

User Manual

Under Vehicle Inspection System

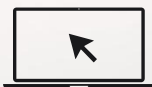
Applicable Models: ZK-VSCN100/ZK-VSCN200

Date: May 2023

Doc Version: 1.1

English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.



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If there is any issue related to the product, please contact us.

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About the Company

ZKTeco is one of the world's largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/Floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader door locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

About the Manual

This manual introduces the operations of **Under Vehicle Inspection System**.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

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1 Overview

1.1 Introduce

For places where require high level security, such as military area, government building and custom, ZKTeco Under vehicle inspection system is an ideal device for checking undercarriage of vehicle. When the vehicle passes, system can quickly generate a high definition image of vehicle undercarriage, which will be recorded in the computer. It helps operator accurately identify forbidden objects attached to the underside of vehicles. ZKTeco Under vehicle inspection system is a powerful tool to provide profession inspection in incoming and outgoing traffic with a few seconds. Because of specially-designed camera angle, all details of undercarriage are easy to be captured. And waterproof design makes sure scanner is able to work well in extreme conditions. This under vehicle inspection system greatly improves the efficiency and accuracy of security check in order to achieve a higher level of safety.



ZK-VSCN100

***Kindly Note: ZK-VSCN100 can only be used for temporary inspection, and can not be used under the rain.**



ZK-VSCN200

1.2 Features

- High-speed line-scanning camera
- High-resolution color image
- ZK-VSCN100 weight capacity of 30 tons
- ZK-VSCN200 weight capacity of 50 tons
- Real-time surveillance
- Passing speed of vehicle is up to 60km/h
- Provides kinds of Image processing functions
- The system can be integrated with LPR (optional)

1.3 Application

Prisons, customs, government departments, exhibitions, public events.

2 System Overview

Under vehicle inspection 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 and functional operation area.

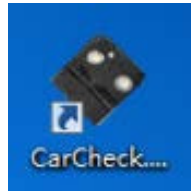
1. **Vehicle Image Display Area:** Real-time display of vehicles at the detected image, historical images, and bottom of the vehicle after processing images.
2. **Real-Time Video Display Area:** Real-time display the monitoring video and capturing vehicle plate video.
3. **License Plate Capture Photos Display Area:** Displays the detected vehicle license plate capture photos.
4. **Vehicle Information List:** Checking vehicle information all day, including license plate number (Optional), check the time and vehicle inspection results, can modify license number and check results, Real-time log information list also on this area.
5. **Image Manipulation Functional Areas:** Image zoom, brighten, darken, edge enhancement and super-enhanced operation.
6. **Functional Operating Areas:** System setting, real-time curve, Date Query, Long car mode.



3 Software Instruction

3.1 Starting Software

Click [**CarCheck.exe**] file to start the software and pop-up interface, as shown below (Default username is Admin, default password is 12345).



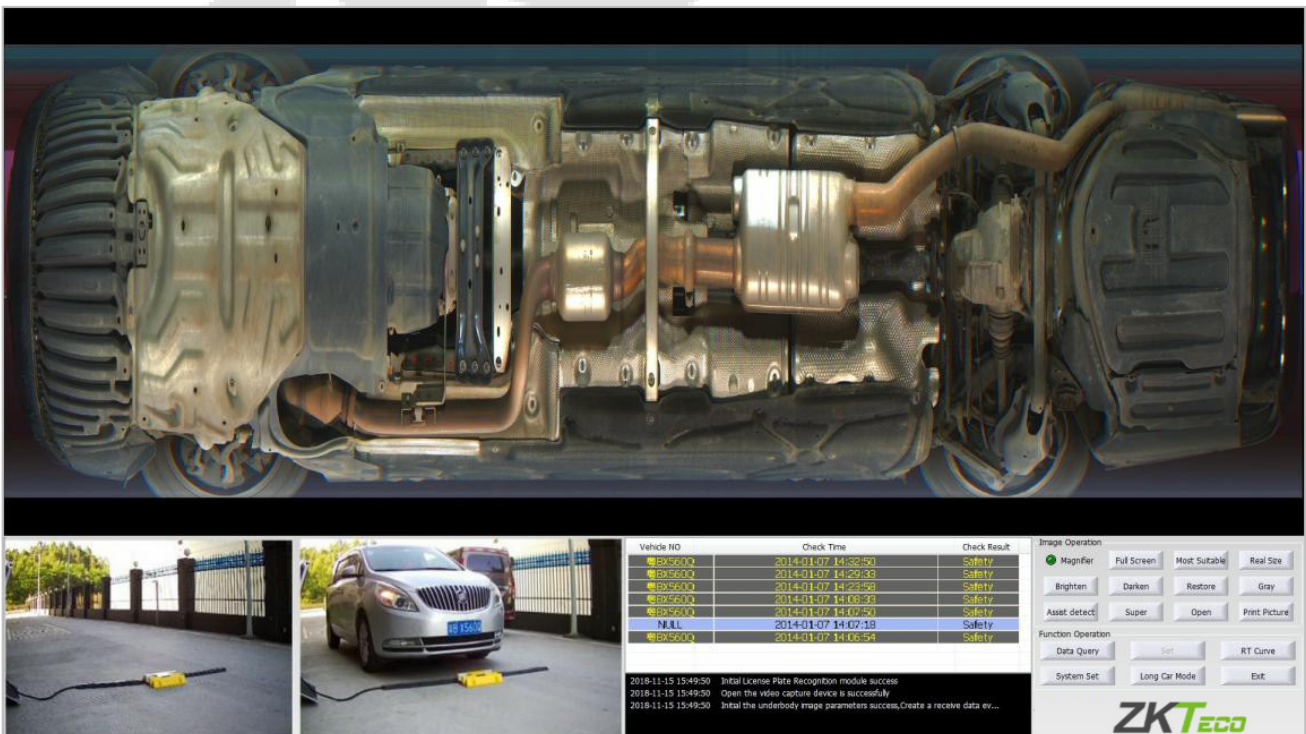
Under Vehicle Inspection System

Username:

Password:

3.2 Main Interface

After logging in successfully, the system will enter the main interface. And interface is shown below.



There are six display areas in the main interface, including undercarriage image display area, Real-time vehicle video display area, the license plate number information display area, vehicle information list, image manipulation functional area and functional operation area. Users can view or operate different function in different area.

1. **Vehicle Image Display Area:** Real-time display of vehicles at the detected image, historical images, and bottom of the vehicle after processing images.
2. **Real-Time Video Display Area:** Real-time display the monitoring video and capturing vehicle plate video.
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5. **Image Manipulation Functional Areas:** Image zoom, brighten, darken, edge enhancement and super-enhanced operation.
6. **Functional Operating Areas:** System setting, real-time curve, Date Query, Long car mode.

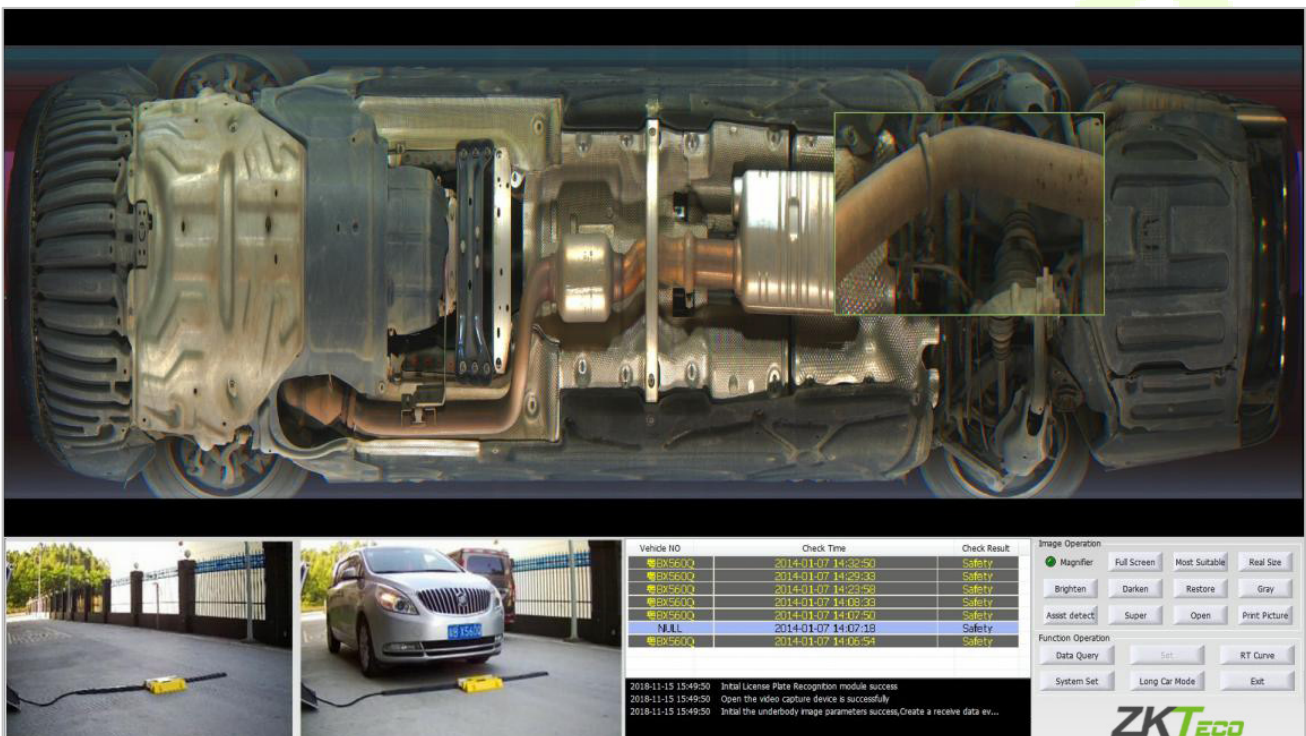
Note: License plate recognition function (Optional) just is supported in several countries. This paper takes Chinese license plate as an example.

