Under Vehicle Surveillance System

Operating Instruction

Catalog

First Chapter: User Instruction

1.1 Purpose

Preparation of this document is intended to improve maintenance personnel vocational skills to enable them to quickly fit vehicle surveillance system maintenance personnel roles, customer maintenance needs quickly respond judgment and troubleshooting. Through this document, you will learn how to install, maintain and use the system.

1.2 Reading Object

Vehicle surveillance system maintenance and customer service personnel's technical maintenance, use of personnel.

1.3 General Introduction

This document includes the following several aspects:

- system requirement.
- Software installation and configuration.
- Software instructions.

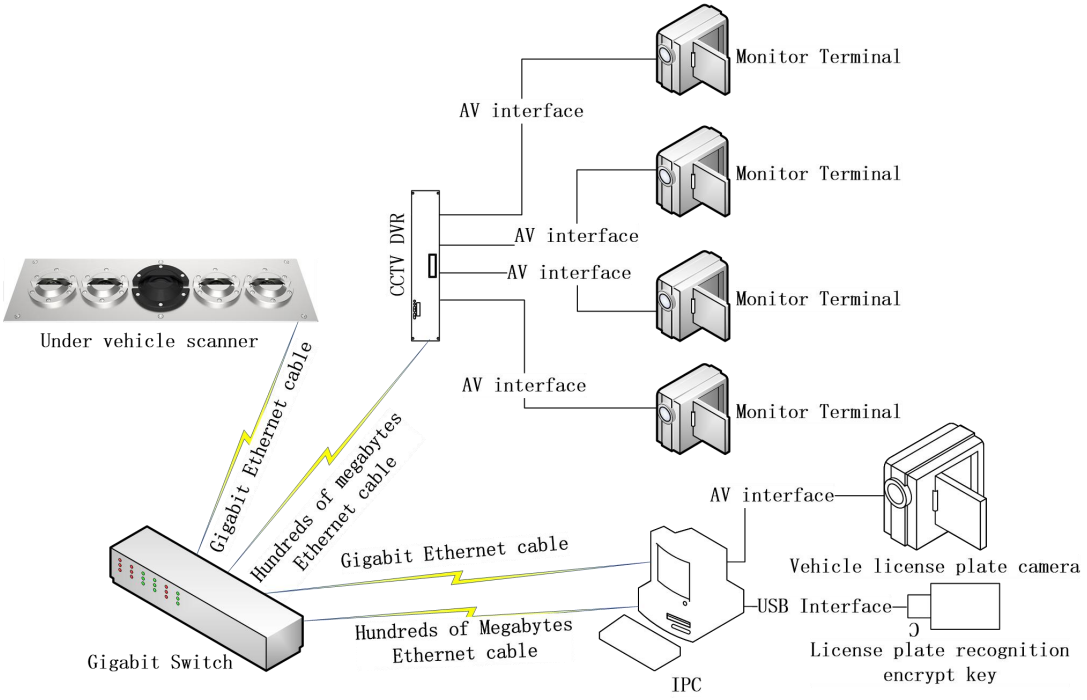
Second Chapter: System Installation

2.1 Installation Profile

Vehicle surveillance system required to run the program, including under vehicle scanner drivers and configuration tools, video capture card driver, CCTV DVR, monitor terminal, license plate recognition module drive and control registration, vehicle surveillance systems, System database to Microsoft Access 2003/2007 system. All installation procedures are required to provide the location of the system installation root directory.

2.2 System Hardware Connection Structure

The system consists of a hardware device used industrial personal computer, under vehicle scanner, CCTV DVR, monitor terminal, gigabit switch, vehicle license plate cameras and license plate recognition module such as the seven equipment modules, hardware connection diagram(main part) as shown below:



Note：

1） When the images is saved by capturing is blue, try switching to connect to the channel of host video capture card.

2） Dual NIC IP configuration of the host cannot be on the same network segment, please refer to the contents of the configuration section 3.1.2.

2.3 Software Requirement

Table 1 Software sheet

No.	Software name/catalogue	Note
1	Driver \ PCI Video Capture Driver	Video acquisition card driver
2	MVGESDK-EN-GENERIC_WIN32_V1.4.1.exe	Under vehicle scanner driver
3	Car Check.exe	Car surveillance system software
4	Microsoft Access 2003/2007	Database software
5	Windows XP/Windows 7（32bit）	Windows 7 system, does not support 64 - bit
6	Record Player.exe	Local video player software

2.4 Hardware Requirements

Table 2 Hardware configuration sheet

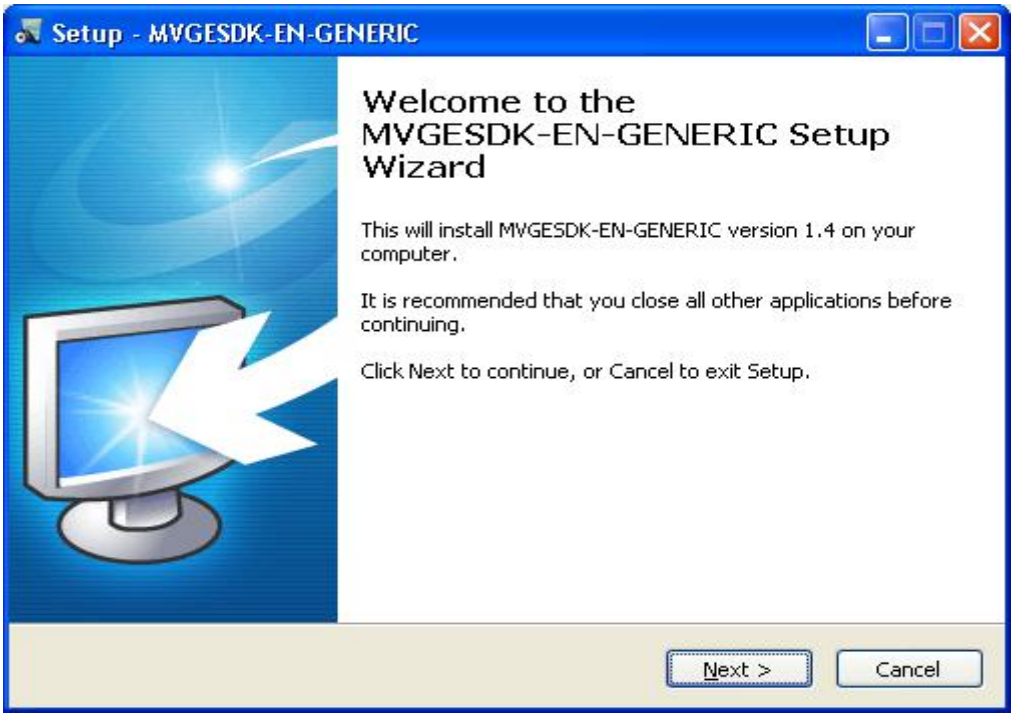
NO.	Hardware Name	Note
1	under vehicle scanner	Offer by the under vehicle surveillance system software provider
2	PC machine	1）Operation system Windows XP/Windows 7（32bit） 2）Hardware requirement More than a dual-core 3.0 G hz CPU, 2G Memory, 200G or more free hard disk space, Dual NIC(at least one gigabit), USB 2.0 interface with more than 2, Display resolution is 1920*1080 and above.
3	PCI video capture card	Offer by the under vehicle surveillance system software provider according to the used solution.
4	License plate cameras	Offer by the under vehicle surveillance system software provider according to the used solution.
5	License plate recognition encryption dog	Offer by the under vehicle surveillance system software provider according to the used solution.
6	CCTV DVR	Offer by the under vehicle surveillance system software provider according to the used solution.
7	Video monitoring terminal	Offer by the under vehicle surveillance system software provider according to the used solution.
8	Gigabit Switch	Offer by the under vehicle surveillance system software provider according to the used solution.

Third Chapter: Software Installation And Configuration

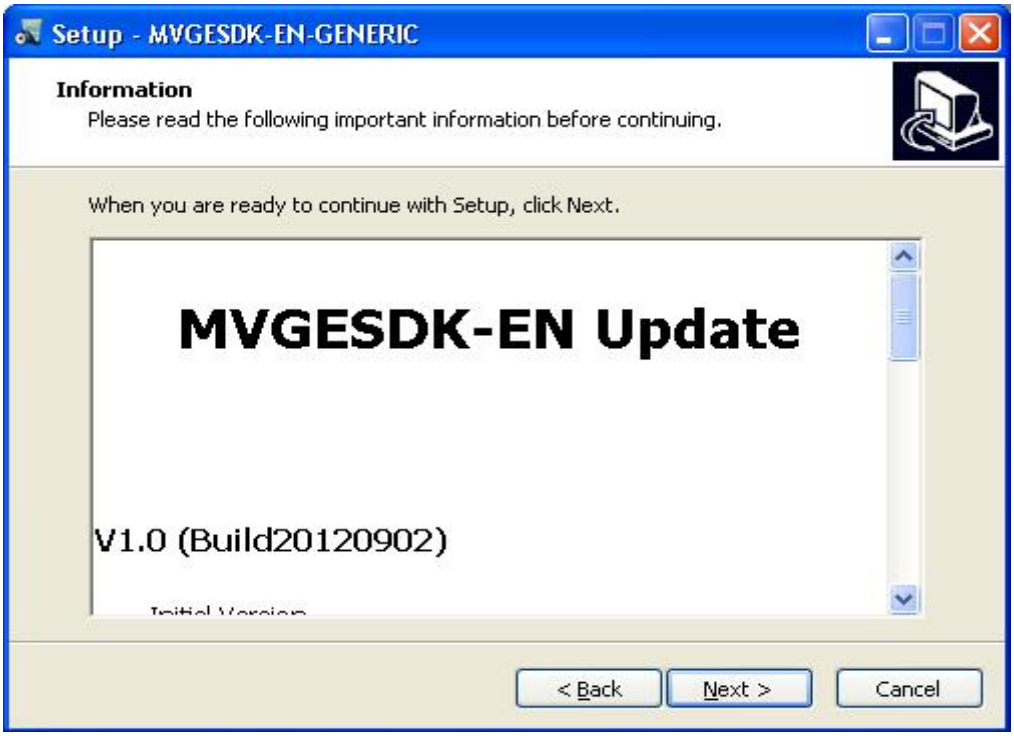
3.1 Under vehicle scanner driver installation and configuration

3.1.1 Driver Installation

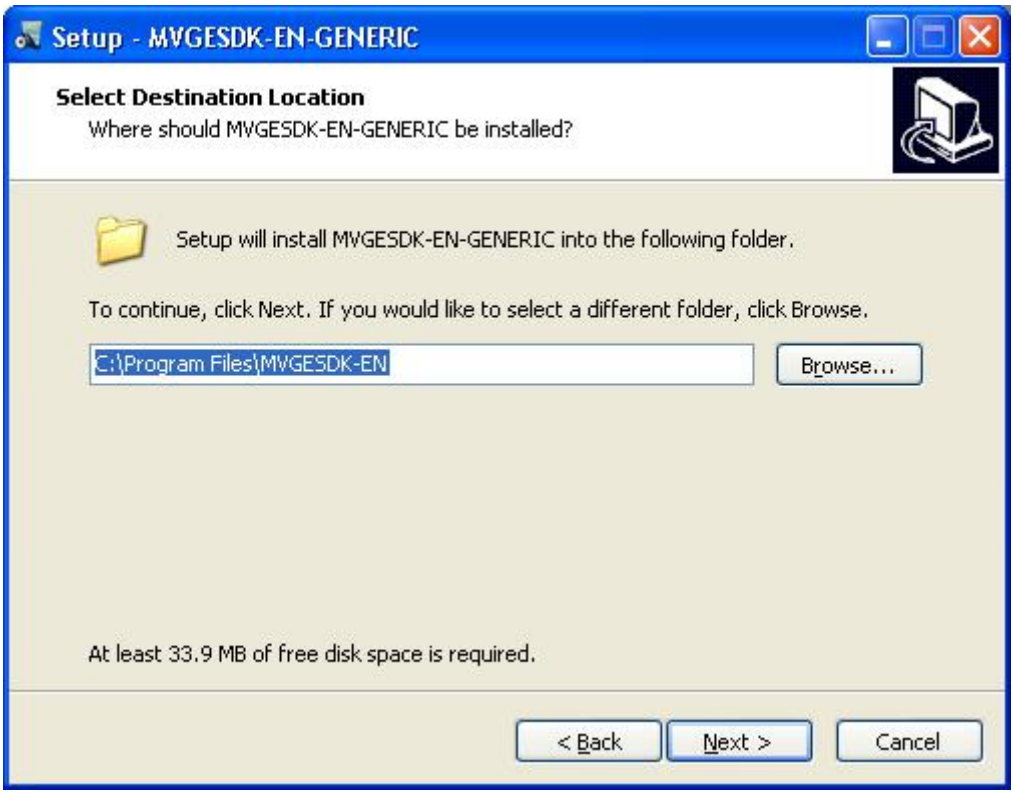
Step 1: Double Click MVGESDK-EN-GENERIC_WIN32_V1.4.1.exe to install under vehicle scanner driver, the interface is as follows:



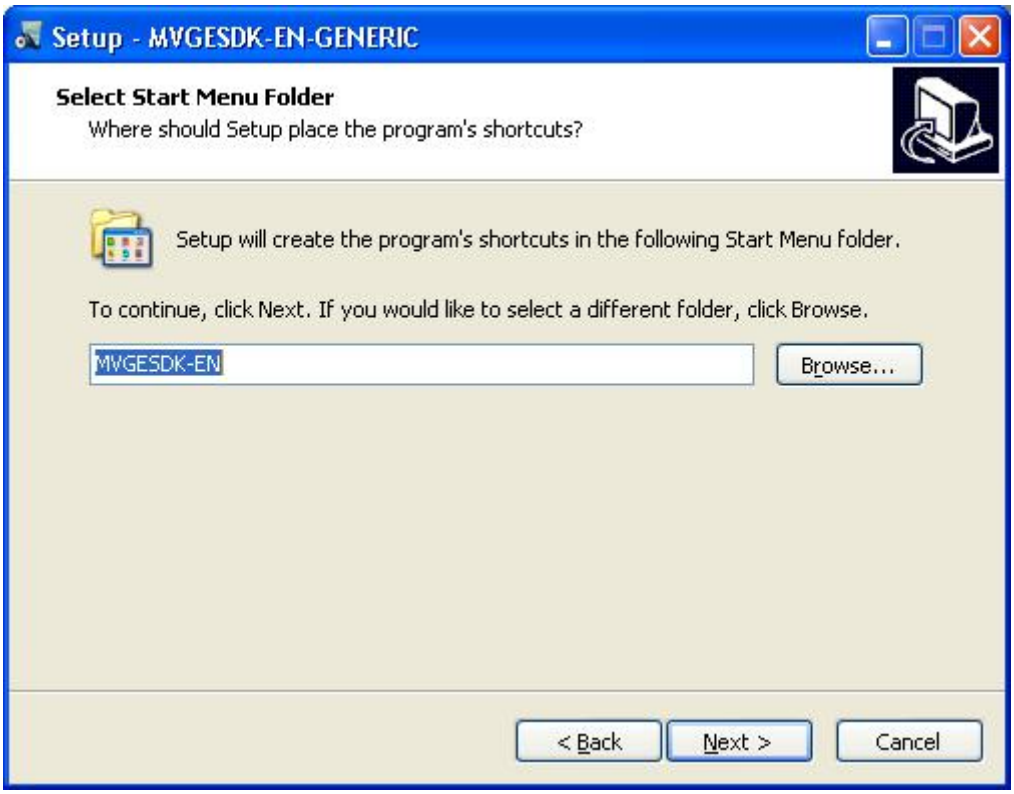
Step 2: Click on [Next] to continue, click on [Cancel] to exit. Click on [Next], the interface is as follows:



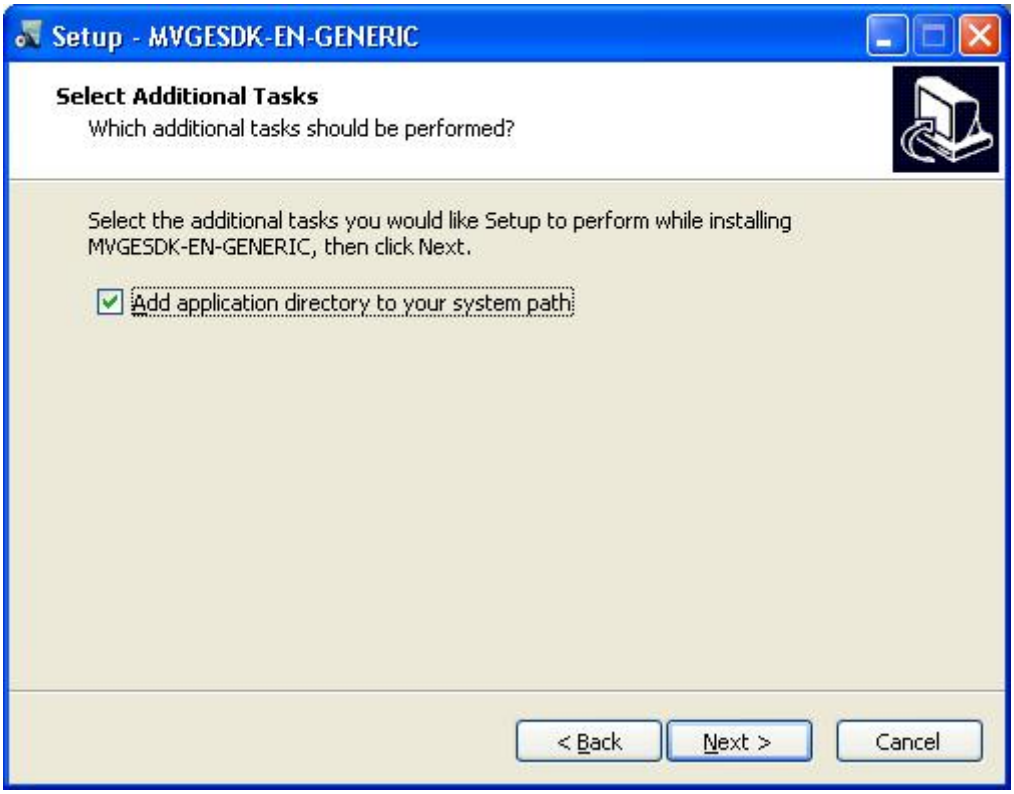
Step 3: In the above interface, Click on [Next] to continue, click on [Cancel] to exit. After click on [Next], the interface is as follows. In the following screen, you need to select a local path to install the driver, please keep the default path.



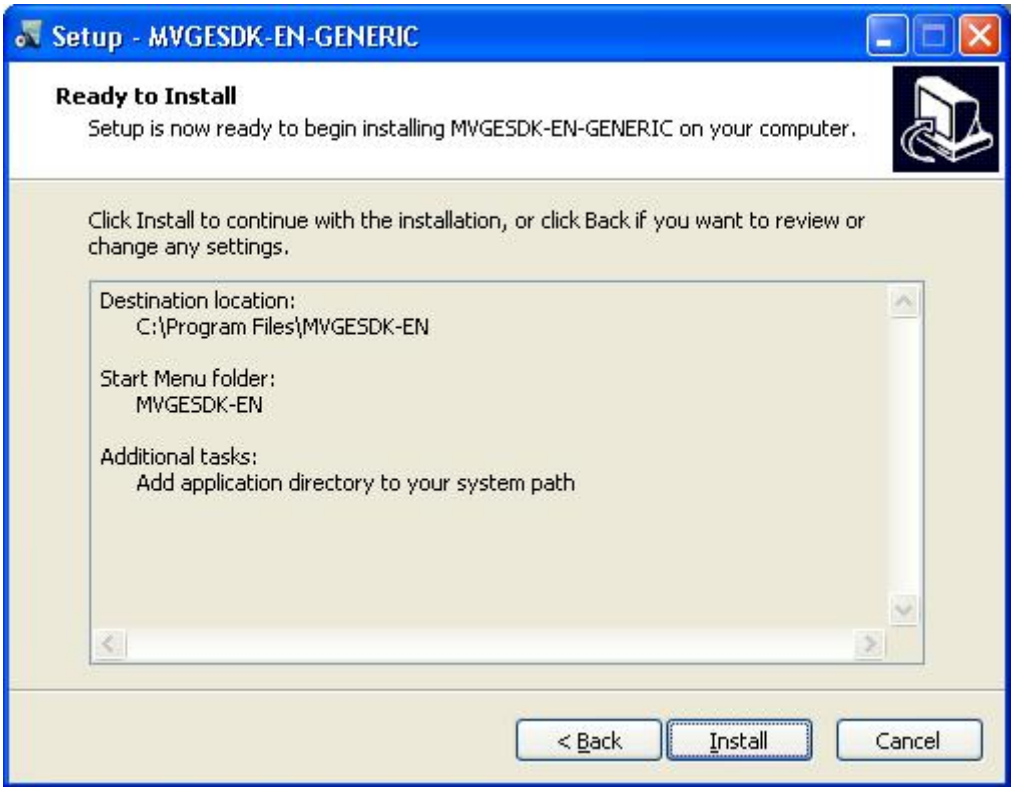
Step 4: In the following screen, you can rename the shortcut folder name. Please keep the default shortcut name. Then click on [Next] to continue.



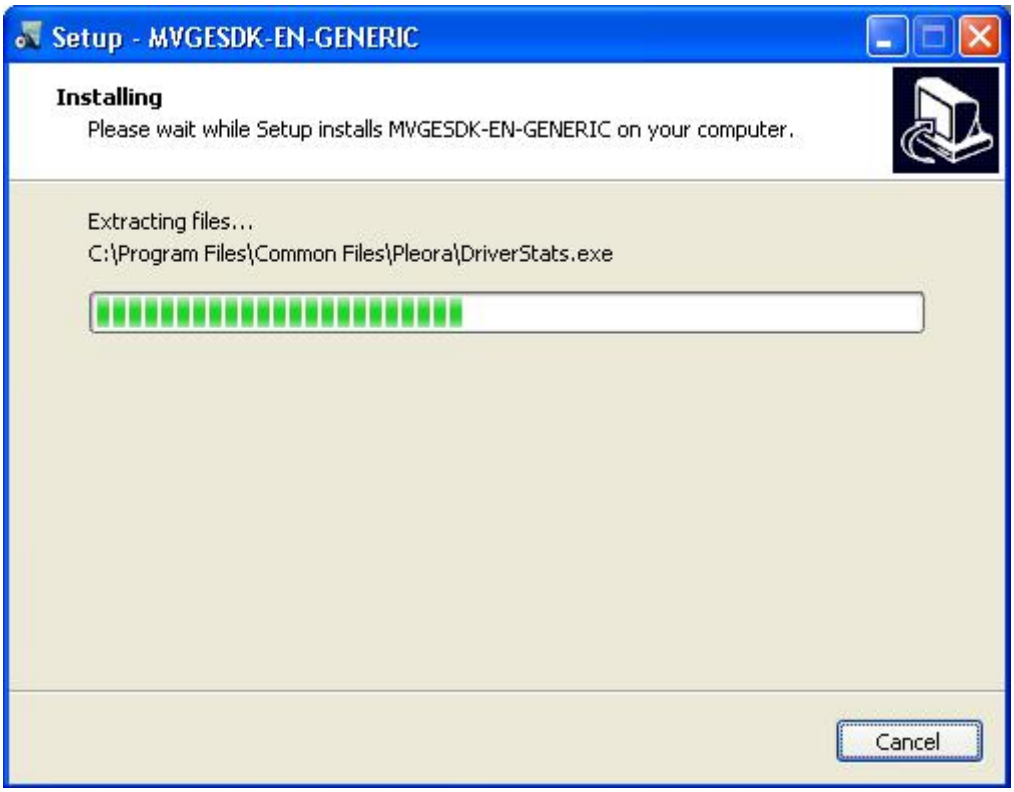
Step 5: After click on [Next], the interface is as follows, it will prompt to install additional tasks. Please select it.



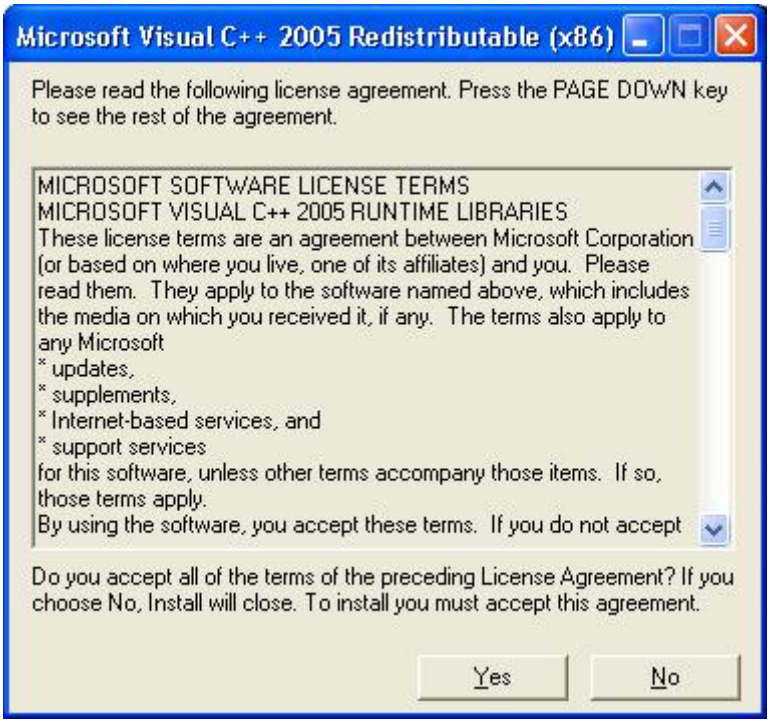
Step 6: Once selected click on [Next], the interface is as follows, it will display the installation and configuration information.



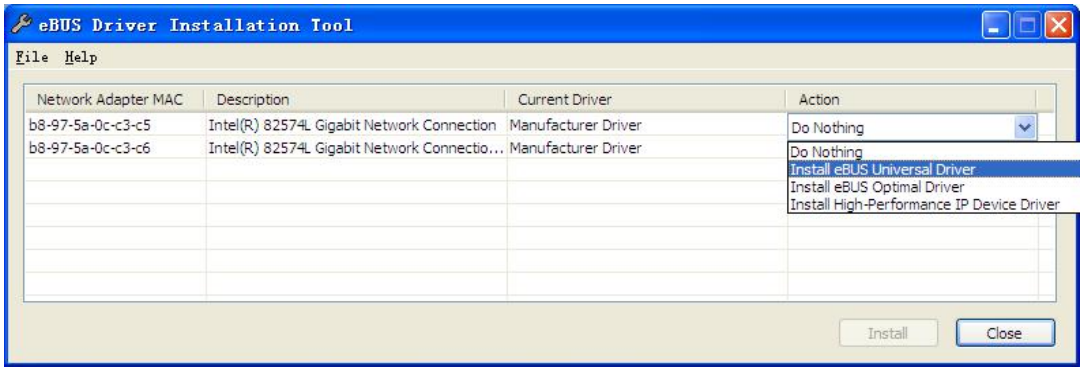
Step 7: Click on [Install] to start the installation, a interface as follows.



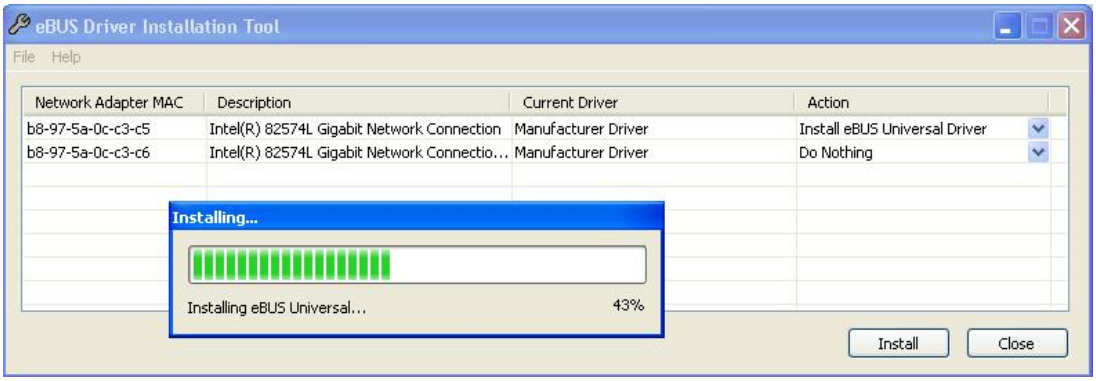
Note: When you install the driver, the interface as follows will be display, please click on [Yes] to install patch and wait.



