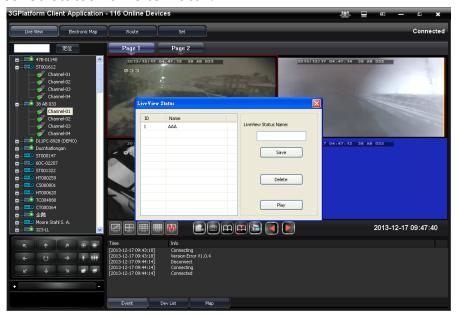
Auto-flip time setting, please go to Setting->Page 1->Auto flip period

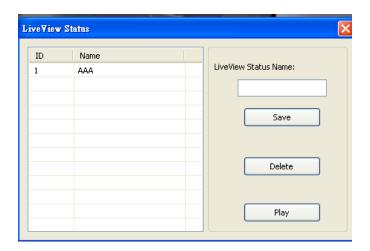
Page-Once the time is up, it will automatically go to next page



5. Monitoring Status: To save the current live channels, input the status name then save it; next time when you log into 3G client software, you could

click the saved status name to watch.





6. Manually select page: Manually select the previous or next page



Live View Interface To select different display mode: Event/Dev List/Map to show different status.

### 1. Event



## 2. Dev List



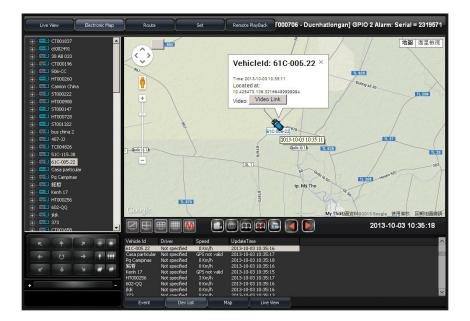
# 3. Map



# (3) Electronic Map

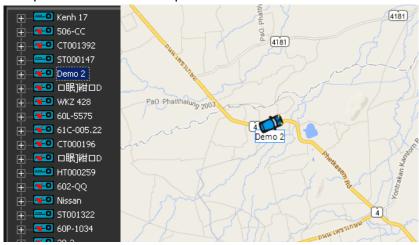
**\*\*G-Mouse must equiped with Device to have GPS function to provide positioning information** 

Once positioning is done, you could use the mouse to click the device for current position.



- Device Positioning
  - Without GPS function.

    CT000185 With GPS function Device Located.
- Electronic Map Select the positioned device on the list, then it will show its position on the map.



Live View Interface
 To select different display mode: Event/Dev List/Map to show different status.

### 1. Event



### 2. Dev List



### Map



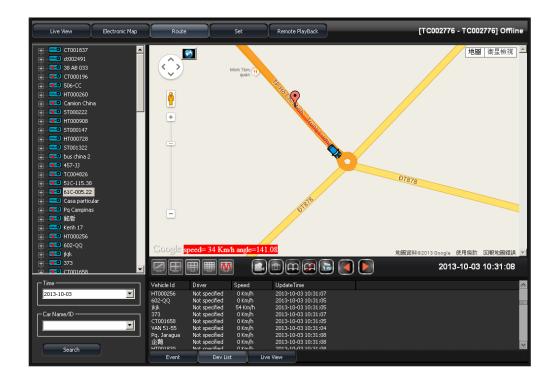
### 4. Live View



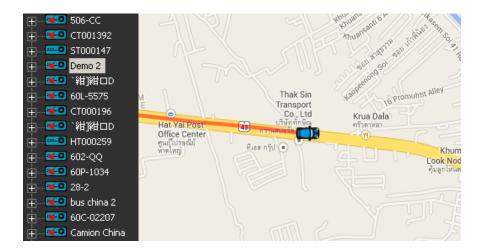
## (4) Route

**\*\*G-Mouse must equiped with Device to have GPS function to provide positioning information** 

To display the positioned device at the track, you can notice the traveling route of the vehicle.



 Device Positioning Information
 Select the positioned device on the list, then it will show its current position and traveling route on the map.