3.3 Image Operation

There are buttons to operate the undercarriage image, including Magnifying Glass function, zoom in, zoom out, the most suitable, true size, brighten, darken, restoration, edge enhancement, super enhanced features and open/save functions.

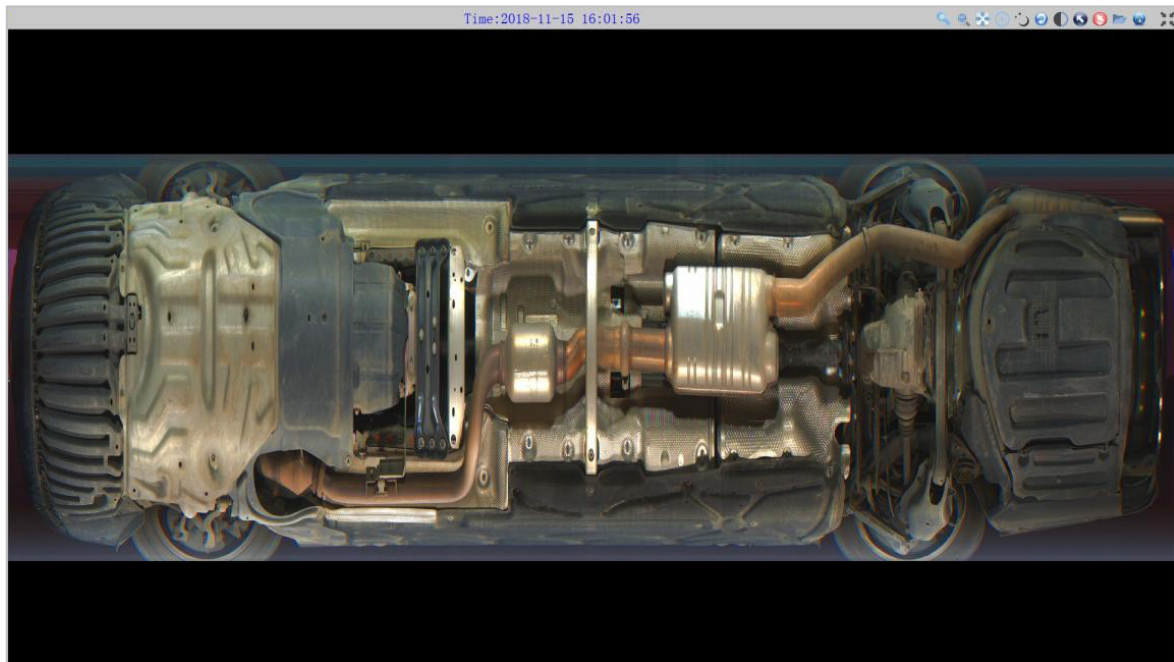
3.3.1 Magnifying Glass

Click **Magnifying Glass** button and press the left mouse button to create a green box where you want to zoom in in the image. Click the right mouse button or use the left mouse button to click anywhere except the green box in the image can quit magnifying glass function.



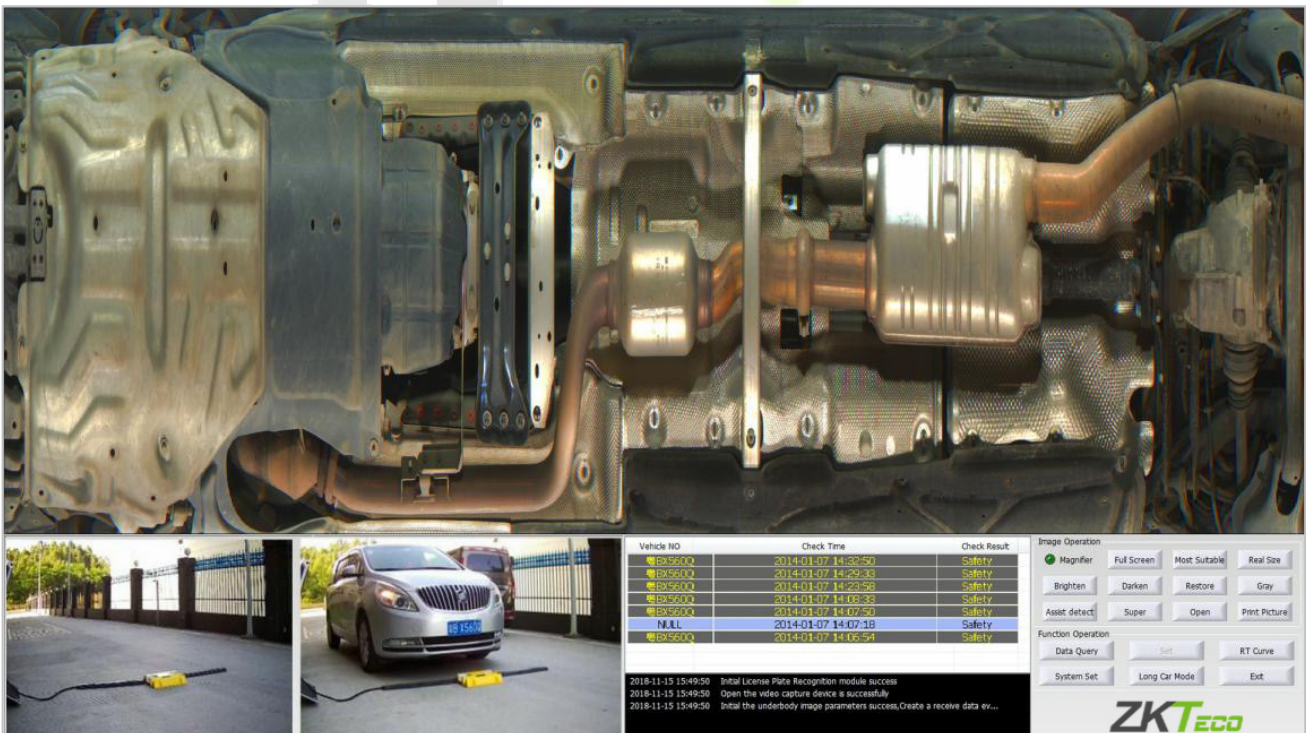
3.3.2 Image Full Screen

Double-click image or click **Full Screen** button, you can switch to full screen mode. In the full screen mode, you still can operate image. And function buttons move to top right corner of screen.



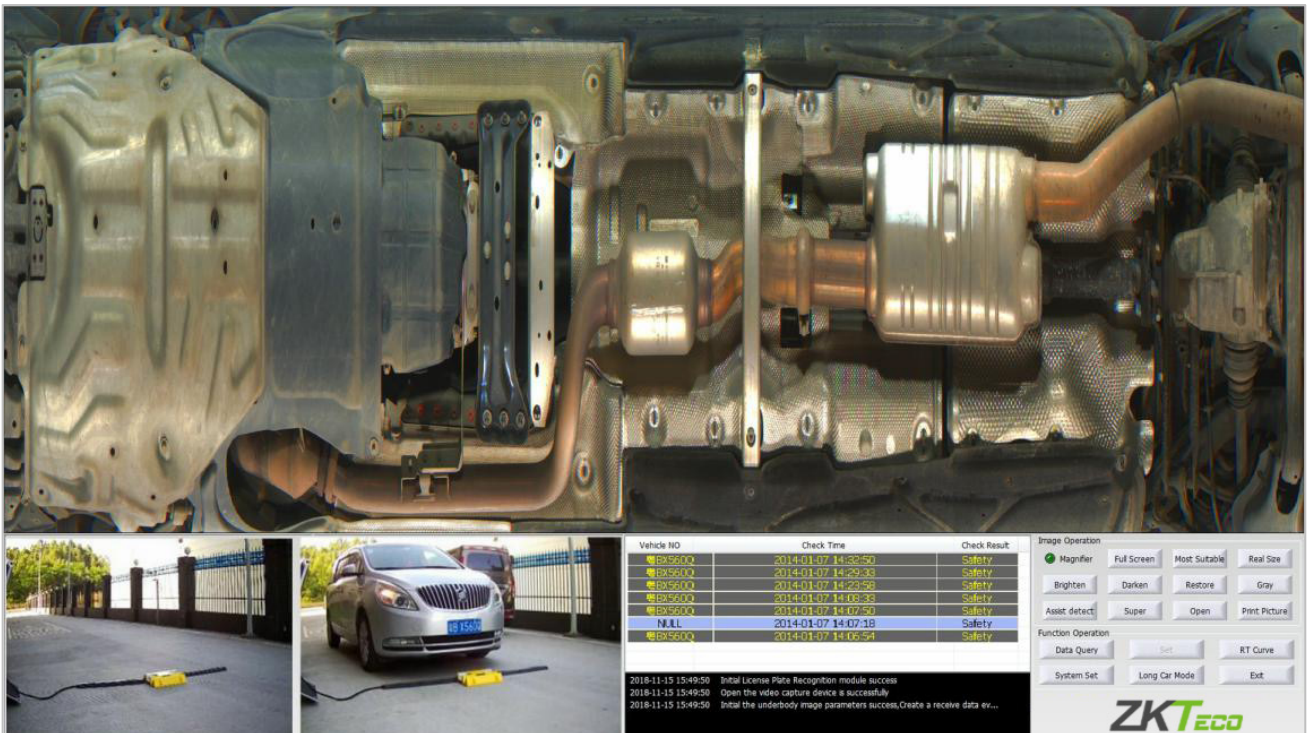
3.3.3 Image Dragging

Keep pressing the left mouse button and dragging can move the image.



