GeoVision inc
The Vision of Security

GV-LPR

Feature Guide V3.1

Every effort has been made to ensure that the information in this manual is accurate. GeoVision is not responsible for printing or clerical errors.

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Important Notice

1. GV-LPR V3.1 only supports the following version of recognition engine:

No.	Country	Engine Version	No.	Country	Engine Version
1	Arabic	V2100	20	Israel	V3110
2	Australia	V4030	21	Italy	V4030
3	Austria	V2210	22	Japan	V1001
4	Belgium	V2210	23	Malaysia	V2220
5	Brazil	V3100	24	Mexico	V4030
6	Canada	V2100	25	Norway	V2210
7	Chile	V3200	26	Poland	V2100
8	China	V3100	27	Portugal	V3100
9	Columbia	V2210	28	Serbia	V2210
10	Croatia	V2100	29	Slovenia	V2100
11	Cyprus	V2210	30	South Africa	V3100
12	Czech	V3200	31	Spain	V3110
13	France	V2100	32	Taiwan	V4020
14	Germany	V2210	33	Thailand	V2200
15	Global	V4030	34	Turkey	V2100
16	Guernsey	V2210	35	UAE	V2210
17	Hong Kong	V3000	36	UK	V4030
18	Hungary	V2210	37	USA	V3110
19	Ireland	V2210			

2. To run GV-LPR V3.1, you need one of the three dongles:

Dongle	Description
LPR Only	GV-LPR software is installed with the choice of either installing the GV Video Capture Card or not. The video stream can be from GV-DSP LPR, IP cameras, AVI files and GV Video Capture Card if installed.
LPR with DVR	The dongle is required if GV-LPR software and GV-Series DVR are run together. The video stream can be from GV-DSP LPR, IP cameras, AVI files and GV Video Capture Card.
LPR Pure	The dongle is used if GV-DSP LPR is the only video source.

3. GV-LPR V3.1 supports the following GV Video Capture Cards:

- GV-600(S) V3.20 and later
- GV-650(S) V3.30 and later
- GV-800(S) V3.30 and later
- GV800-4A V3.10 and later
- GV-600(V4)
- GV-650(V4)
- GV-800(V4)
- GV-1120 All Series
- GV-1240 All Series
- GV-1480 All Series

Software Installation

When you insert the GV-LPR Software CD to the computer, the following Install Program window will appear:

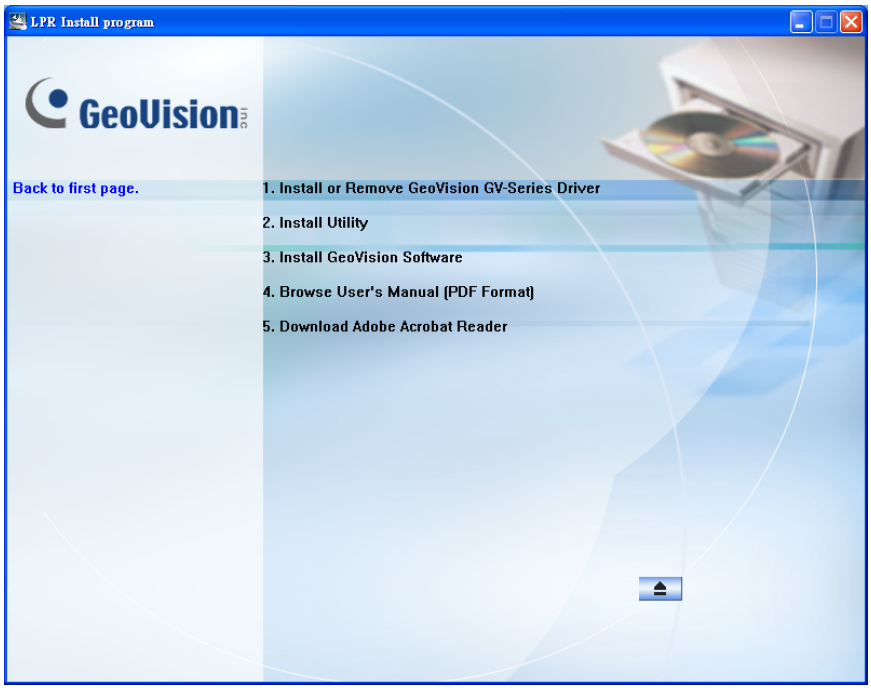

Figure 1

Installing the System

1. Ensure **DirectX 9.0c** is already installed on your computer. You can click **Install Utility** and click **Install DirectX 9.0c**.
2. If your operating system is Windows 2000, ensure Microsoft Data Access Components (MDAC) is already installed. You can click **Install Utility** and click **Install Microsoft Data Access Components (MDAC) 2.8 SP1 (Only for Windows 2000)** to install MDAC, or click **Install MDAC Checker** to check if the program has been installed.
3. To install GV-LPR, click **Install GeoVision Software** and click **GeoVision LPR System**.
4. Follow the above step to install other programs one by one.

Uninstalling the System

1. Close any open programs because your computer will restart during the uninstalling process.
2. On the taskbar, click **Start**, point to **Programs**, select **GV-LPR**, and then click **Uninstall GeoVision GV-LPR System**.

Note: Uninstalling the system will not delete log files previously saved on the computer.

Program List

The GV-LPR Software CD includes the following programs:

1. LPR System
2. LPR Center System
3. SMS Server
4. IP Device Utility

Figure 2

Contents

1. IP Camera Support

Starting from GV-LPR version 3.1, you can connect IP cameras to GV-LPR to perform license plate recognition and IP-based video surveillance together. With support for IP cameras, it is possible to run GV-LPR software independently without the need to install the GV Video Capture Card. For supported IP devices, refer to *Appendix*.

Please note that the support for IP cameras is only available on the recognition engine version 3.0 or above. To check the engine version, click the **Exit** button, select **Version Information** and find **Library Version**. You can also refer to *Important Notice* to see the current engine version.

If your GV-LPR is integrated with GV-Series DVR, it is also possible to retrieve the recordings of IP cameras from GV-Series DVR for playback. For the new function of playback, see *5. New Player for Remote Playback*.

To add an IP camera:

1. Click the **System Configure** button and click **IP Camera Install**. This dialog box appears.

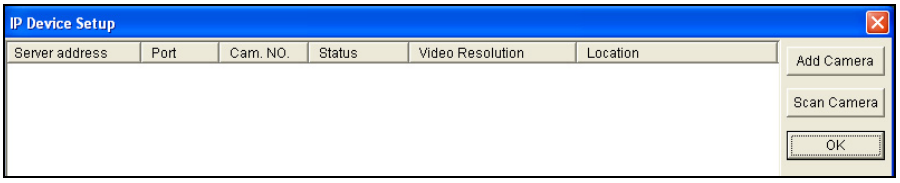

Figure 3

- To automatically set up the camera, click **Scan Camera** to detect any GV IP devices on the LAN.
- To manually set up the camera, click **Add Camera**.

The following steps are the example of manual setup.

2. Click **Add Camera**. This dialog box appears.

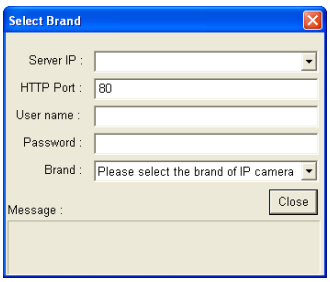

Figure 4

3. Type the IP address, username and password of the IP camera. Modify the default HTTP port if necessary. Select the camera model from the Brand list. This dialog box appears.

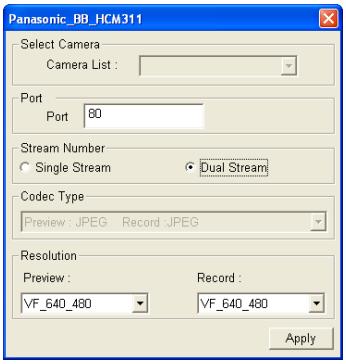

Figure 5

4. The options in the setup dialog box may vary depended on camera models.
   - **Port:** Video streaming port value.
   - **Stream Number:** You may have the option of single or dual streaming.
   - **Codec Type:** You may select the codec. If the selected camera supports dual streaming, the preview codec and recording codec can be set differently.
   - **Resolution:** You may select different resolutions for preview and recording.
5. Click **Apply**. The IP camera is added to the list.
6. Click the listed camera, and select **Display Position** to map the camera to a channel on GV-LPR.