Step 8: After finish to install the patch, the splash interfaces will display. The eBUS Driver Install Tool interface will display.



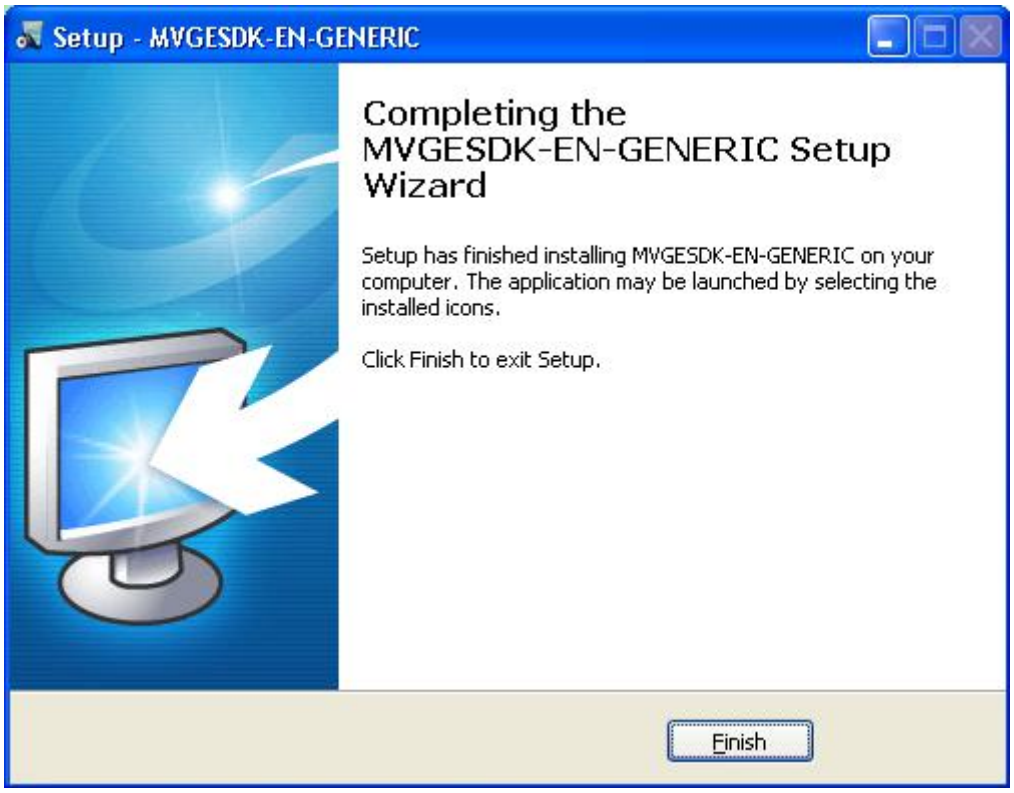
List all the host network card, depending on the scene actually used to select which network card installed the camera driver. If the host's another network card is not used to connect the underbody hardware and use it, so it should not be install the eBUS driver. After assignment, select [Install eBUS Optimal Driver] item in the row Action column drop-down menu bar.
If Gigabit Ethernet is not Inter825xx series chipsets, select
[Install eBUS Universal Driver](Universal type), and click the [Install] to begin the installation.



Step 9: If the installation process is as follows interface pops up, click the [Continue Anyway].

After finishing installation, In the [eBUS Driver Installation Tool] window, you can see [Current Driver].The Manufacturer Dirver will change the Driver contents into the name which is in the Action column selected before.

Step 10: Complete the installation interface as shown below, click on [Finish].

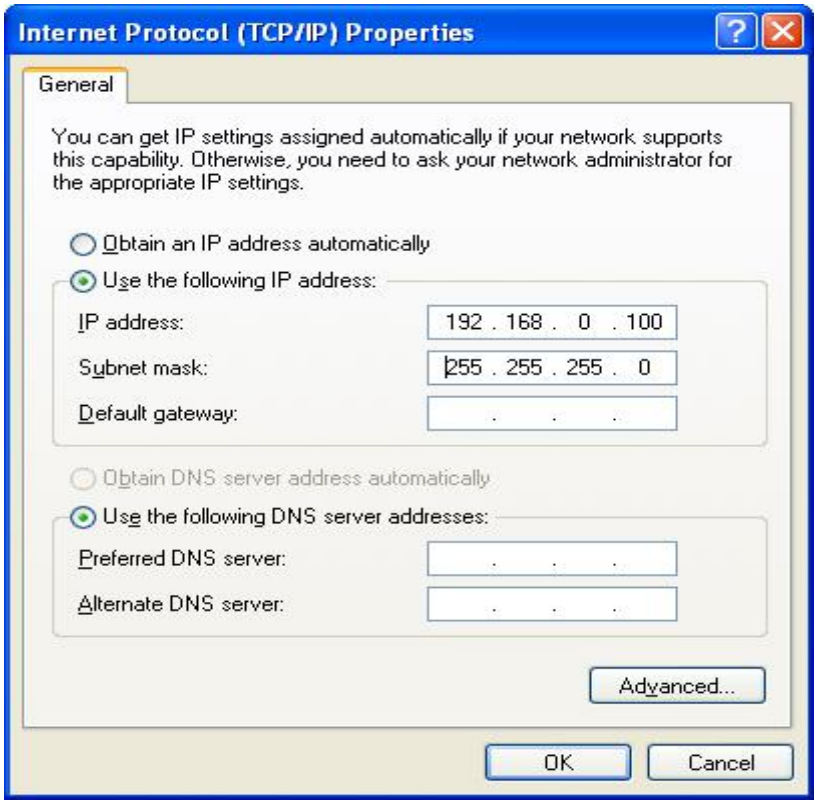


Note: After close the finish dialog, you must restart the system, then you can continue for the subsequent configuration.

3.1.2 Configuration

1. The configuration of the host's NIC IP

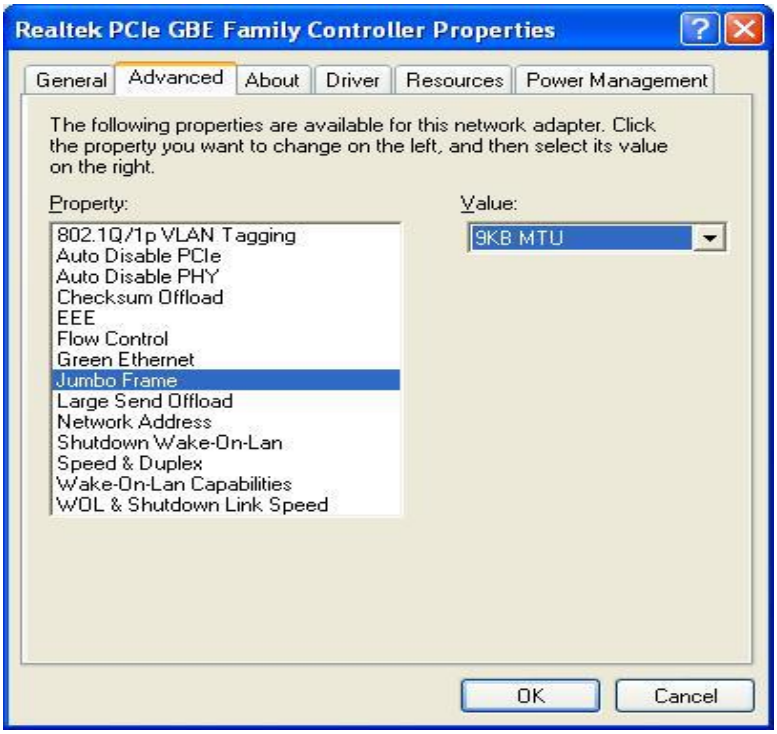
- Windows XP operating system configuration：Desktop->network neiborhood->Right button to property->Local connectivity->Click property->Select Internet protocol（TCP/IP），Click property， manually change IP address to 192.168.0.100(Note: It cannot be on the same network segment with another network IP of host), subnet mask is 255.255.255.0，as below:



- Win7 operating system configuration：Start->Control Panel->Network and sharing Center->Click Change adapter settings->Local connection->Right button click property，select Internet deal the forth versions（TCP/IPv4）to change IP，this operation is the same as in XP system, please follow the above method.

2. Open the card giant frame

- During the NIC driver installation processing, select the type of [Install eBUS Optimal Driver] without continue operation. If you choose the type is [Install eBUS Universal Driver], you need to open the configuration of jumbo frame. In the “Local Area Connection Properties”under the General tab, click the “Configure” button. Then click [Yes] in the pop-up prompt dialog box, click the advanced options menu, as shown below:



- In the “Advanced”tab properties, find the “Jumbo packets”, select a value of 9014 bytes of the line to enable the property.

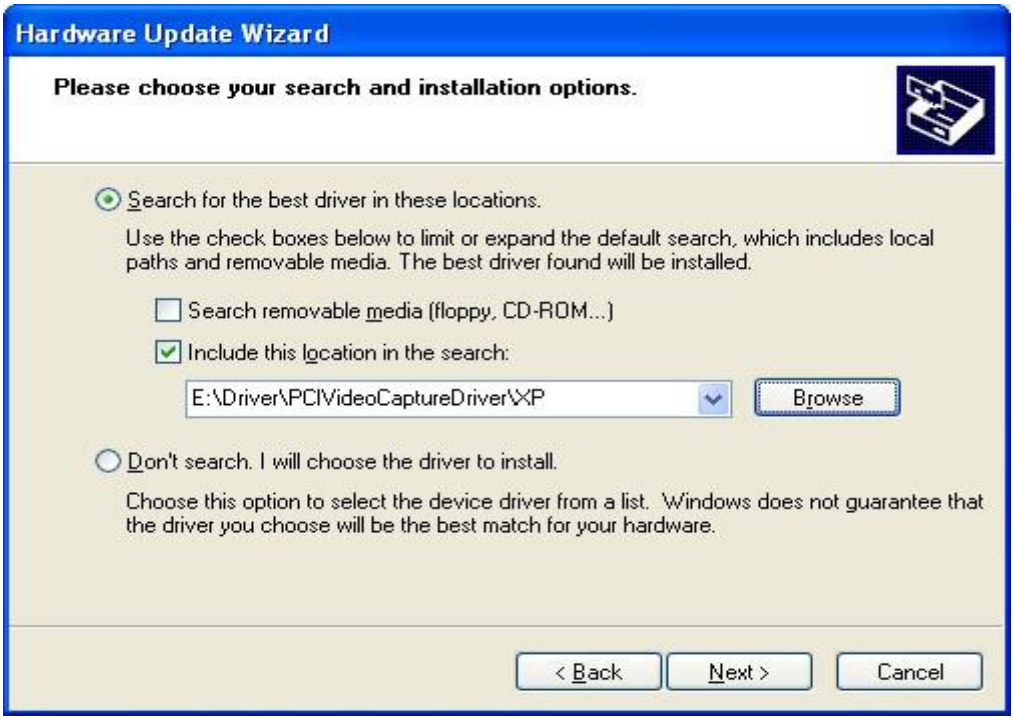
3.2 Video Capture Card Driver Installation

3.2.1 Driver Installation

1. Driver installation：First make sure the host has a PCI slot, if no PCI slot, replace the host. After Installing and securing the capture card, open the hosts corner of the screen prompted to find new hardware, multimedia video controller automatically pop up the “Found New Hardware Wizard” screen, Specific installation steps are as follows:

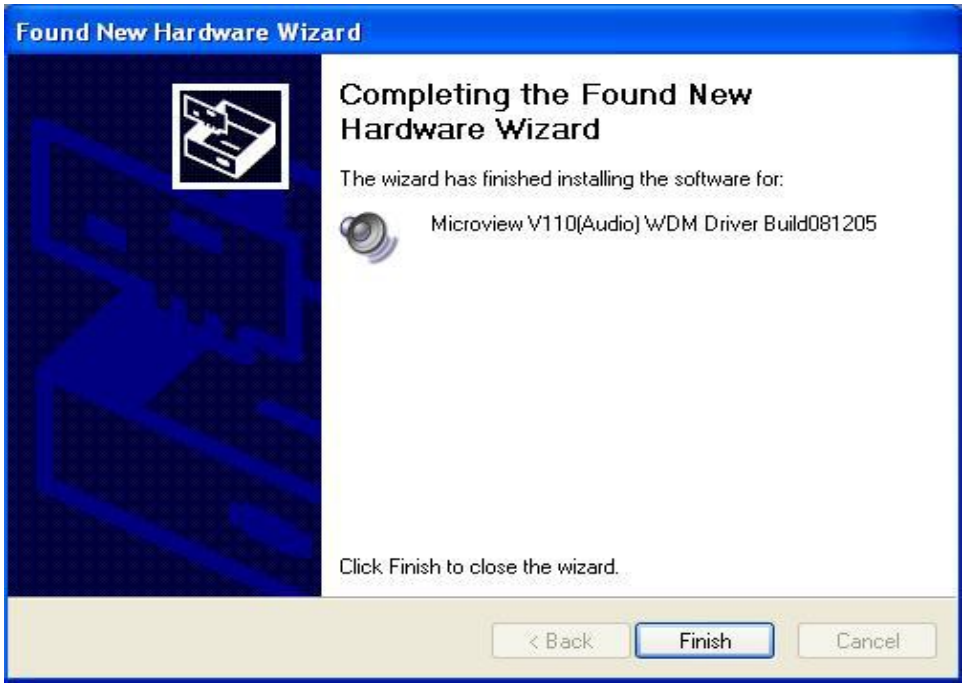
- In the pop-up [Found New Hardware Wizard] window, select [install from a list or specific location (Advanced) (S)], click “Next” to continue the installation.

- Select the [Include this location in the search(O)] option, click Browse to manually select the directory storing the device driver:[Driver\PCIVideoCaptureDriver] folder, click OK, and then automatically return to the earlier window, single click “Next” to continue(Note: Location of driver).



- During the installation process, if there are [required documents] window, click the Browse button in the installation folder [Driver\PCIVideoCaptureDriver], select the desired file MVBY.sys, click OK. Automatically returns to the previous one [the required documents] window, click OK to continue the installation.