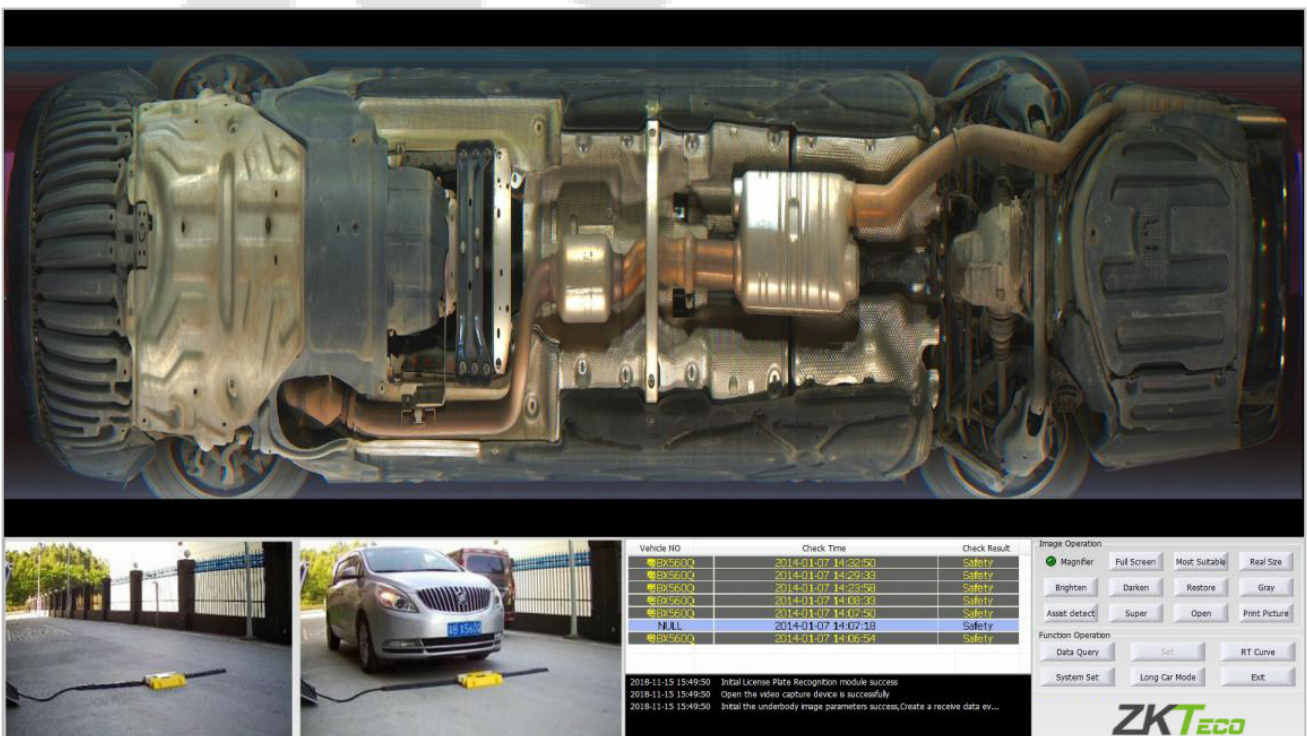
3.3.4 Zoom In

In the undercarriage image, you can use the middle mouse button to zoom in and zoom out the image. In the same time, image dragging function is enable.



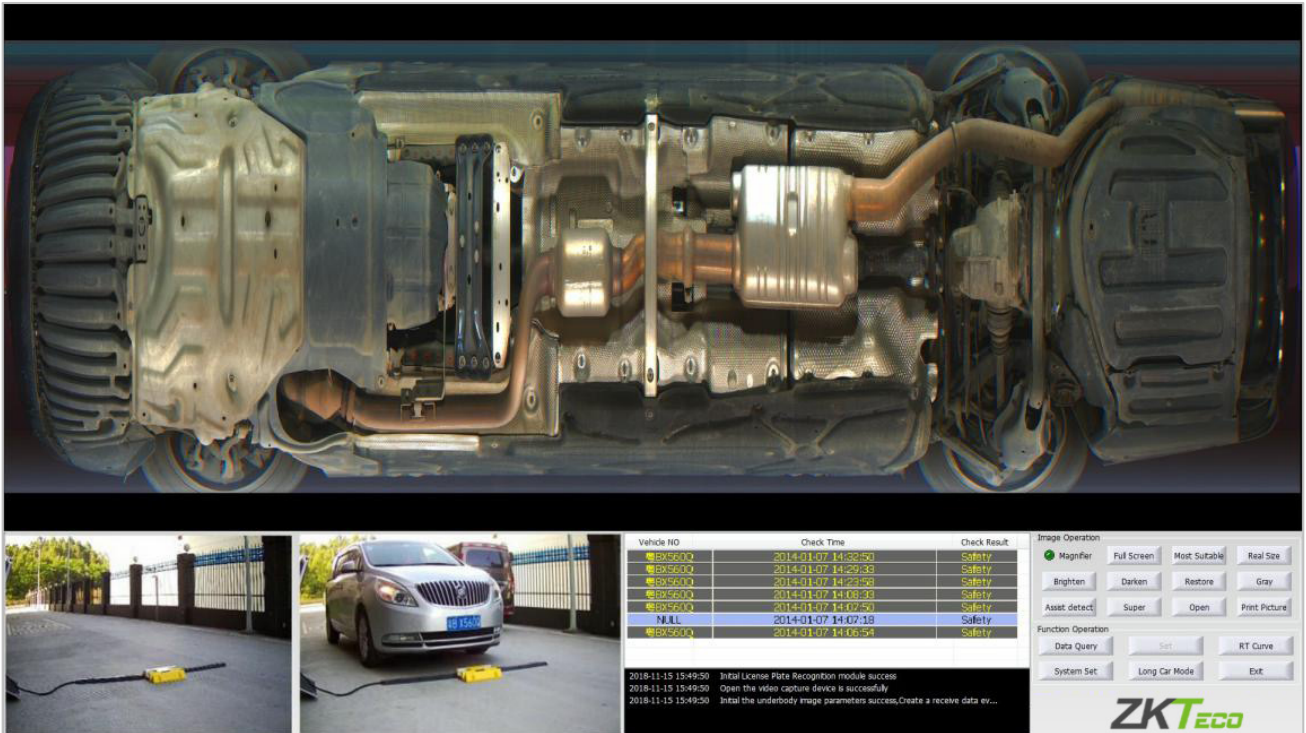
3.3.5 Zoom Out

The default image is the most suitable mode and can zoom out at the beginning. Only after the zoom in operation, Image can zoom out.