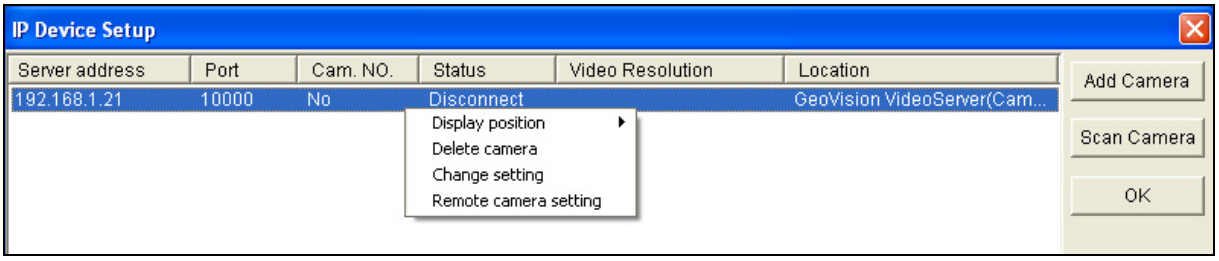

Figure 6

7. The Statue column now should display “Connected”. Click **OK.**

Note: When you click the listed camera, you can see the two options:

1. **Preview and Audio Setting:** The setting is not functional in GV-LPR.
2. **Remote Camera Setting:** Click to access the configuration interface of the connected IP camera.

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2. Adjusting the Recognition Engine

You can fine-tune the recognition engine to improve the recognition process and increase the accuracy.

Please note that the function is only available on the recognition engine version 4.0 or above. To check the engine version, click the **Exit** button, select **Version Information** and find **Library Version**. You can also refer to *Important Notice* to see the current engine version.

To access the function, click the **System Configure** button and select **Recognition Setting**. This dialog box will appear.

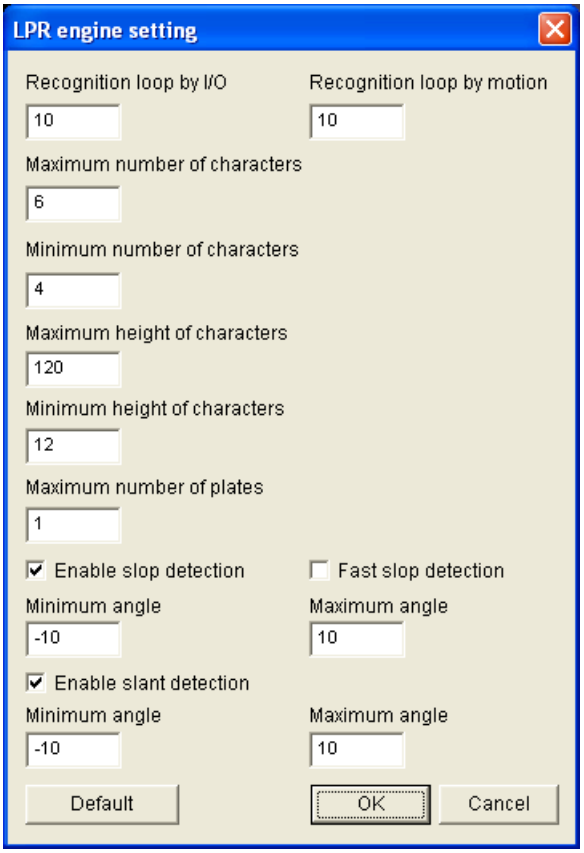


Figure 7

- **Recognition loop by I/O:** You can set the number of recognition the system will perform to the same license plate upon output device triggered.
- **Recognition loop by motion:** You can set the number of recognition the system will perform to the same license plate upon motion detected.
- **Maximum number of characters:** You can set the maximum number of characters allowed on the license plate to activate the recognition process. If the plate number exceeds the maximum limit, the system will not start the recognition.

- **Minimum number of characters:** You can set the minimum number of characters allowed on the license plate to activate the recognition process. If the plate number does not reach the minimum required, the system will not start the recognition.
- **Maximum height of characters:** You can set the maximum height of characters on the license plate in pixels to activate the recognition process.
- **Minimum height of characters:** You can set the minimum height of characters on the license plate in pixels to active the recognition process.
- **Maximum number of plates:** You can set the maximum number of plates to be recognized simultaneously.
- **Enable Slope Detection:** The license plate tilting in a horizontal direction can be detected. You can set the maximum and minimum tilt angle allowed to activate the recognition process. The **Fast Slope Detection** option can increase the recognition speed by 10 % but decrease the accuracy by 3%.
- **Enable Slant Detection:** The license plate tilting in a vertical direction can be detected. You can set the maximum and minimum tilt angle allowed to activate the recognition process.