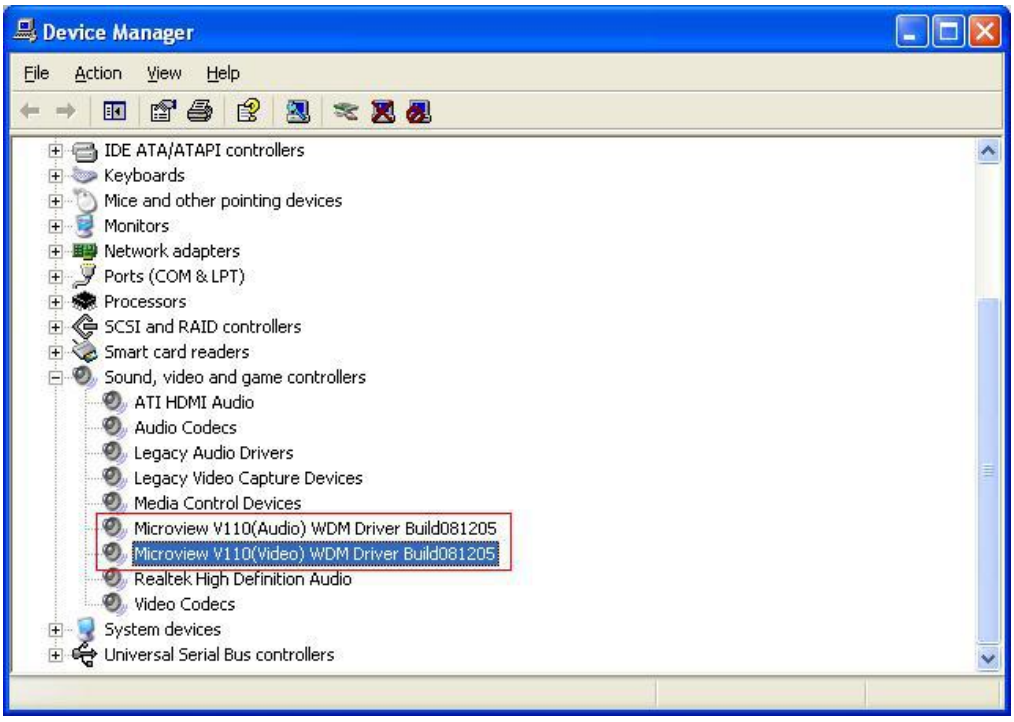
- Interface appears as shown below, click the “Finish” button to complete the driver installation.



2. Check whether the device is successfully installed, follow these steps.

Step 1: Select the desktop [My Computer], right-click and select “Manage”

Step 2: In the pop-up “Computer Management” screen, click “Device Manager”, click to expand [Sound, video and game controllers], if properly installed , there will be two devices [Microview V110(Audio) WDM Driver Build081205] and [Microview V110(Video) WDM Driver Build081205] the style shown in the following figure:



If you install the device Microview V110 (Audio) WDM Driver Build081205 occur, such as: a yellow “!” “?”, follow the above steps to re-install, also you can choose to restart the system.

3.3 Under Vehicle Surveillance System

3.3.1 System Survey

Under vehicle surveillance system has achieved the video view and save, automatic vehicle license plate recognition and image capture function when the vehicle passing through, the system consists of six main functions: vehicle image display area, Real-time video display area, the license plate number information display area, vehicle information list, image manipulation functional areas, functional operation area, as follows:

- Vehicle image display area: real-time display of vehicles at the detected image, historical images, and bottom of the vehicle underbody after treatment images.
- Real-time video display area: Real-time display the monitoring video, capturing vehicle plate video, and then they were saved by digital video surveillance DVR.
- License plate number information display area: Displays the detected vehicle license plate capture photos with automatic identification of the results, click [Modify] button can modify the number of the recognition errors.
- Vehicle information list: all day checking vehicle information, including license plate number, check the time, vehicle surveillance results.
- Image manipulation functional areas: the image to zoom; brighten, darken; edge enhancement, super-enhanced operation.
- Functional operating areas: Setting attributes of license plate recognition, associated parameters of line CCD camera, DVR video attributes, video playback and registry equipment, as well as the system language, real-time curve, historical data query functions.

3.3.2 Installation of under vehicle surveillance system

Via the end of the under vehicle surveillance system related installation files are copied to the appropriate directory, you can achieve the system installation, system file structure is shown below:

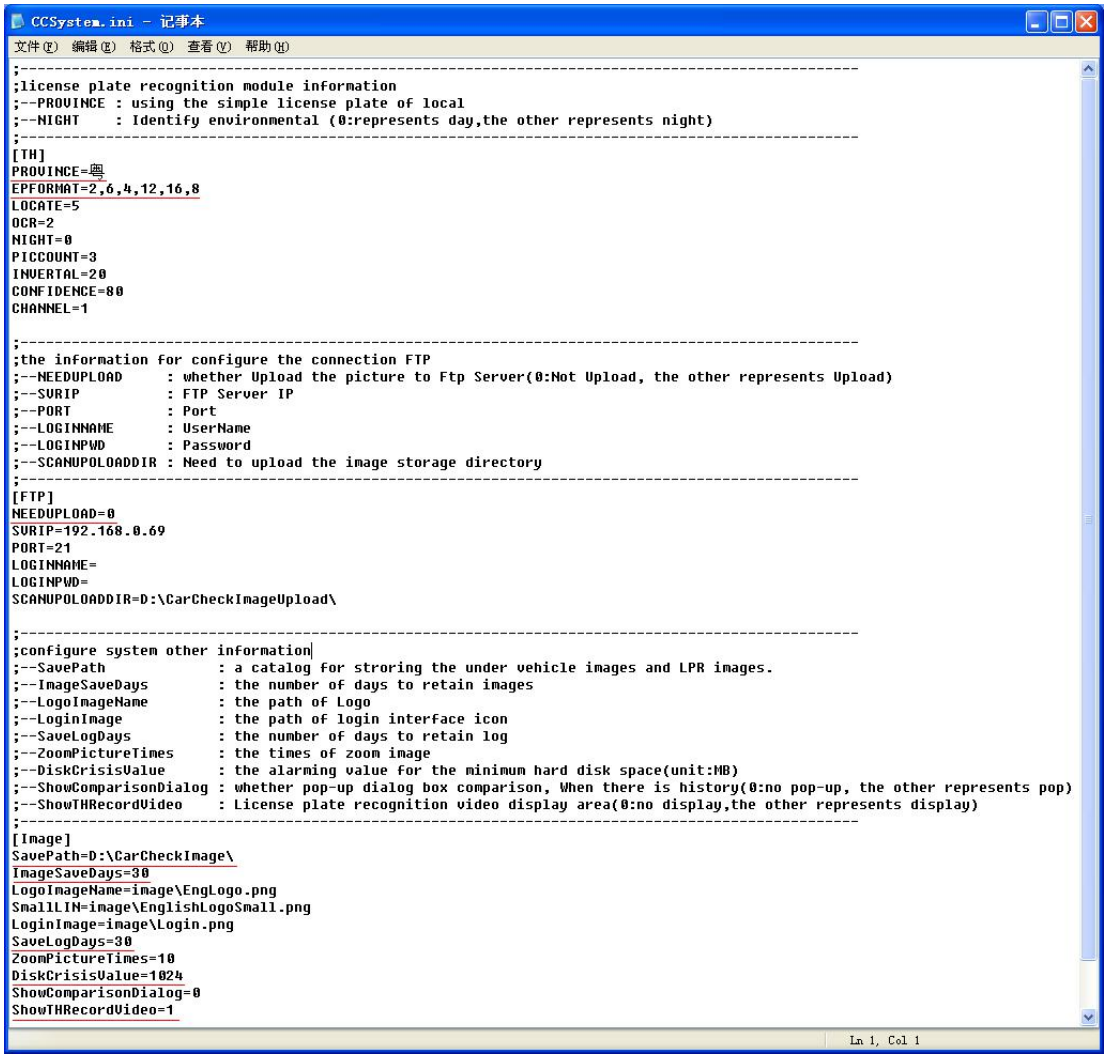
Note：

1） In the system files are copied to the appropriate directory, shall perform [reg.bat] file system registration, otherwise the software may not work correctly.

3.3.3 “CCSystem” Files Configuration

“CCSystem” the configuration file, follow the steps below:

- Below the software installation ini main directory to find “CCSystem.ini” file (For example：[C:\CCD\CarCheck\ini\]), select“CCSystem.ini” file.
- Double click “CCSystem” file, in the “Notepad” program editing interface to add different functions depending on the desired. The figure for the corresponding period redlining line content:

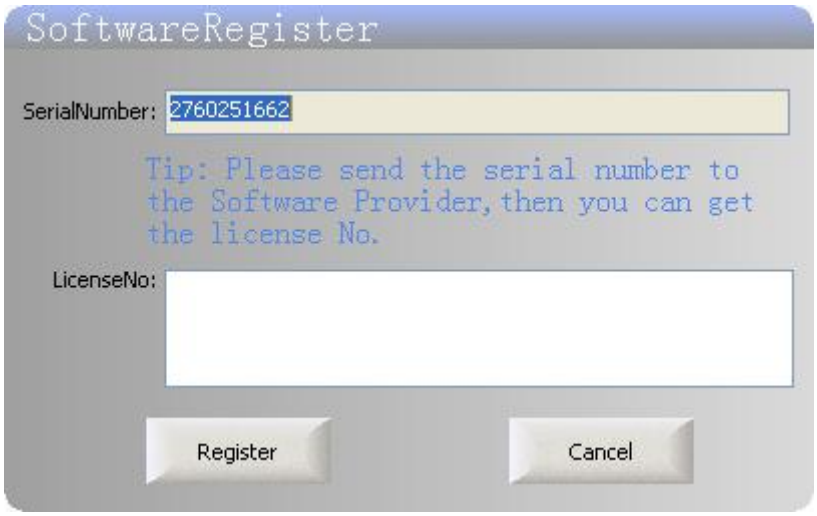


1) [PROVINCE=粤]the“粤”is as shorthand for the user’s provinces, this configuration items can pass the “LPR Properties Settings” dialog box to set;
2) [EPFORMAT=2,4]the“2,4”indicates a special license plate identifying the type of the configuration items through the “LPR Properties Settings” dialog box set;
3) [NEEDUPLOAD=0]indicates whether the star-up image upload feature, if you start this function, you need the FTP server’s IP address and other information to be configured, and to ensure that the system is located on the FTP server can be connected to the host, the specific meaning to view configuration files note.
4) [SavePath=D: \ CarCheckImage];the[D:\CarCheckImage] is a catalog for stroring the under vehicle images and LPR images.
5) [SaveLogDays=30]the “30”is the number of days to retain log;
6) [ImageSaveDays=3]the“30”is the number of days to retain images;
7) [DiskCrisisValue]is the alarming value for the minimum hard disk space;
8) [ShowComparisonDialog=0] When there is history, whether pop-up dialog box comparison(0:no pop-up, the other represents pop);
9) [ShowTHRecordVideo=1] Represents the main interface is displayed captured video of license plate (0: Non-display, other is display).

PS: All of the above, please use the party under the specific circumstances of one’s own self-set, after setting save the file.

3.3.4 Software Registration

Before using under vehicle surveillance system, you must be registered on the system; registration method ofr the click system installation directory [CarCheck.exe] file; registration interface as shown below:



As shown in the interface, users will be [serial number] send software provider, you can obtain the corresponding [License] to complete the software's registration.

Each one has a corresponding registration key period of use, in the period, the user can freely use the bottom of the vehicle surveillance system; expires software providers are required to purchase a registration key again to get the new permissions.

Note：

Software running on a different computer, the resulting [serial number] varies, users simply send the system displays the serial number of software vendors and pay the appropriate fee, to obtain the corresponding registration code.

Forth Chapter: Software Instruction

4.1 Starting the software

Under the “under vehicle surveillance system installation catalog”, click [CarCheck.exe] file to start the software, pop-up interface as shown below(if the remaining useful life of more than 30 days, the pop such as “Figure 1” shows the remaining useful life of less than 30 days, the pop such as “Figure 2” shows the interface):

Figure 1

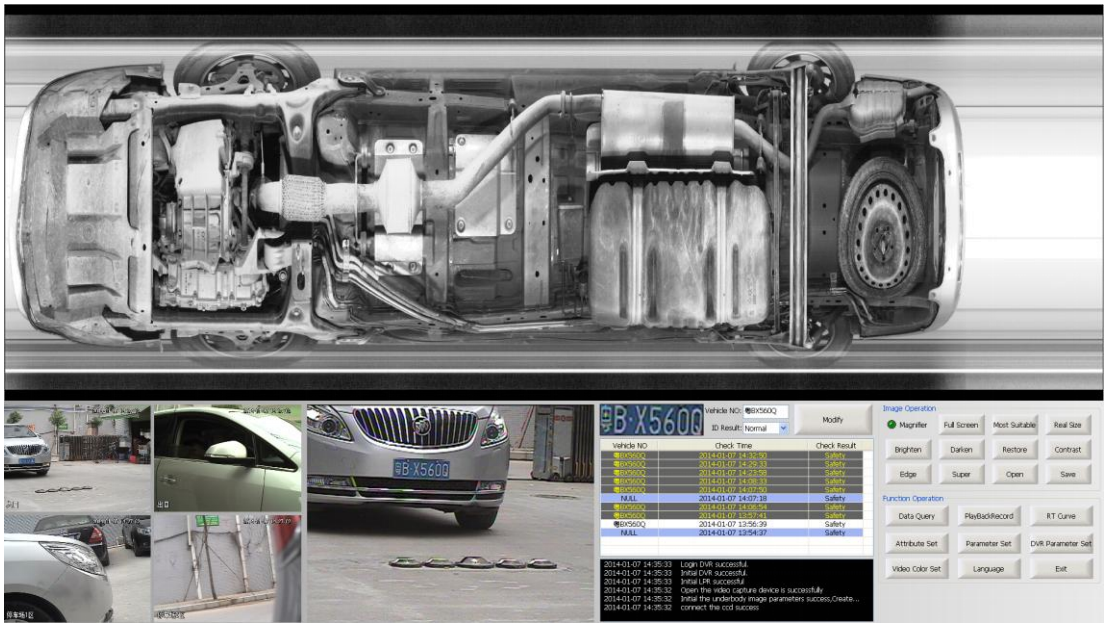
Figure 2

In the above screen, enter the correct [User Name] and [Password], Click the [Login] button to enter the system’s main interface. If you enter a user name or wrong password more than three times, it will automatically exit the vehicle surveillance system.