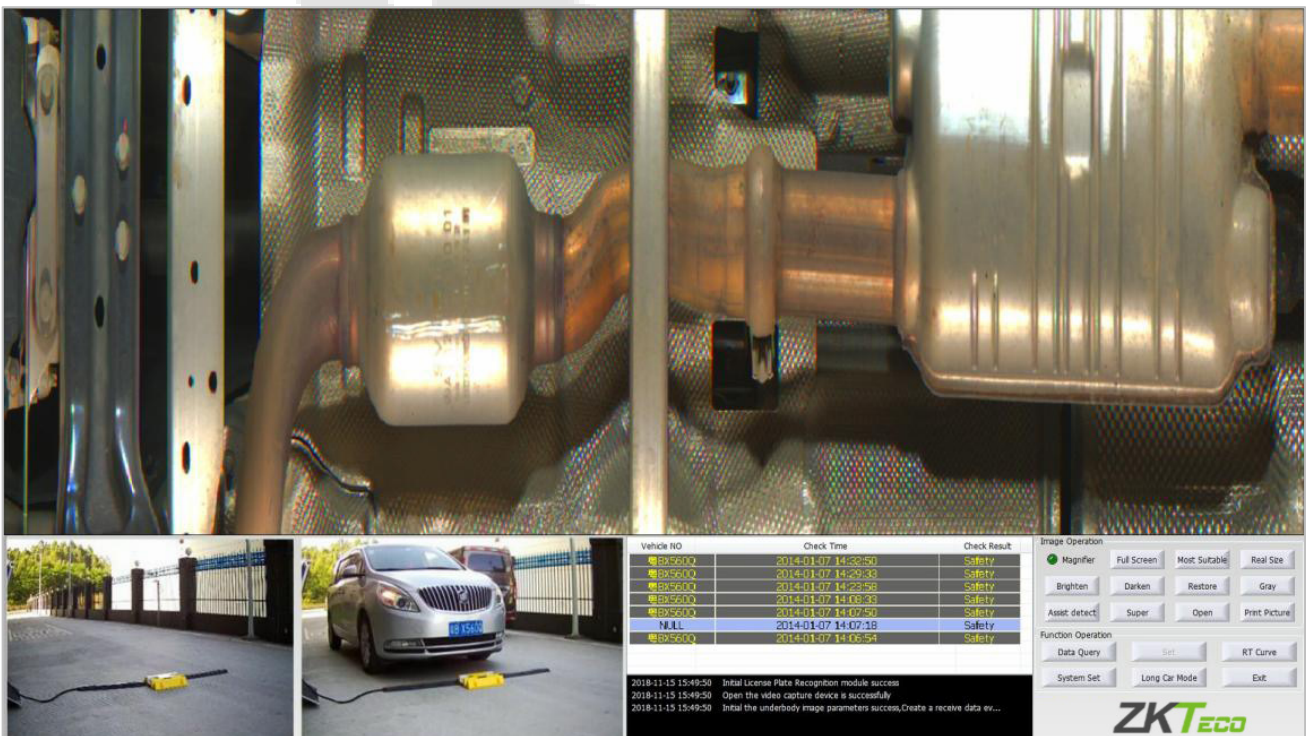
3.3.6 Most Suitable

Click **Most Suitable** button, the image will be centered for the ratio of the image display area.



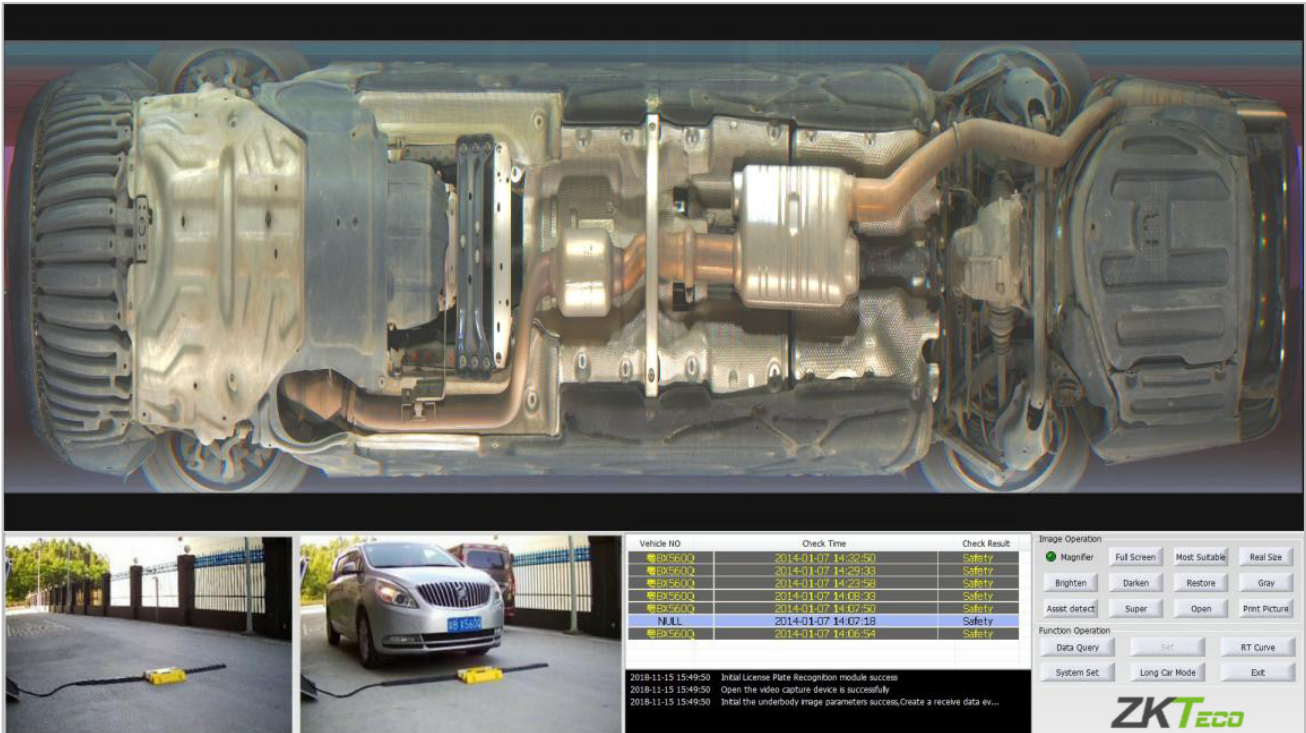
3.3.7 Real Size

Click **Real Size** button, the image will be displayed with the actual length and width.



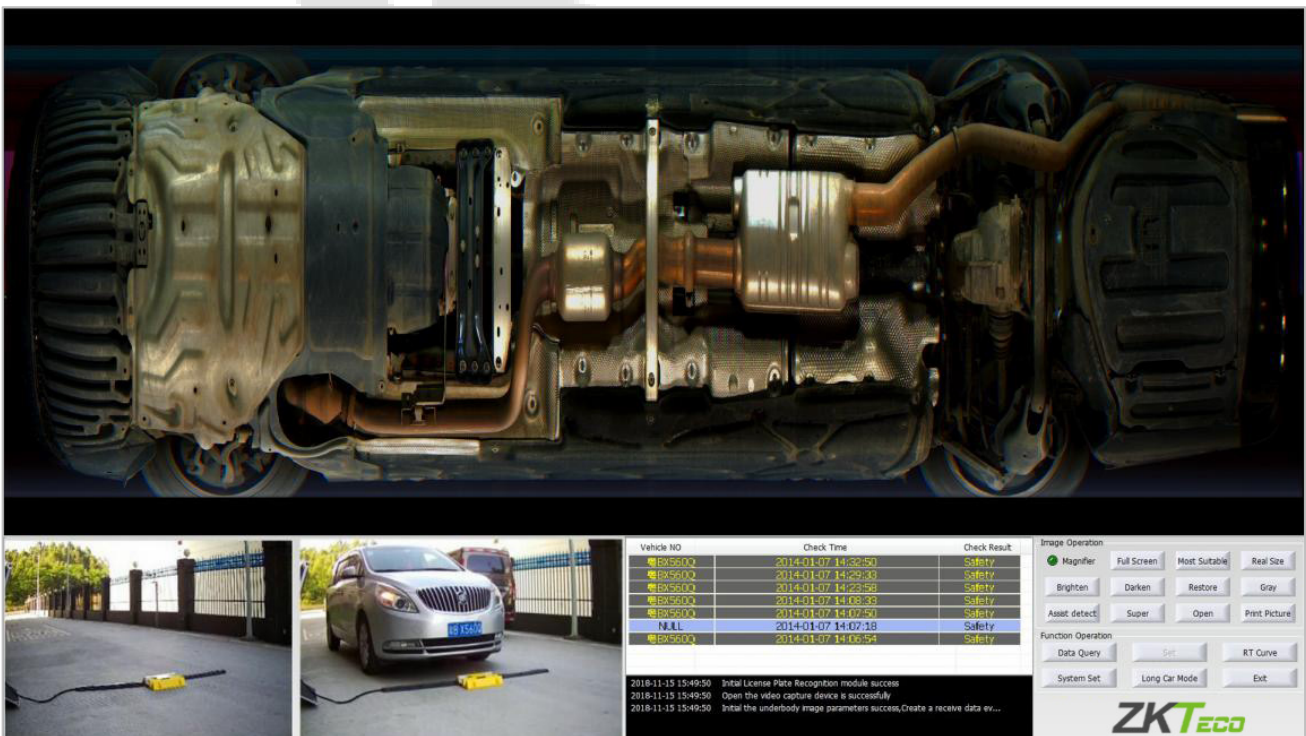
3.3.8 Brighten

Click **Brighten** button, the image will become brighter, as shown below.



3.3.9 Darken

Click **Darken** button, the image will become darker, as shown below.