Tracking Route SearchChoose Date and Car Name/ID to search the data



Remote Live View Message Interface
 Mode: Event/Dev List/Map/Live View

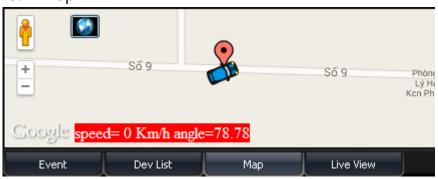
#### 1. Event



### 2. Dev List



### Map

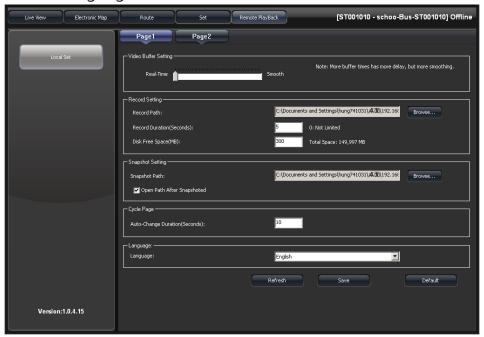


### 4. Live View

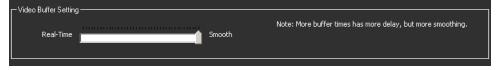


# (5) Setting Page

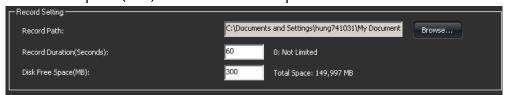
Page 1
Setting the FPS, recording function, auto turn over page, and language.



Video Buffer Setting
 Real-Time-> Higher frame rate
 Smooth-> Higher video resolution



Recording Setting
 Record Path, Record Duration (Seconds), and Disk Free
 Space(MB) are the relative options.



SnapshotSet the path after snapshot



Auto-Change Duration (Seconds)
 Set the duration in seconds of auto-change page.



LanguageSetup 3G Client Language display.



■ Page 2
Setting 3G function, recording, and e-mail.



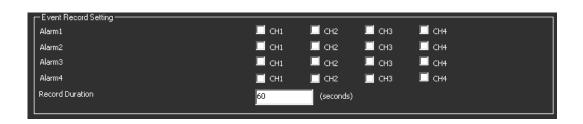
# 1. 3G Setting

Unit of Speed, Auto Disconnect Time, Read Device functions are available.



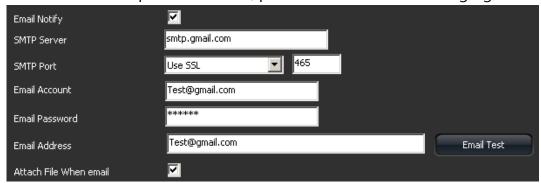
- Speed Unit: Speed unit of E-map and tracking route display
- Auto Disconnect Time: During live video playing, once it is set, the video image will be Close at the setup time.
- Read Device: To read all the devices or all available online devices. (If too many devices in this server, we recommend to select "only read online device" to have better PC performance.)
- Event Record Setting

To set the video recording channel and duration, once the alarm is triggered. (Remark: Once this function is set, all of online device video will be recorded; hence, if there are too many devices in this server, we recommend to close this functio to have better PC performance.)



## 1. E-mail setting

When the alarm is triggered, the server will send a e-mail to the specific account, please refer to the following figure.



• SMTP Servr : SMTP Server Address

SMTP Port : SMTP Port

Email Account

Email Password

Email Address

• Attach Video File when Email

(Remark: E-mail setting: Once the alarm is triggered, the
e-mail will be sent to all of online device; hence, if there are
too many devices in this server, we recommend to close
this functio to occupy unnecessarily the space of the e-mail
account.)

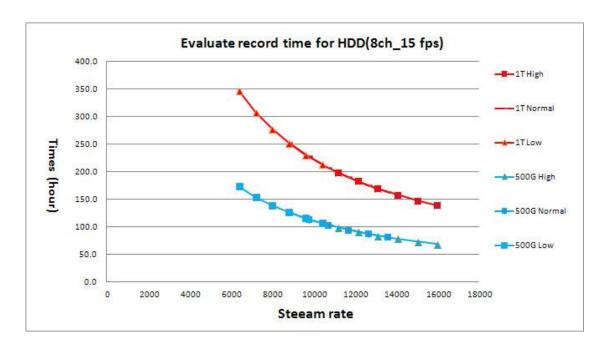
### **SMTP List Table**

Mail	SMTP	SSL Port	StartTLS
Googlemail	smtp.gmail.com	465	587
Yahoo Mail	smtp.mail.yahoo.com	465	Х
Outlook	smtp.live.com	Х	587

# K. Capacity Evaluation of Continuous Recording Storage Device

Assumption of the minimum record time for Mobile DVR: 8Ch/15FPS, Statics Recording and different capacity of Hard Disk.

The following recording table is evaluated by 500GB and 1TB.



**★**Data for reference, real recording time will be affected by different recording environment.