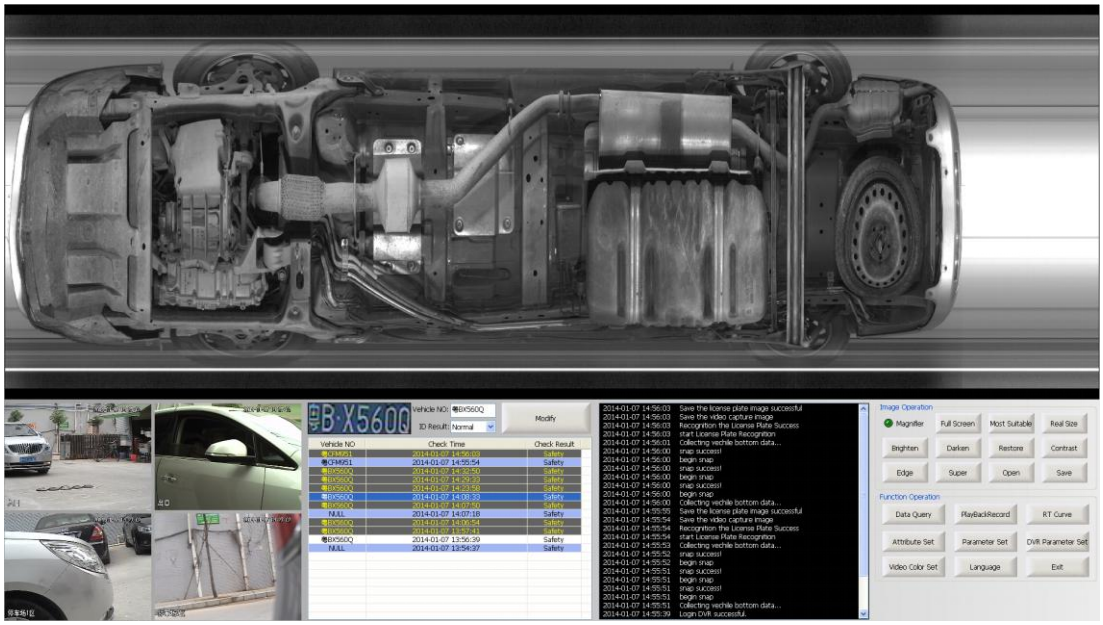
As described above [Figure 2] interface, the user can click[Tip] information links, pop-up [software registration] interface, complete the software re-registration period.

4.2 Main Interface

After the system is up and login is successful, the system will enter the main interface, single click the inspected vehicle list, the interface is shown below:



If you haven't enabled the license plate capture function, the software running as shown below:



The main interface is functionally divided into the bottom of the vehicle image display area, Real-time vehicle video display area, the license plate number information display area, vehicle information list, image manipulation functional areas and functional operation areas such as the six functional areas, users can view or in different regions operate different functions.

- Under vehicle image display area: real-time display of vehicles at the detected image, historical images, and bottom of the vehicle underbody after treatment images.

- Real-time video display area: Real-time display the monitoring video, capturing vehicle plate video, and then they were saved by digital video surveillance DVR. (Customized is based on the actual usage scenarios.).

- License plate number information display area: Displaying the detected vehicle license plate capturing photos with automatic identification of the results. click [Modify] button can modify the number of recognition errors.

- Vehicle information list: Checking vehicle information in all day, including license plate number, the checking time, vehicle surveillance results.

- Real-time log information list: real-time display of the region need to run the process produces some log information to facilitate the use of personnel or maintenance personnel system view real-time operation of the system state.

- Image manipulation functional areas: the image to zoom; brighten, darken; edge enhancement, super-enhanced, contrast enhancement, magnifying glass, real size, most suitable, such as open and save image.

- Functional operating areas: Setting attributes of license plate recognition, associated parameters of line CCD camera, DVR video attributes, video playback and registry equipment, as well as the system language, real-time curve, historical data query functions.

4.3 Image Operation

Function keys in the region to achieve the vehicle image display area of the image operations, including a magnifying glass, zoom in, zoom out, the most suitable, true size, brighten, darken, restoration, edge enhancement, super enhanced features such as Open and Save.

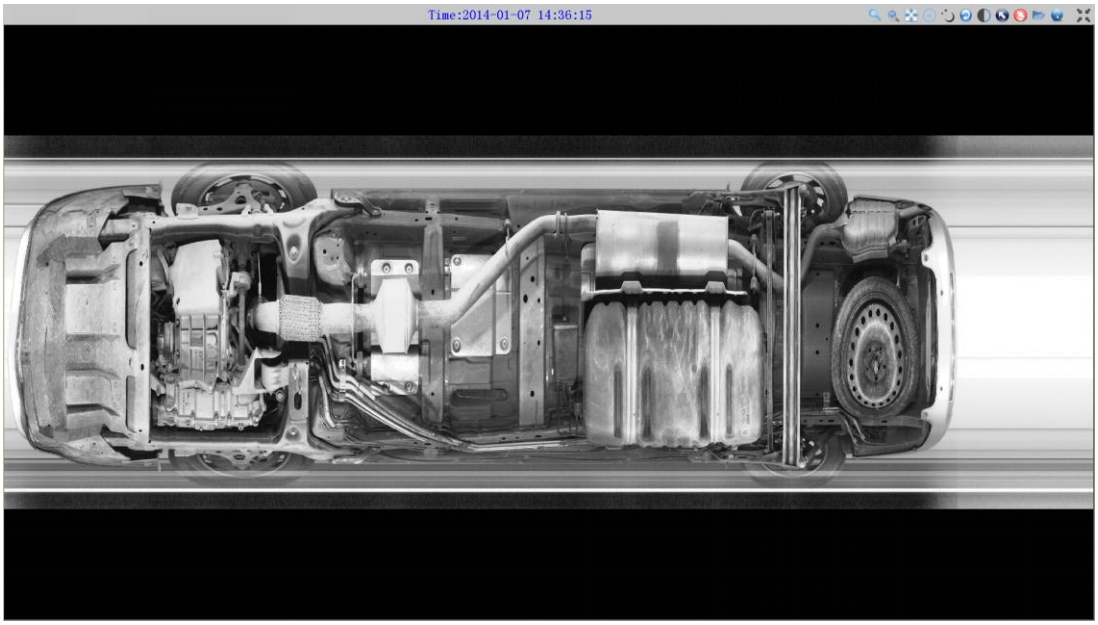
4.3.1 Magnifying Glass

Select the magnifying glass in front of the box when the mouse is moved underneath the image display area, the mouse pointer changes shape in the direction you drag the magnifying glass icon and automatically pop rectangle when you drag the image display area underneath the green rectangle to any location can be enlarged images of the rectangular box, right-click on the magnifying glass or click image magnifier operations elsewhere exit.

If you do not check the box, move the mouse to the bottom of the vehicle when the image display area does not pop up the green magnifying frame.

4.3.2 Image Full Screen

Double-click or click the image area underneath the “Full Screen” button, you can switch to full screen mode, full screen mode, you can see the real image and the bottom of the vehicle to operate on the license plate image, but does not affect the license plate recognition; in full screen mode can make image manipulation to the pictures, including a magnifying glass, zoom in, zoom out, the most suitable, true size, brighten, darken, restoration, edge enhancement, super-enhanced, open ,and save functions, with the following description of specific functions image manipulation functions describe the same interface as shown below:



4.3.3 Vice-screen operation

Host dispose a dual monitor configuration, the full-screen button is for the second extension, the display screen is to open and close the Deputy Vice-screen. Open the vice-screen, the main screen displays real-time image processing for vehicle renderings, deputy screen can also use the mouse wheel zoom in and out on the image and drag(mouse needs to move to the vice-screen).

4.3.4 Image Dragging

In the under vehicle image display area, press the left mouse button and drag the mouse, release the mouse in another location, the image will move to the location of the mouse reappear.

4.3.5 Enlarge

In the under vehicle image display area, use the mouse wheel to zoom in and out, with the mouse by sliding it forward to enlarge, the subsequent reduced, can also hold down the left mouse button on the image drag . (Note: You cannot check the box in front of the magnifying glass, or drag the magnifying glass when it is moving the operation.)

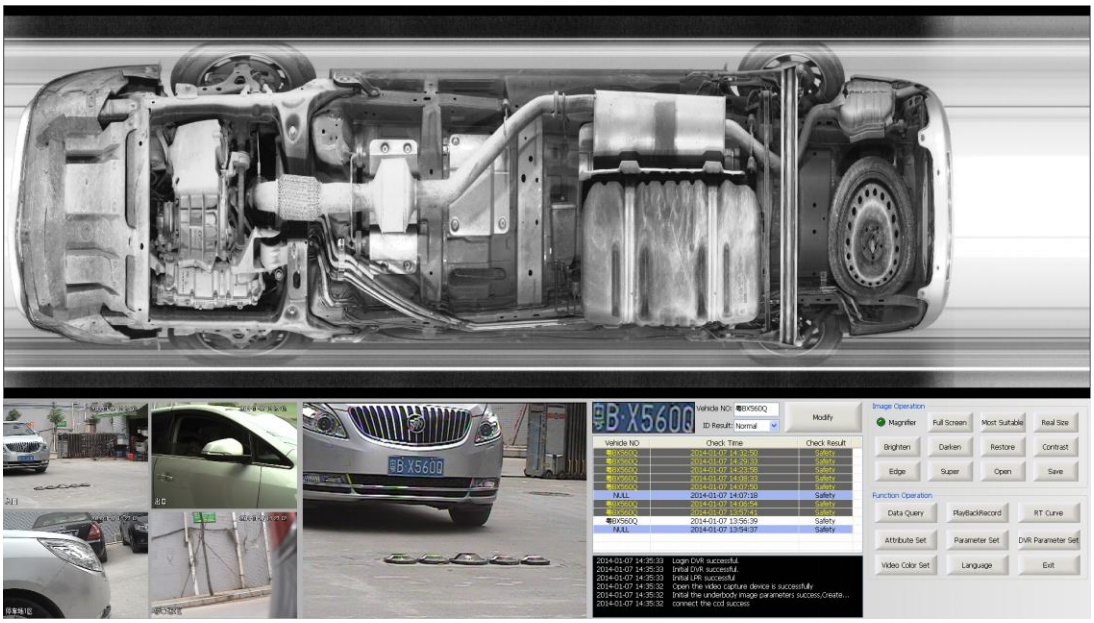
4.3.6 Narrow

The default image is the most appropriate mode and cannot be further reduced; only the image to zoom after the operation, to be able to zoom out operations.

Interface is same with“4.3.4 Enlarge”.

4.3.7 Most Suitable

Click [Most suitable] button, the image will be centered for the ratio of the image display area.

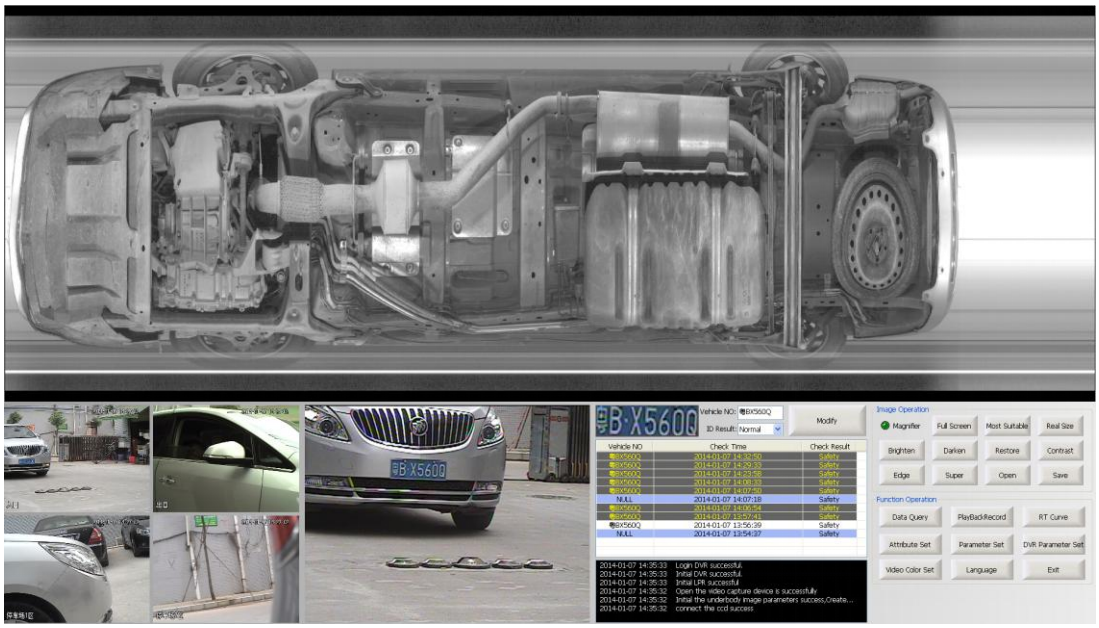


4.3.8 Real Size

Click the [Real Size] button, the image will be displayed as the actual length and width.