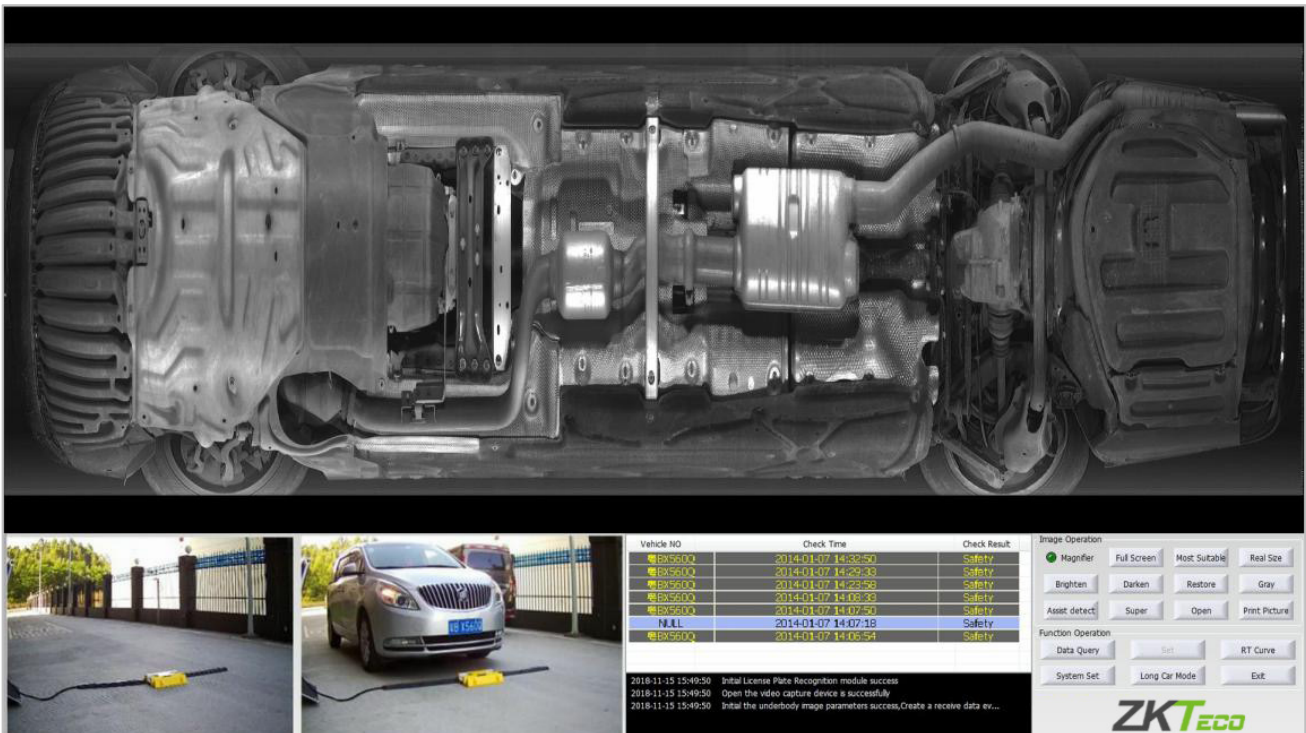


3.3.10 Restore

Click **Restore** button, the image will restore the default brightness state. Screen brightness cannot see the brightness of the image before the operation.

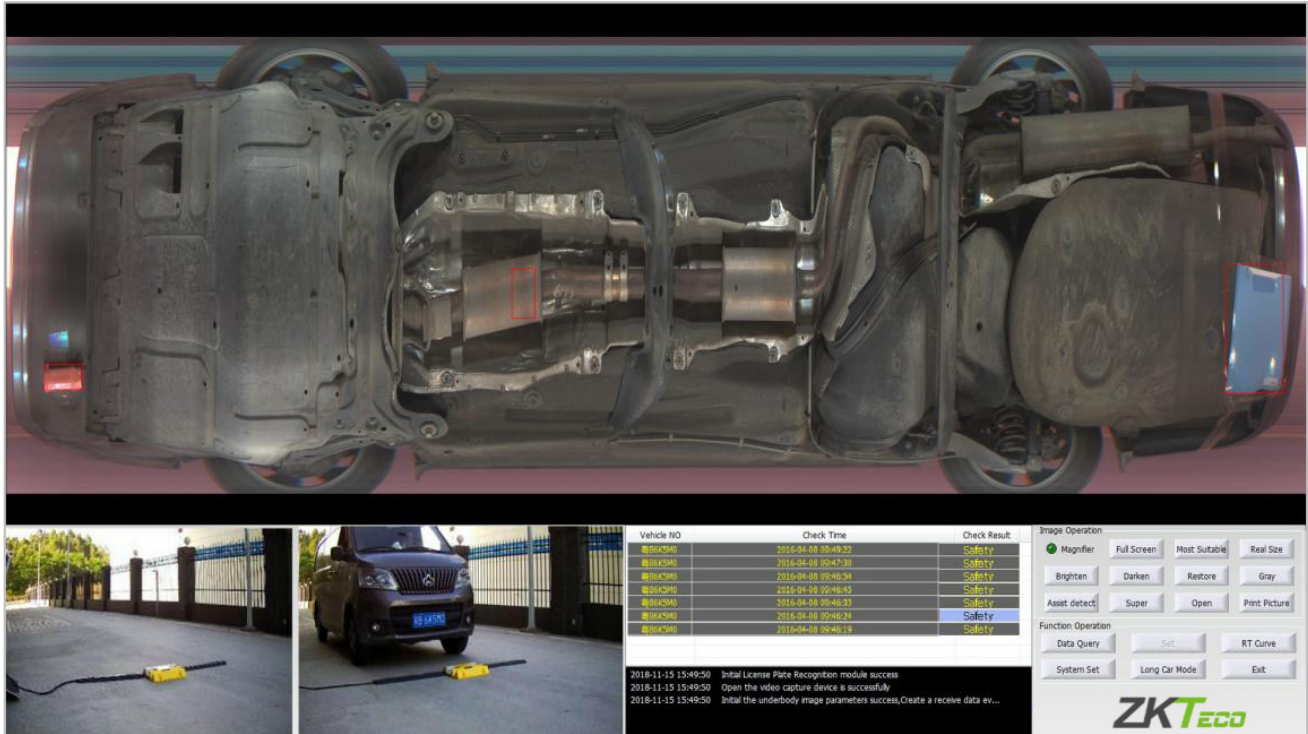
3.3.11 Black and White Display

Click **Black and White Display** button, and the color image will become become black and white,



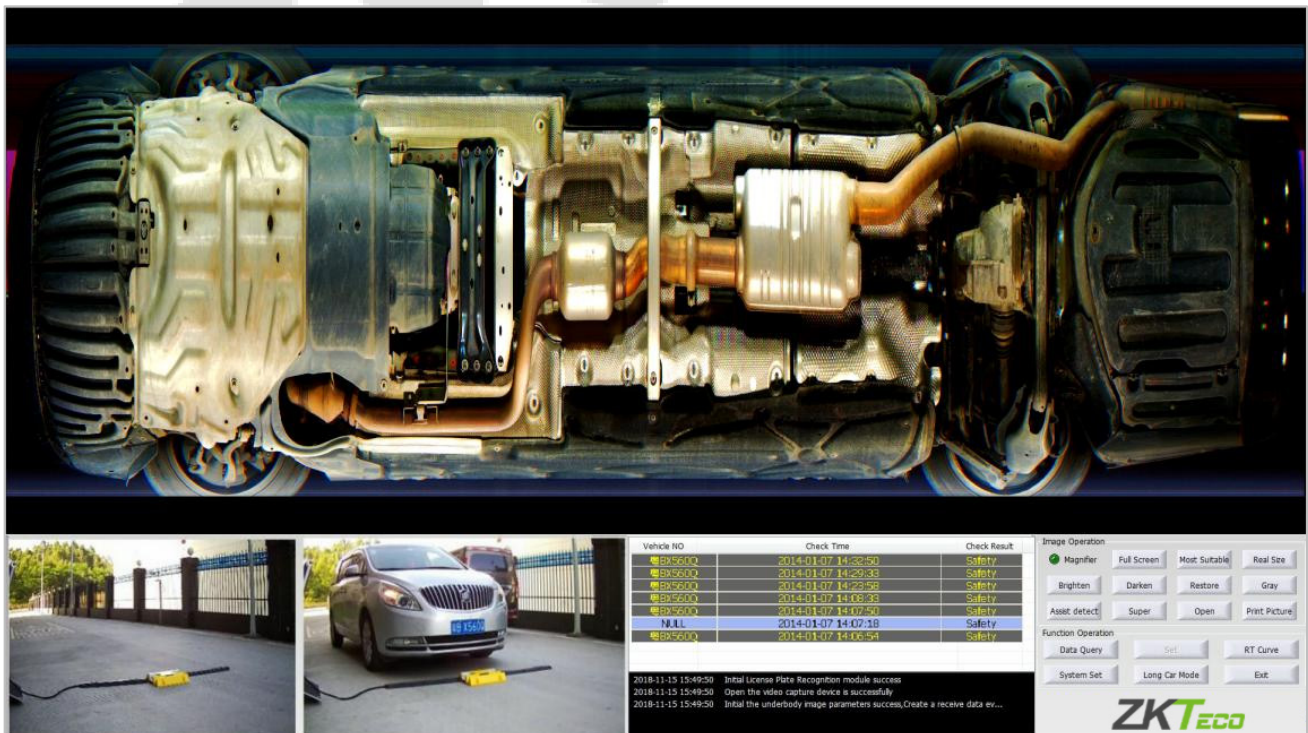
3.3.12 Auxiliary Detection

Click **Auxiliary Detection** button to quickly discover the suspicious item area of the vehicle chassis, and box select the area where the suspicious item is located to remind inspectors to focus on checking the box select area