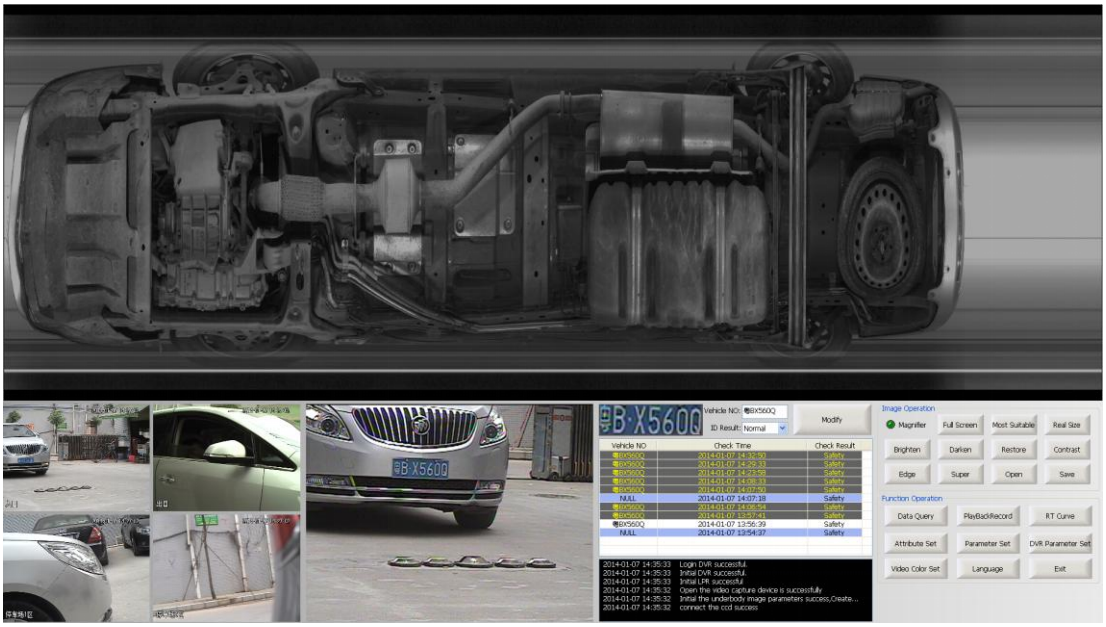
4.3.9 Brighten

Click the [Brighten] button, the image will become brighter, as shown below:



4.3.10 Darken

Click the [Darken] button, the image will become darker, as shown below:



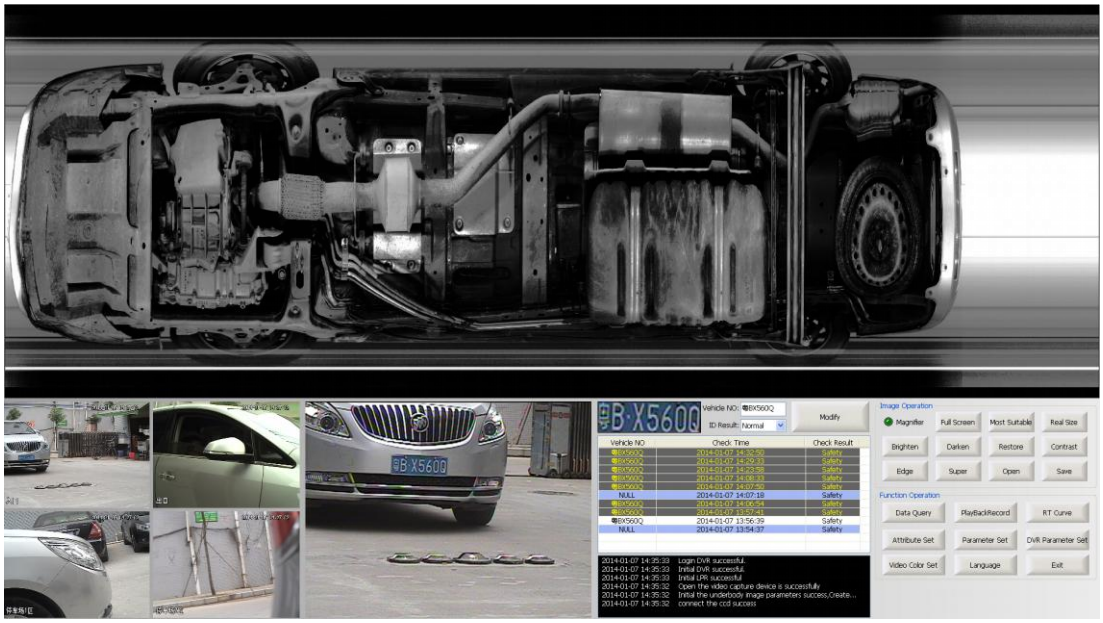
4.3.11 Restore

Click the [Restore] button, the image will restore the default brightness state.

Screen brightness cannot see the brightness of the image before the operation.

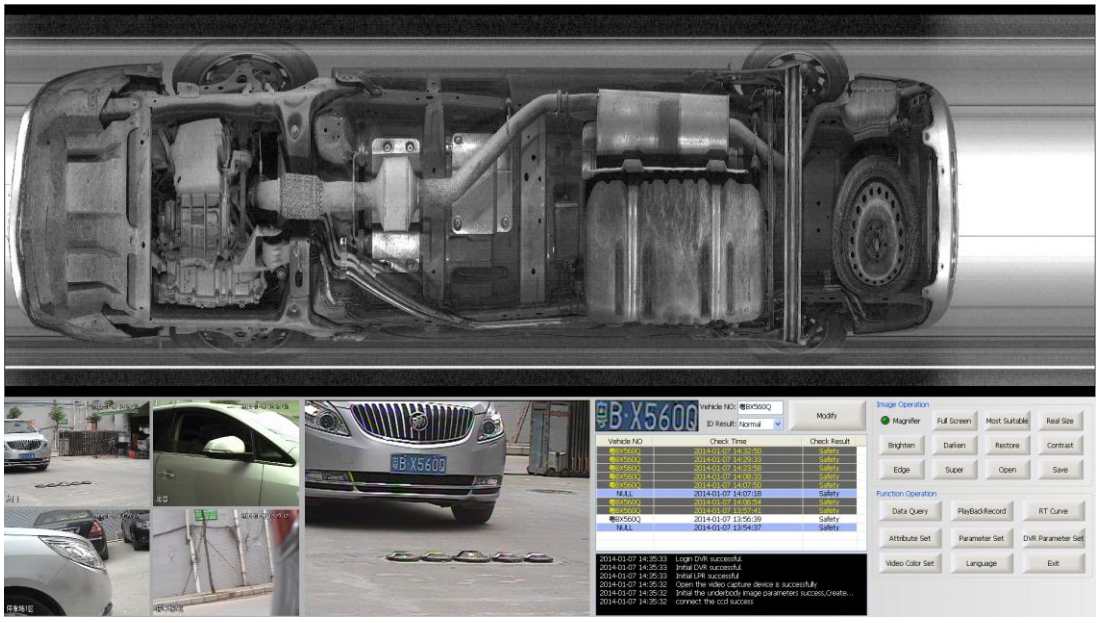
4.3.12 Contrast Enhancement

Single click [Contrast enhancement] button, enhancing image brightness contrast of each part, the interface shown in the following figure.



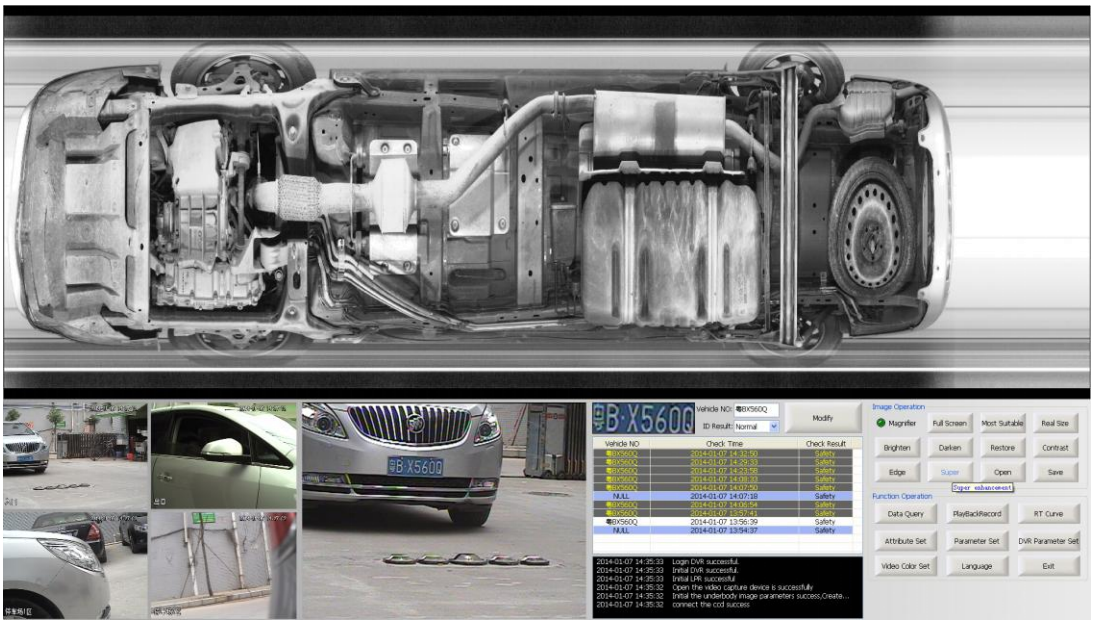
4.3.13 Edge Enhancement

Click [Edge] button underbody parts in the image edge contour is highlighted, more conducive to distinguish between different parts of cars.



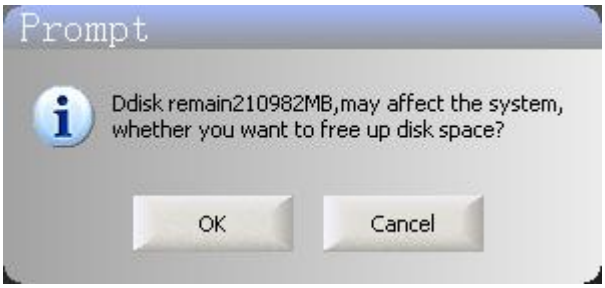
4.3.14 Super Enhancement

Single click [Super enhancement] button, enhancing image edge, changing the image brightness and darkness.

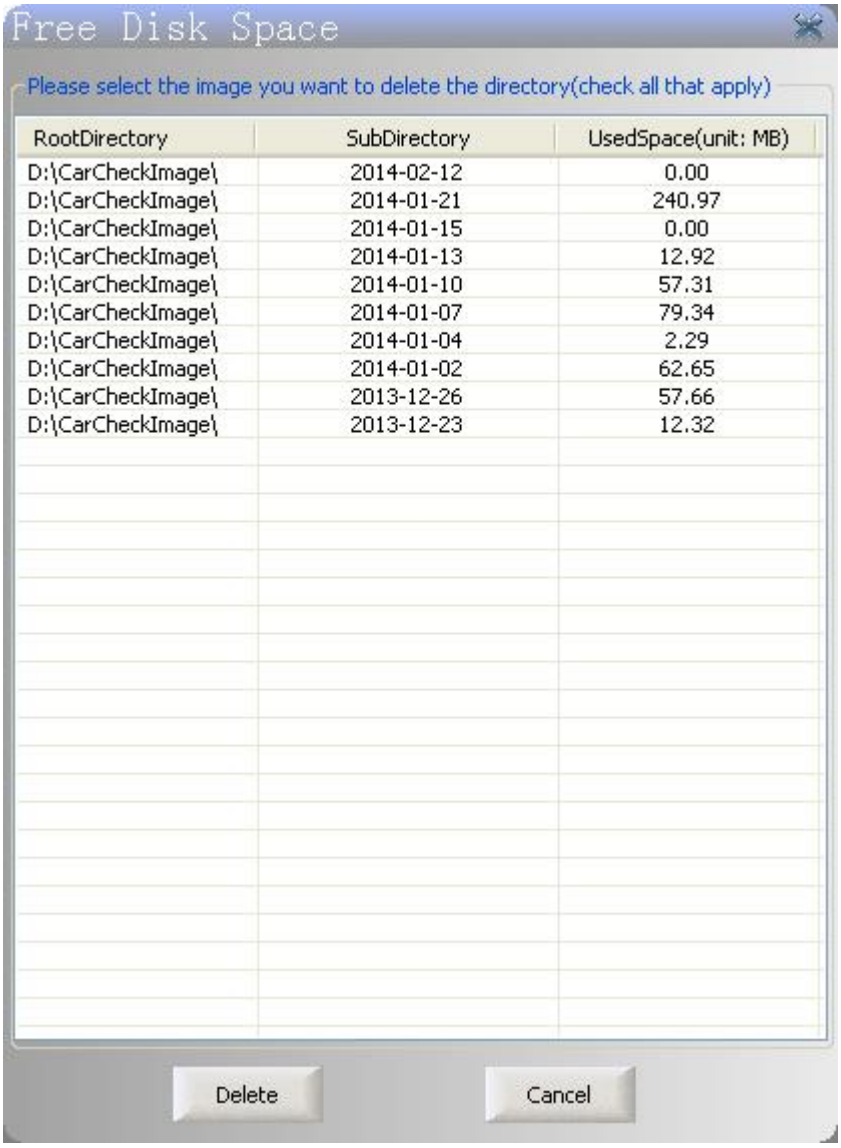


4.3.15 Image Delete Function

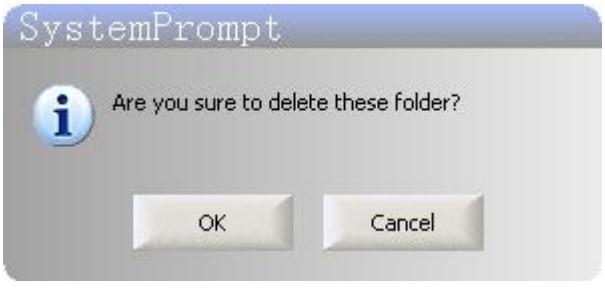
After saving the image of under vehicle surveillance every time, monitor disk space on the system, while preserving the image of disk space is less than the set threshold, the dialog box will pop up as shown below:



If you select[OK], the following interface will pop up：



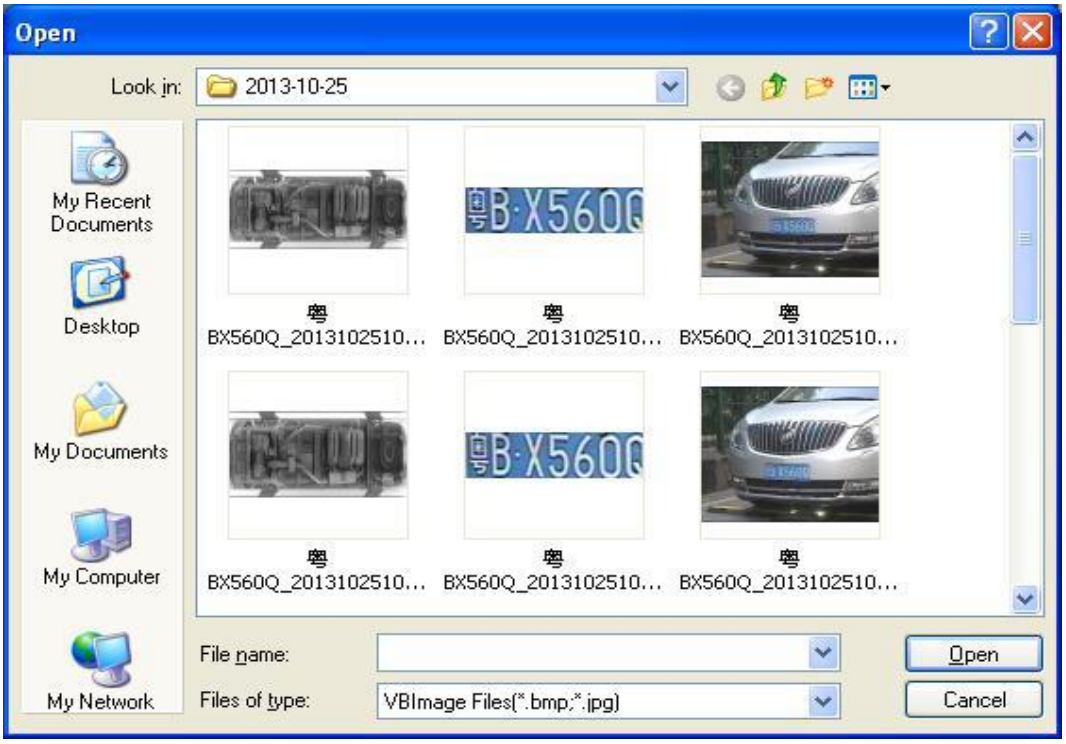
In this interface, you can double-click an image catalog that will be no longer needed, then click below or choose [Delete] key.



Click[OK] to finish delete。

4.3.16 Open

Click the [Open] button to open the pop-up dialog box shown below, the user can select the saved image files underneath the vehicle image display area for display, and can by clicking on the image of the other buttons on the operating area images to operate.



4.3.17 Save

The image(brighten, darken, edge enhancement, super-enhanced) processing, click the [Save] button, the processed image will overwrite the previous picture.

4.4 Real-time Video

4.4.1 Real-time monitoring video display

Start the software, the real-time monitoring display area will show 4 paths video area (customized with 4 cameras) surveillance video .Interface as shown below:

Double click any path video area to check; double click again to turn back to 4 paths video area.

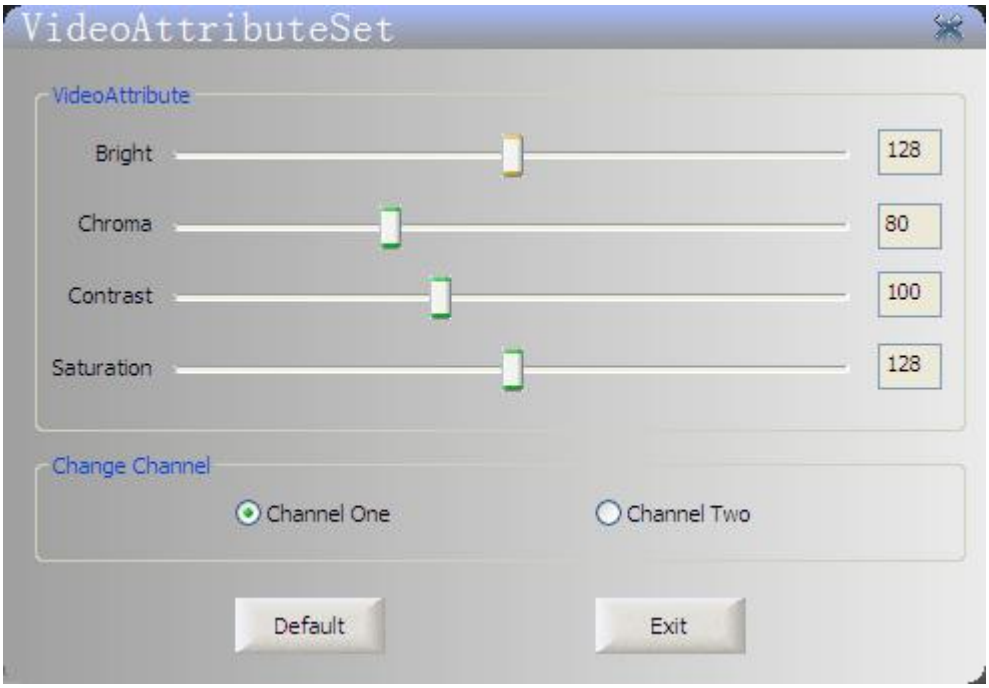
4.4.2 Real-time capturing video display

After starting the software, capturing video display area will display the real-time capturing video by camera, as shown below:

4.4.3 Real-time capturing video attributes setting

In the video capture card and camera connection under normal circumstances, For right through the video properties can be set by double-clicking “real-time video display area,” according to the pop-up screen(as shown below), the video attributes set. In the setting process, the corresponding property in real time effect of the video display area, the user can watch “Live video display region” to view the settings effect.

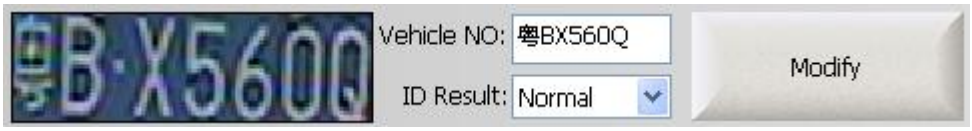
The PCI video capture card is the way of two into one out, for two-way video signal input, only choose one way among them to be output. Therefore, for the “Chanel switching”feature, you only need to select “Channel one” button under normal circumstances; If you select “Channel one”, the “Video Display Area” is not properly display the video (Display the blue background), then you need to switch channels.



Since the license plate recognition rate greatly influenced by the environment, so the use of the system, according to the actual environment, the video attributes set. In daylight or well-lit environments using the system, usually only need to click the “Default” button to set the video properties can; while at night or low light environments using the system, you will need to make the appropriate attributes for video adjusted to achieve the best license plate recognition rate under normal circumstances only need to adjust the “Brightness” and “Contrast” these two parameters, and these two values adjusted to “default” half of they can. Specific parameters adjusted to watch video from the system, the human eye can clearly identify the license plate number shall prevail.

4.5 The results display and modify the license plate recognition

Real-time display of the region LPR license plate image, license plate number and license plate recognition interface style as shown below:



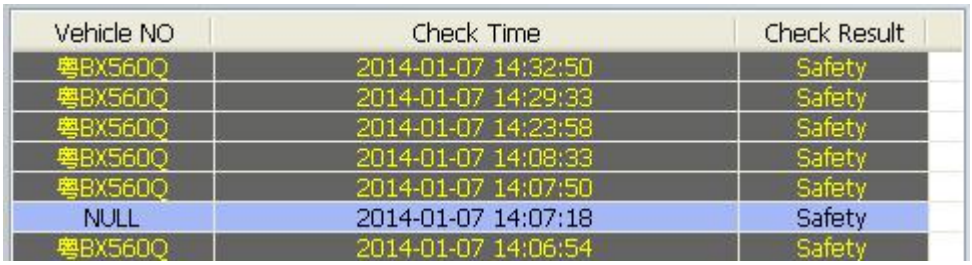
Users can observe the license plate image and license plate number and other information, such as license plate recognition result found a mistake, you can click the [Modify] button on the license plate number recognition result to be modified.

Users can click the “day vehicle surveillance information list” in a column information to modify the license plate number recognition result, if the license plate number has been modified then the corresponding records in the database with the name of the image file directory also will self-image modifying the same name.

Real-time surveillance of the vehicle, if the vehicle license plate number recognition in the database already exists, the following interface will pop up on the vehicle identification information for comparison; if abnormal situation , the interface at the bottom of the “alignment results” message column corresponding to green light the project will become red, played the role of alarm.

4.6 Information list of inspecting vehicle

After system starting up, listed the information of inspecting vehicles, as shown in below interface：



When inspect the vehicle in real-time and found abnormal under the vehicle, you can click the column bottom of the vehicle surveillance results and select the corresponding result type in drop-down box, then make changes on the testing results, the corresponding modification results will be saved in the database. If the car bottom surveillance results are unsafe, the row information will be displayed in red and serve as a warning, as shown below:

4.7 Real-time log information list

In order to allow the real-time using personnel or maintenance personnel to understand the operational status of the system,specifically add this real-time information displayed list ,during system operation will generate some information(such as: image acquisition information, save the image information, warning or error messages,etc.) the interface as shown below:

- Yellow font information indicates a warning message. During the system running,there is such a message to be generated.It's because of you may not start some equipment or functional modules.

- Red font information indicates an error message. During the system running, there is such a message to be generated, it stand for the system has serious problems that will affect the operation of the system.

- Black font information indicates a normal log information, the user can understanding the system status in real-time.

4.8 Function Operation

The functional areas are mainly related to system parameter setting, history queries and other operations.

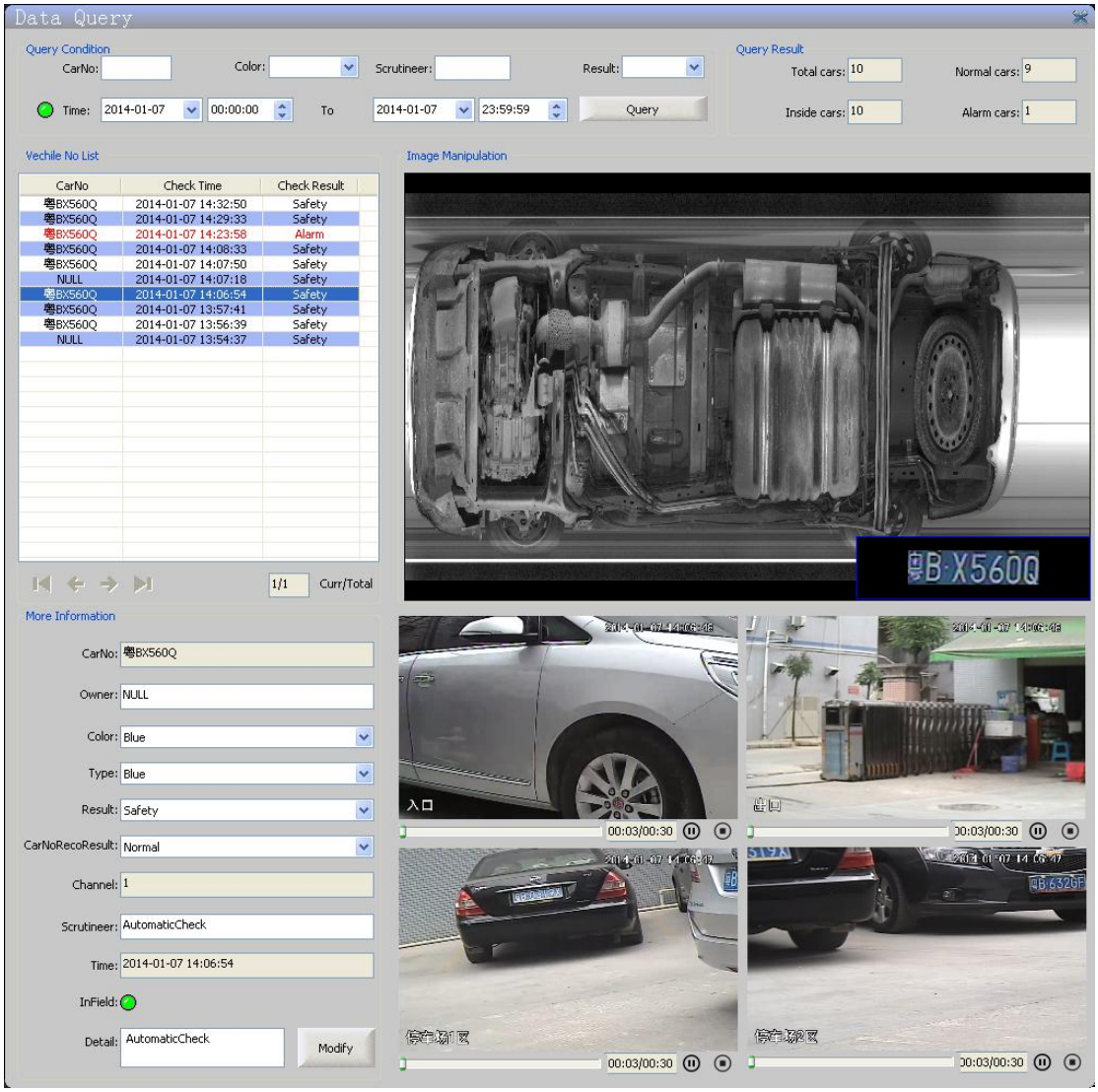
4.8.1 Date Query

By clicking [Data Query] button, you can query the vehicle surveillance information in the interface shown below. The query conditions are supported fuzzy queries. If you don't select the "time" condition, it will query the vehicles of all the time period, the query results will show in the "Results" and "Vehicle list", and show the first image data in the right images column, Video area play the video of specified time period from time allocation to check （the time allocation refer to section 4.8.5 ）, If the data which meet the conditions are more than 50, then it will display for paging. The user can view different data by clicking the navigation bar under the "Vehicle List".

Users can click on the any row under the "Vehicle List" to see the license plate numbers of vehicles corresponding details and modify details of the vehicle.

Users can see the full screen images of the under vehicle by double-clicking the vehicle image bottom, and then double-click or press the "Esc" key to exit full screen.

User can through double click the video to check the video of this period time; Double click again to display 4 paths video.



4.8.2 Video Playback

Single click the video playback button, pop-up the window as below, shown in 4.8.2-1.

Select the playback channel, set the starting time and ending time, click the playback button for playback, default interval is 3 minutes. After clicking play, you can drag the playback progress bar to skip some of the content, click the button to the right of the playback progress bar can also change the playback state,  , followed by pause(play), stop, slow, normal, fast forward. Click pause to stop playing, click again to continue playing; click the stop is finished playing; click the slow playback speed slows down; then click the fast forward speed up playback; changing is a level by a level, click on slow motion, then turn click fast forward, it is back to normal playback speed; click again to fast forward, playback speed will accelerate.