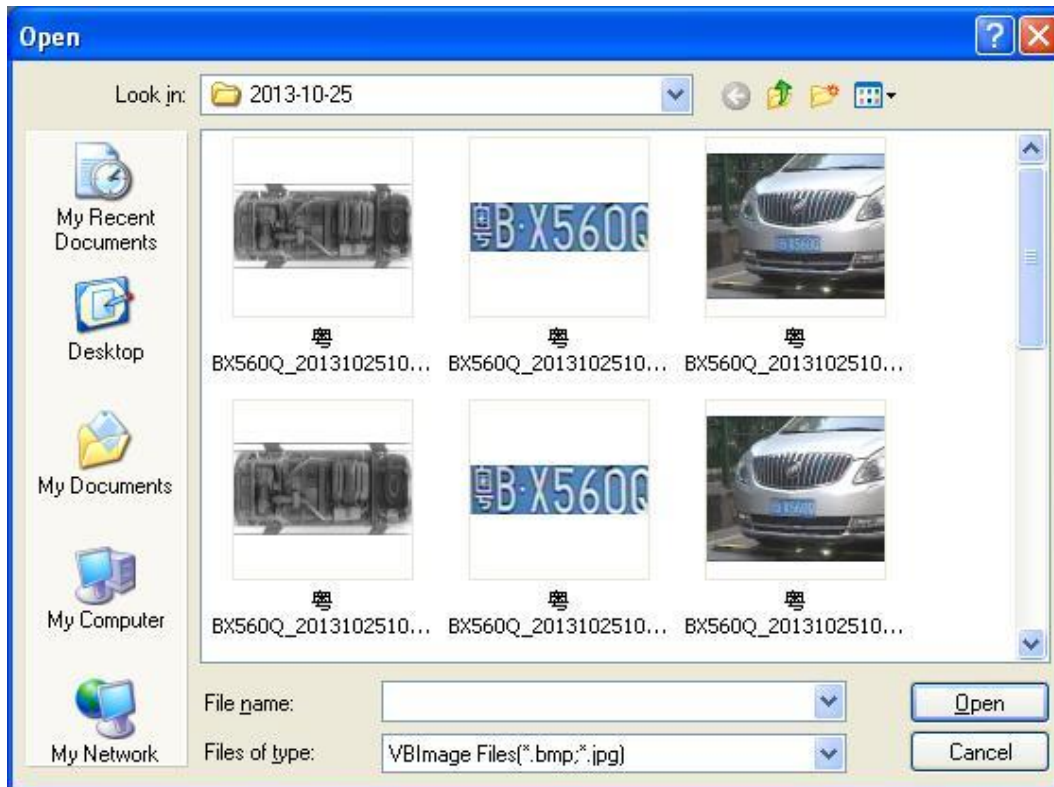
3.3.13 Super Enhancement

Single click **Super** button, enhancing image edge, changing the image brightness and darkness.



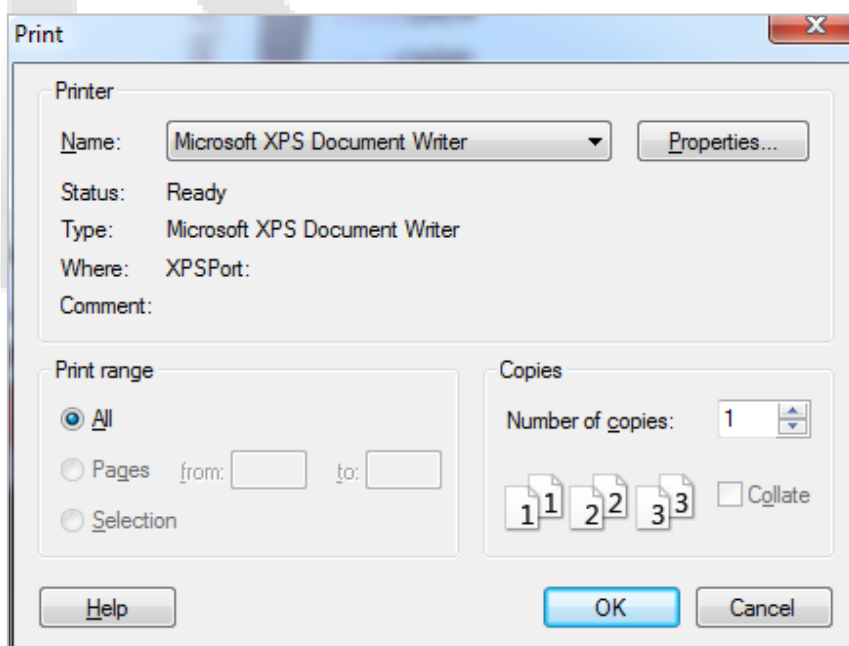
3.3.14 Open

Click **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.



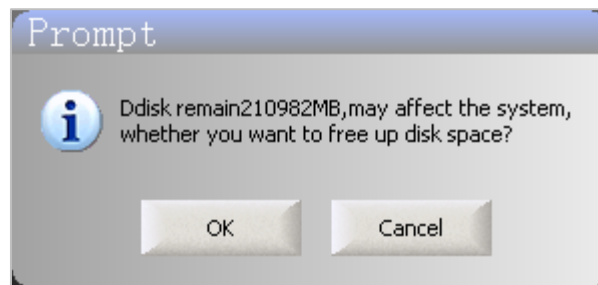
3.3.15 Print Pictures

Click **Print Picture** button, and the picture dialog box pops up. If a printer is connected, select the printer model to print the open picture.

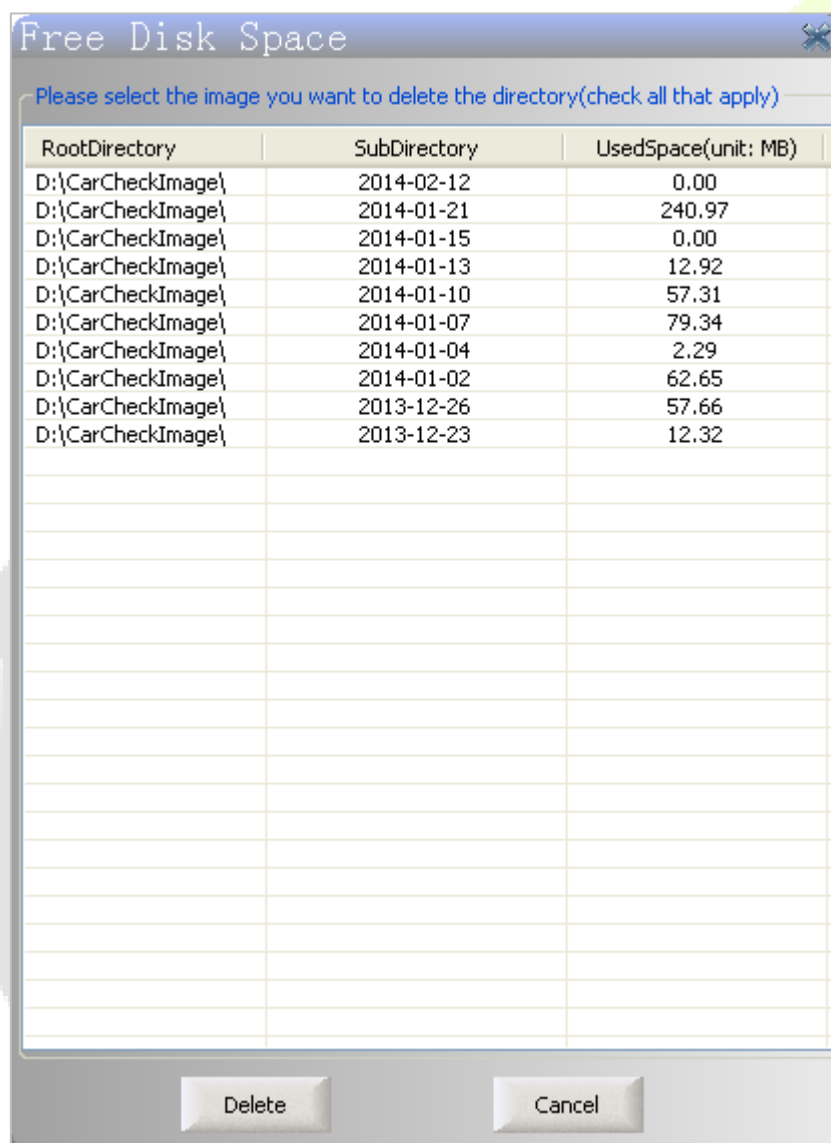


3.3.16 Image Delete Function

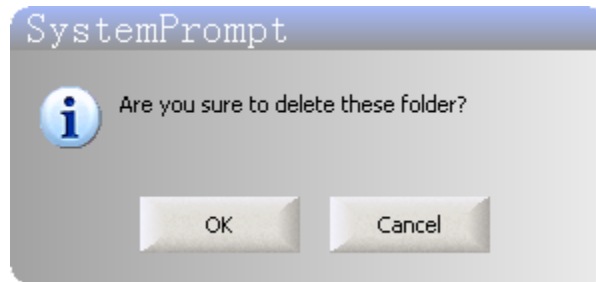
After saving the image, the system will automatic-check the disk space every time while the space of disk is less than the set threshold, the dialog box will pop up as shown below.