Download video is same setting with playback; After setting parameter, click the button to download to local, then pop up another dialog box as shown in Figure 4.8.2-2, select the save path and set the name, click [OK] to confirm that. The download progress bar displays download progress in real time, as shown below 4.8.2-3. Click ending download can be ended the download in advance, but it only can save the content has been downloaded. The saved surveillance video can be played by RecordPlayer tools.

Figure 4.8.2-1 Video playback window

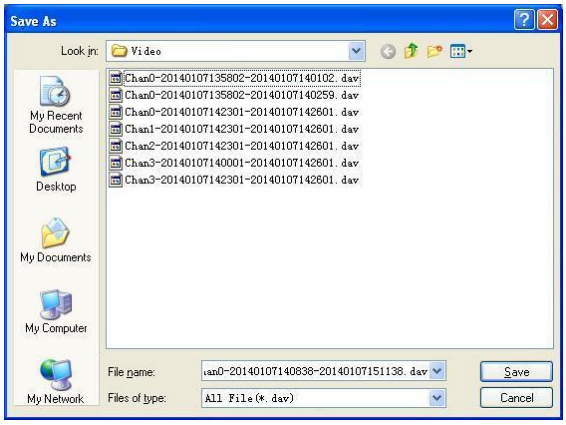
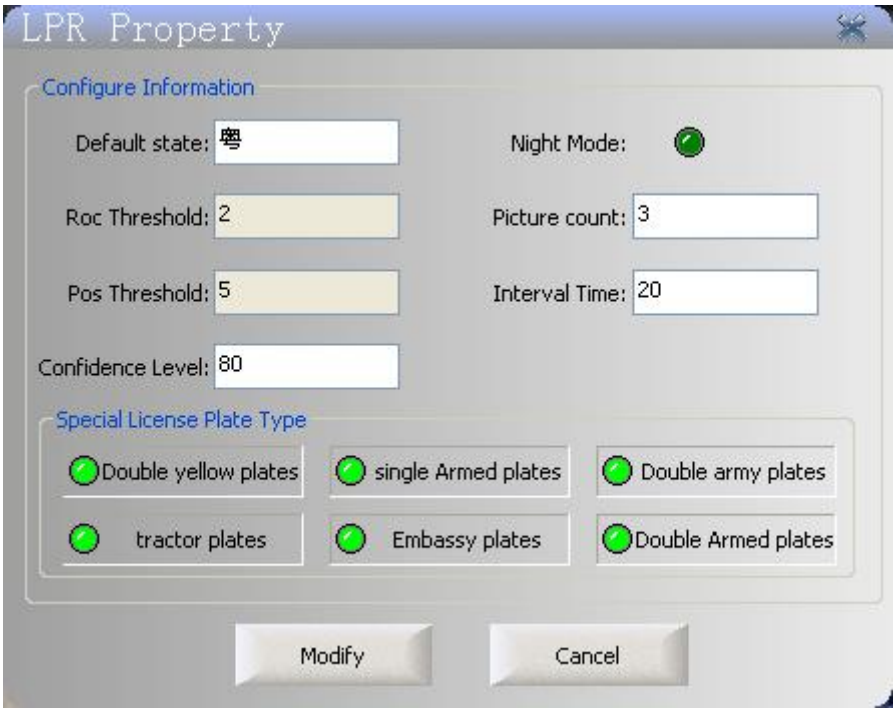


Figure 4.8.2-2 save copy as dialog box

Figure 4.8.2-3 Download progress map

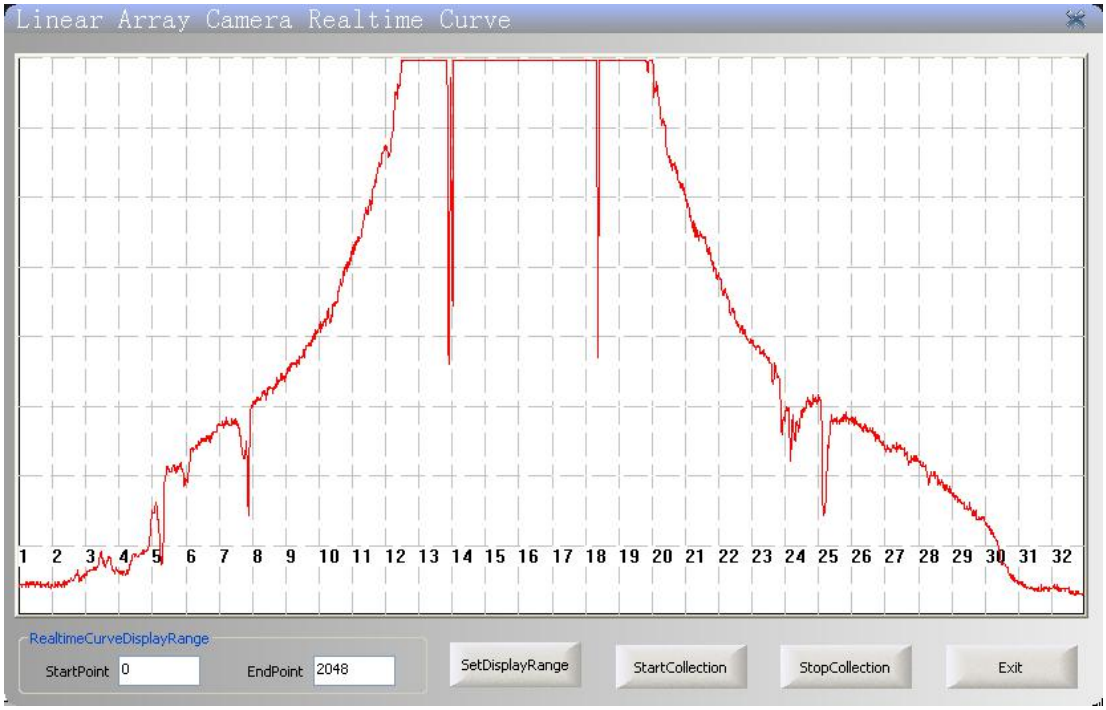
4.8.3 Identifies the attribute set

By clicking “Attribute Set” button, pop-up interface as shown below, set the properties for the license plate recognition, in order to prevent the user to set a time of misuse, gray text box when the software installation has been set up by the system developer, according to the specific needs of the user can set the “Default State”, “Picture count”, “Interval Time” and “Special Vehicle Type” after modification, by clicking on the “Modify” button to complete the property settings, to make just configurations take effect, you must reboot the software.



4.8.4 Real-time Curve

By clicking “RT Curve” button pops up the following interface, you can view real-time acquisition curve , when the under vehicle scanner Gigabit Ethernet cameras at work.

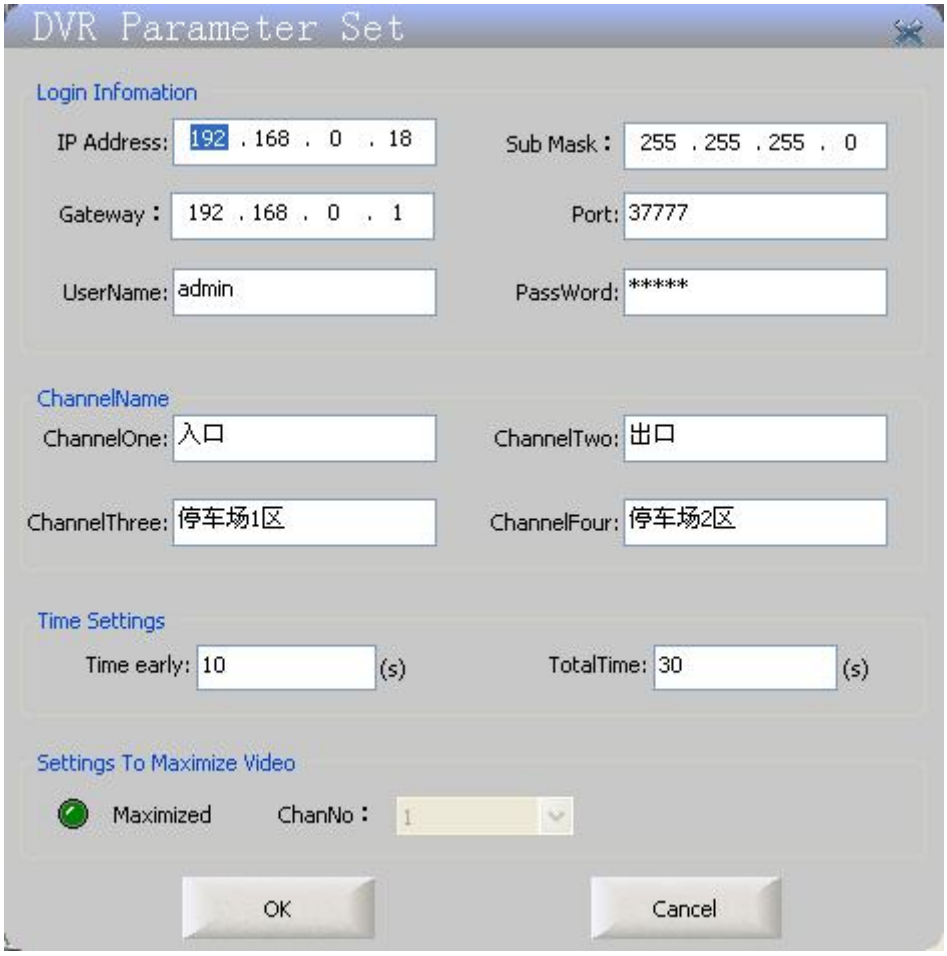


4.8.5 Device parameter setting

Click the Device parameter setting button, the screen shown as below; DVR configuration information related addresses and login user name and password, port number appear in the login box. IP addressed required to follow the protocols and network interconnection between the TCP/IP protocol can to ensure that the host is on the same network segment, then configure it will be convenient. After configuration, the software will automatically reconnect, but to ensure that the login information is correct.

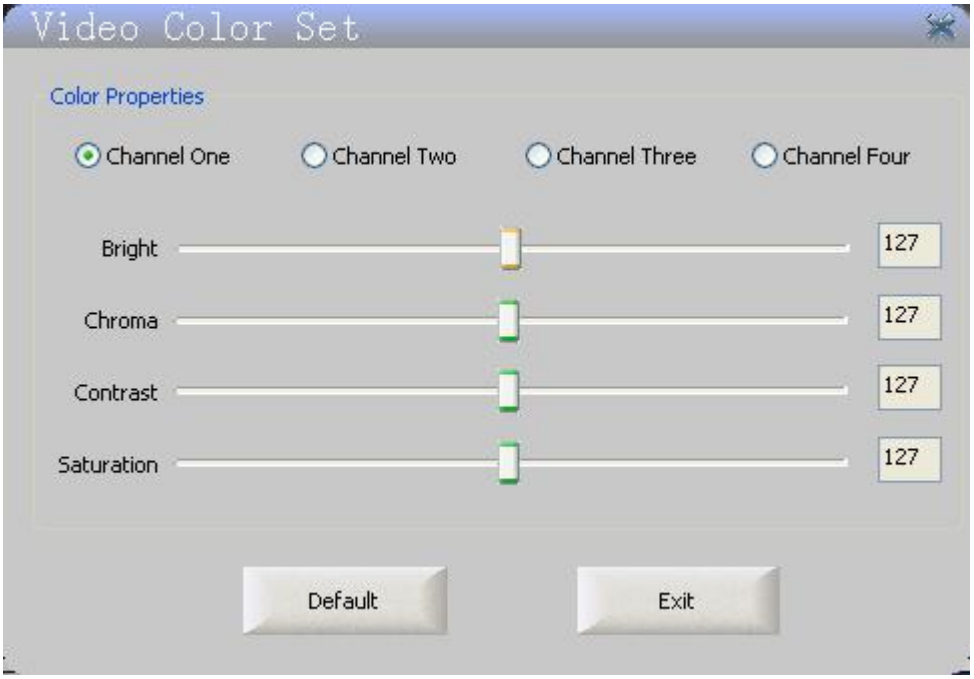
Modify the channel name, the channel name is displayed in the lower left corner of the brightest bunch of video text, it can be set to the name of the actual planning of the workplace, it cannot be empty, nor more than eight characters(16 bytes).

Time setting, time advance and play the total time setting is used for data query, to play the video of special period time.



4.8.6 Video color setting

Click “the video color setting”button, will appear the interface shown below, click on the corresponding channel number, drag the slider to change the channel display relevant attributes of the video, brightness, color, contrast and saturation (this is soft regulation), Only one requirement is that the video can be clearly displayed on the screen.

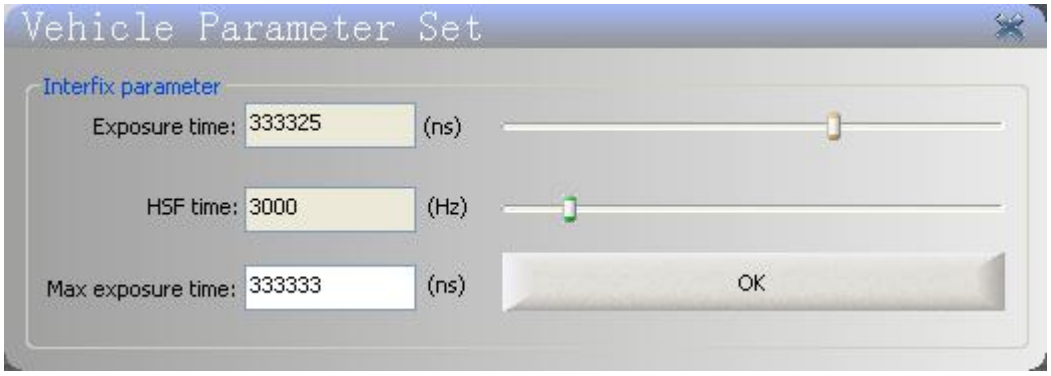


4.8.7 Language selection

By clicking on the “Language” button to pop up as shown in the interface, the user through the following box, you can switch the system language, modifications, restart the software to take effect.

4.8.8 Under vehicle parameter set

Click the “Parameter Set” button, pop-up interface as shown below, you can set the vehicle at the end under vehicle scanner Gigabit Ethernet camera parameters.



4.8.9 Exit

Click the “Exit” button, pop-up dialog box as shown below, click the “OK” button to exit the system, click the “Cancel” button to close the pop-up dialog box.