If you select **OK**, the following interface will pop up.

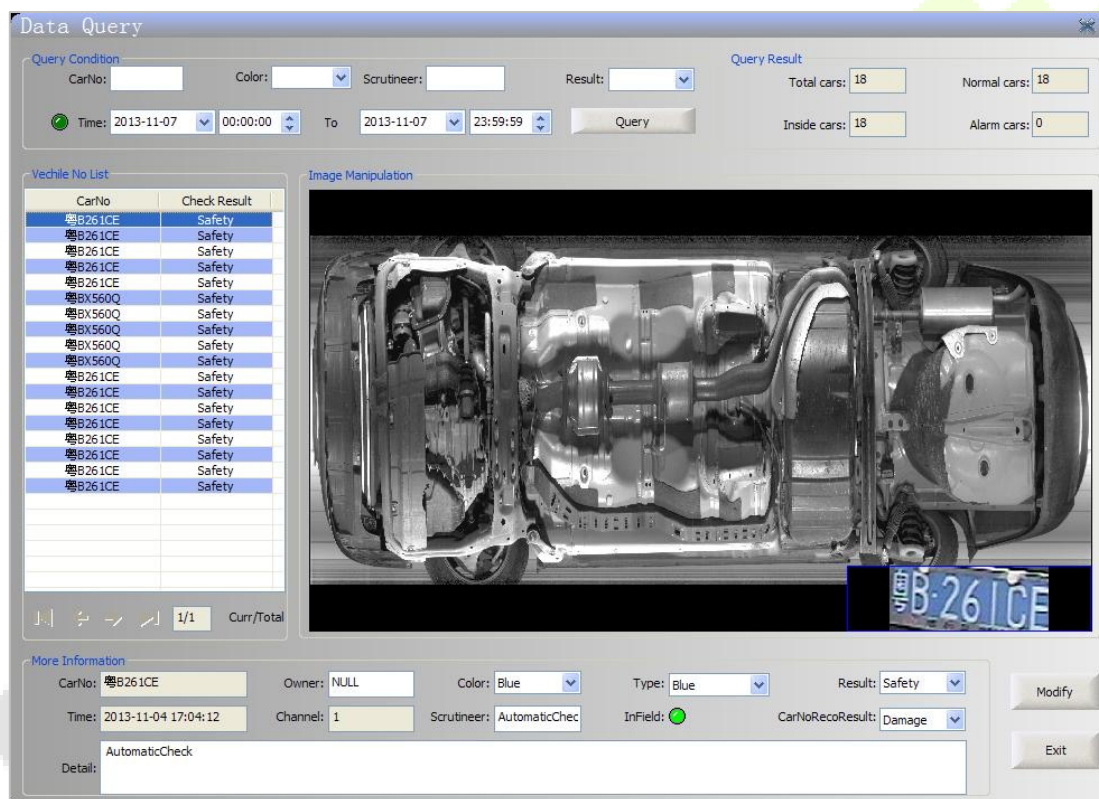


In this interface, you can double-click an image catalog that is no longer needed, then click **Delete** key.



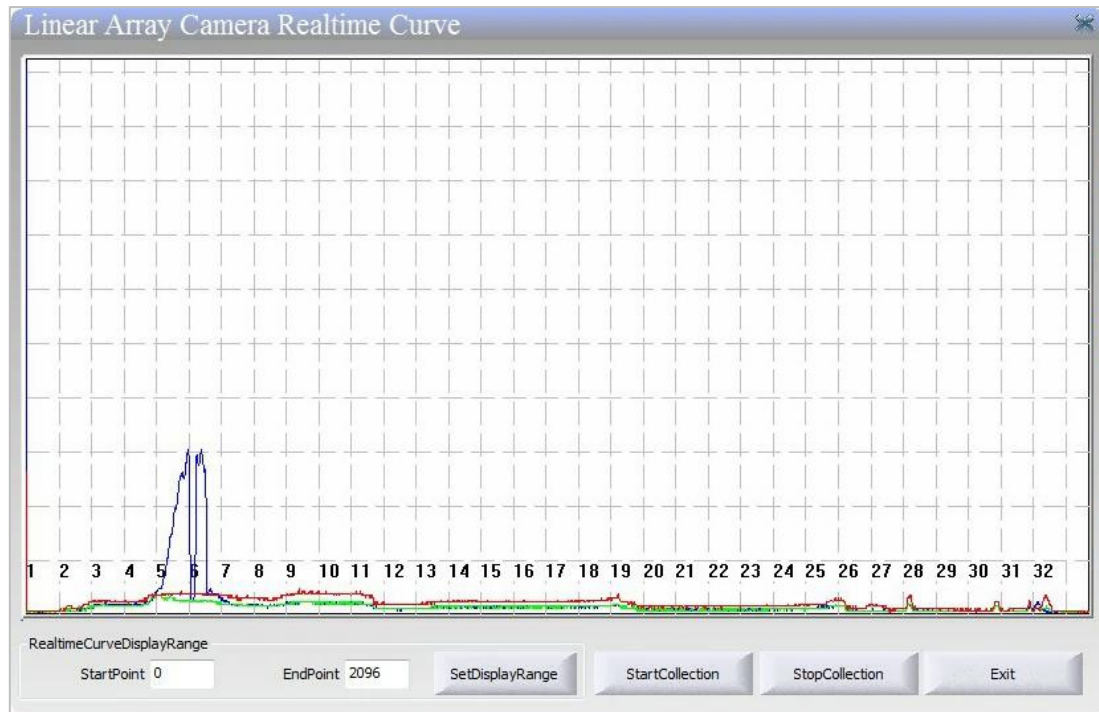
3.3.17 Date Query

By clicking **Data Query** button, you can query the vehicle inspection information in the interface shown below.



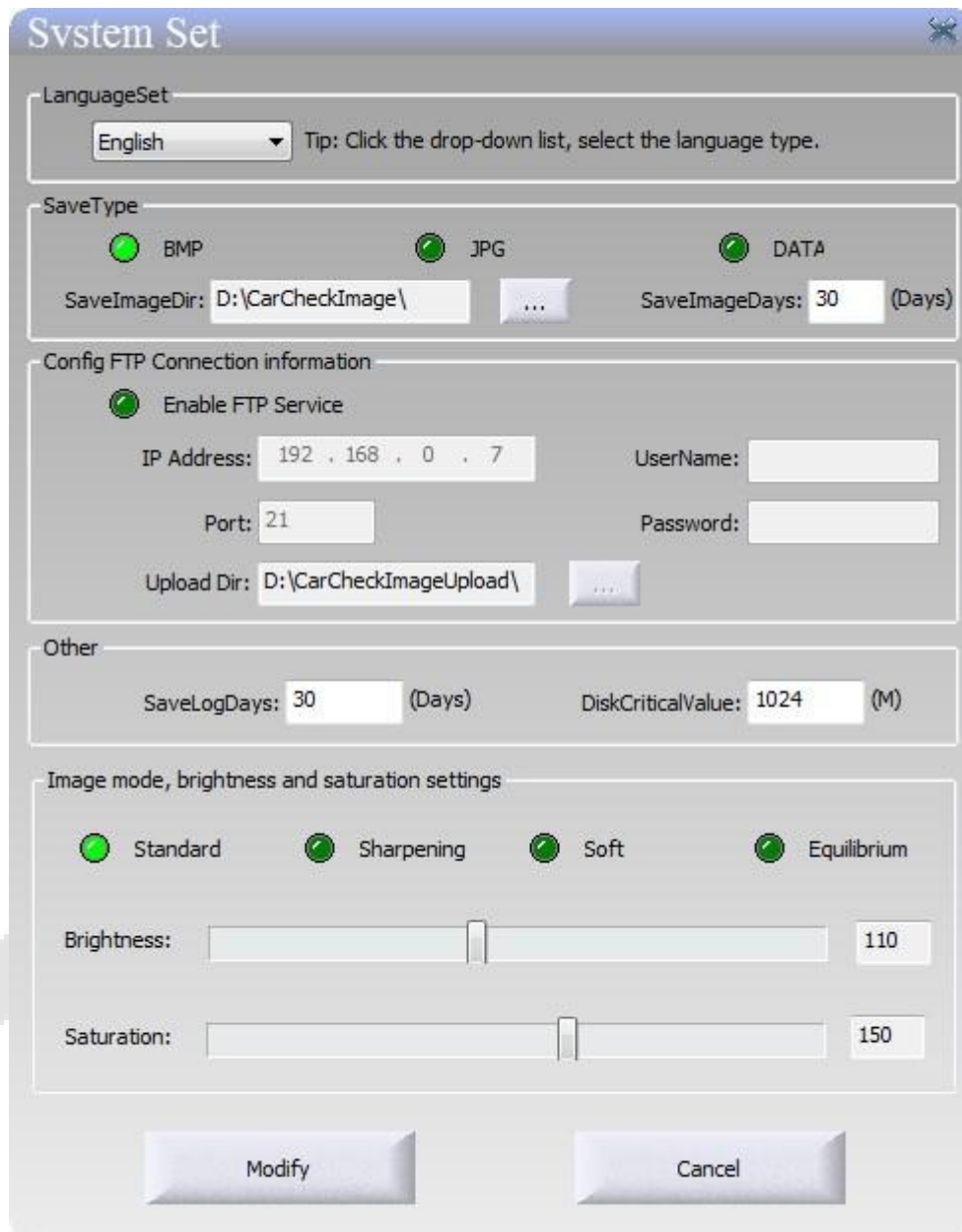
3.3.18 Real-time Curve

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.



3.3.19 System Settings

By clicking **System Settings** button, the interface shown below pops up and you can set the language, image saving format, storage path, storage days, FTP connection settings, log saving days, disk threshold and image settings. FTP connection settings, log storage days, disk threshold, and image settings, etc.



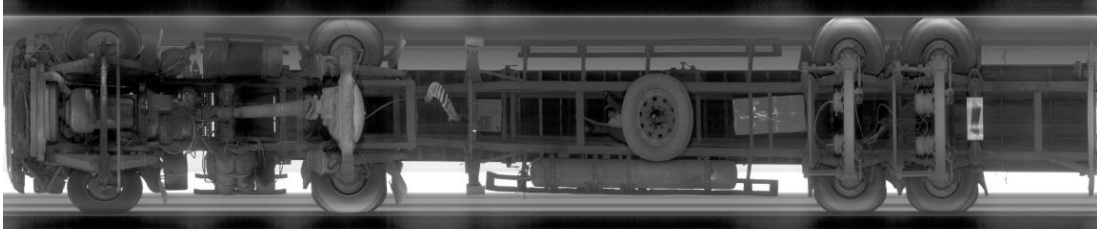
The screenshot displays the 'System Set' dialog box with the following sections and settings:

- LanguageSet:** A dropdown menu is set to 'English'. A tip below reads: 'Tip: Click the drop-down list, select the language type.'
- SaveType:** Three radio buttons are present: 'BMP', 'JPG', and 'DATA'. All three are currently selected. Below them, 'SaveImageDir' is set to 'D:\CarCheckImage\' with a browse button (...). 'SaveImageDays' is set to '30 (Days)'.
- Config FTP Connection information:** A radio button for 'Enable FTP Service' is selected. The 'IP Address' is '192 . 168 . 0 . 7', 'UserName' is empty, 'Port' is '21', and 'Password' is empty. 'Upload Dir' is 'D:\CarCheckImageUpload\' with a browse button (...).
- Other:** 'SaveLogDays' is set to '30 (Days)' and 'DiskCriticalValue' is set to '1024 (M)'.
- Image mode, brightness and saturation settings:** Four radio buttons are present: 'Standard', 'Sharpening', 'Soft', and 'Equilibrium'. All four are currently selected. Below them, 'Brightness' is set to '110' and 'Saturation' is set to '150'.

At the bottom of the dialog box are two buttons: 'Modify' and 'Cancel'.

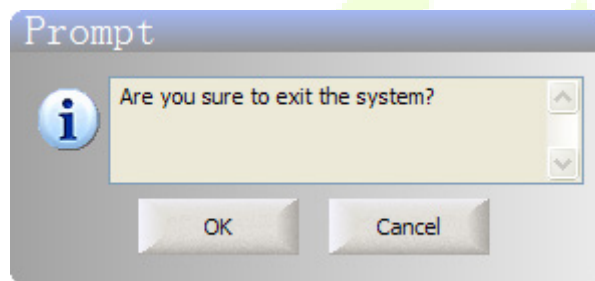
3.3.20 Long Car Mode

When a large row of vehicles passes or long vehicle, you can click **long Car Mode** button and click again to change back to "normal mode".



3.3.21 Exit

Click **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.



3.4 Real-time Video

3.4.1 Real-time Monitoring Video Display

Start the software, the real-time monitoring display area will show surveillance video. Interface is shown below.



3.4.2 License Plate Capture Photos Display Area

Displays the detected vehicle license plate capture photos



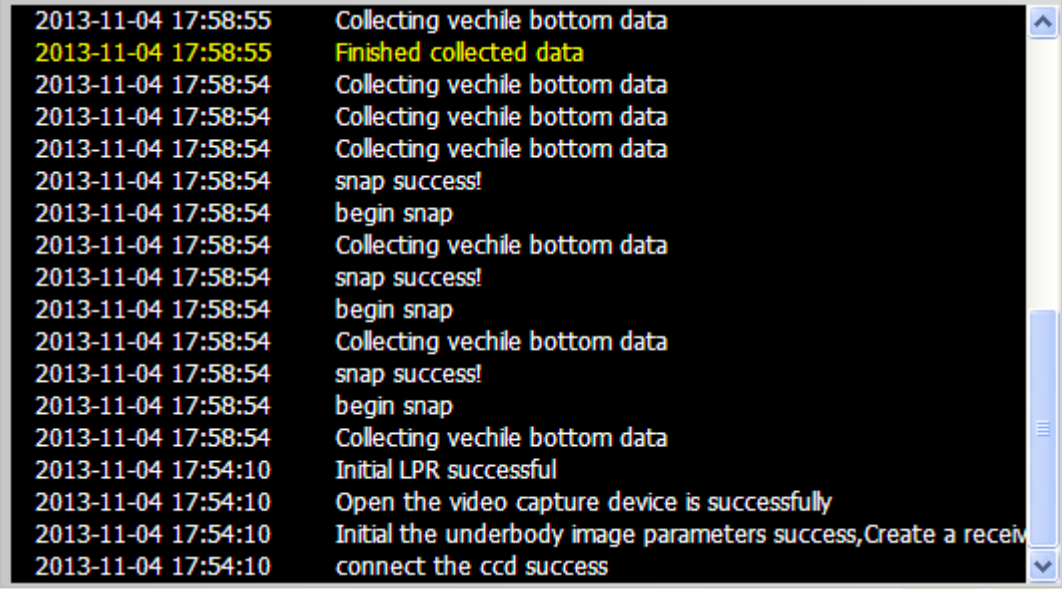
3.4.3 Vehicle Information List

Checking vehicle information all day, including license plate number(Optional), check the time and vehicle inspection results, can modify license number and check results.

Vehicle NO	Check Time	Check Result
粵CFM951	2013-11-04 15:50:09	Safety
粵CFM951	2013-11-04 15:50:07	Safety
粵B261CE	2013-11-04 15:39:52	Safety
粵B261CE	2013-11-04 15:39:50	Safety
粵B261CE	2013-11-04 15:39:46	Safety

Vehicle NO	Check Time	Check Result
粵CFM951	2013-11-04 15:50:09	Safety
粵CFM951	2013-11-04 15:50:07	Safety
粵B261CE	2013-11-04 15:39:52	Safety
粵B261CE	2013-11-04 15:39:50	Alarm
粵B261CE	2013-11-04 15:39:46	Prohibit

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:



```
2013-11-04 17:58:55 Collecting vechile bottom data
2013-11-04 17:58:55 Finished collected data
2013-11-04 17:58:54 Collecting vechile bottom data
2013-11-04 17:58:54 Collecting vechile bottom data
2013-11-04 17:58:54 Collecting vechile bottom data
2013-11-04 17:58:54 snap success!
2013-11-04 17:58:54 begin snap
2013-11-04 17:58:54 Collecting vechile bottom data
2013-11-04 17:58:54 snap success!
2013-11-04 17:58:54 begin snap
2013-11-04 17:58:54 Collecting vechile bottom data
2013-11-04 17:58:54 snap success!
2013-11-04 17:58:54 begin snap
2013-11-04 17:58:54 Collecting vechile bottom data
2013-11-04 17:54:10 Initial LPR successful
2013-11-04 17:54:10 Open the video capture device is successfully
2013-11-04 17:54:10 Initial the underbody image parameters success,Create a receive
2013-11-04 17:54:10 connect the ccd success
```

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 Troubleshooting

1. **Scanner flashing Light does not go off.**

- A. Measure the input voltage of power supplying, if it is less than 24V, please replace the power.
- B. Notify the manufacturer for a replacement and maintenance.

2. **The video of license plate captured display blurred**

- A. Open the front cover of the video device, adjust focus and zoom.

3. **Real-time video display area does not display live video.**

- A. Check the camera capture card connected to the line, and make sure the camera video capture card circuit has access to the first road interface.

4. **Video capture is connected, but the system cannot find the prompt capture card or failed to initialize.**

- A. Reinstall the video acquisition card driver

5. **Host machine cannot connect the under vehicle surveillance device**

- A. Check whether the two IP are in the same network segment and the IP settings. After resetting the IP in the instructions, then restart the software.
- B. To check the host network adapter, camera, network equipment, replace the cable, use ping command in the command prompt to find the reason.

6. **When cross the vehicle, the vehicle image display area is not displaying images**

- A. Can open the "Real-time Curve" dialog box, to see if there is no real-time curve, it may be the camera or the link line with problems.
- B. Notify the equipment provider for a replacement and maintenance.

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