3. Captured Plate Size

The size of the captured license plate can be displayed on the screen.

To display the size of the license plate, click the **System Configure** button. The System Configuration Properties dialog box will appear. In the Panel section, select **Display Recognition Size**. When the plate number is captured, the plate size will be displayed too. The following example shows that a license plate of 182 x 52 pixels was captured.

Figure 8

4. Overstay Alarm

The alarm will be generated when any vehicles overstay a defined period of time in a parking space. The alarm can be the computer noise alarm, LED message, triggered output device, SMS alerts, E-mail, or all of them to alert the operative to violations.

1. To detect overstay of a vehicle, the driving direction must be set to **Outgoing**. Click the **System Configure** button, click one **Camera** tab, click the **General** tab, and select **Outgoing** in the Drive Direction drop-down list.

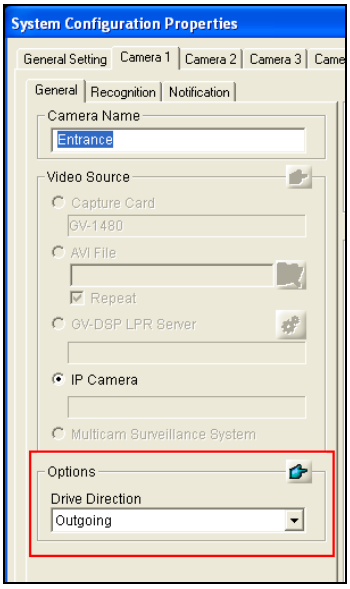


Figure 9

2. Click the **System Configure** button and select **Overstay Setting**. This dialog box appears.

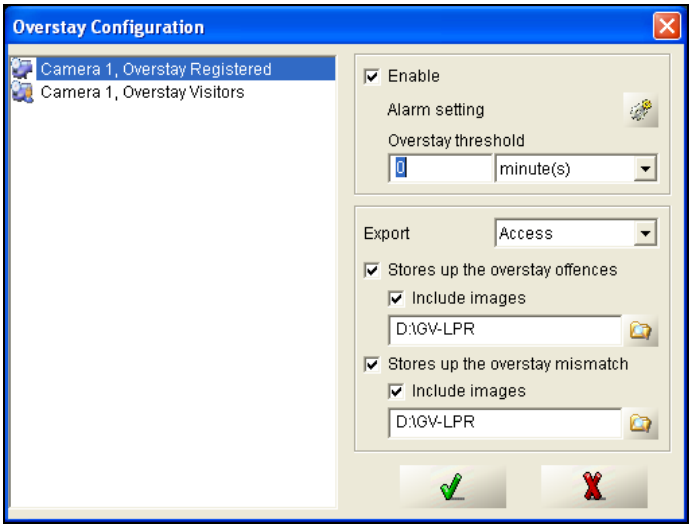


Figure 10

3. In the left panel, select one recognition type such as Camera 1, Overstay Registered.
4. Select **Enable** to activate the alarm setting.
5. Specify **Overstay Threshold** in minutes, hours or days.
6. Click the  button to define the alarm method.
7. If you want to record the overstay violation, select **Stores up the overstay offense** to write the record in a MDB file and/or select **Include Images** to save the vehicle image. Then specify the record path.
8. If you want to record the non-violation case, select **Stores up the overstay mismatch** to write the record in a MDB file and/or select **Include Images** to save the vehicle image. Then specify the record path.

5. Enhanced Remote Playback

Starting from GV-LPR V3.1, the remote playback of recordings on GV-LPR has been enhanced in the two ways:

- The recordings can be retrieved not only from GV-Series DVR, but also GV-Video Server and GV-Compact DVR.
- The player Remote ViewLog is introduced for remote playback.

To remotely play back recordings on GV-LPR:

1. To allow the remote access:
   - On GV-Series DVR, enable **Remote ViewLog Service** of Control Center Server.
   - On GV-Video Server and GV-Compact DVR, enable **Remote ViewLog**.
2. Click the **System Configure** button and select **Video Player**. This dialog box appears.

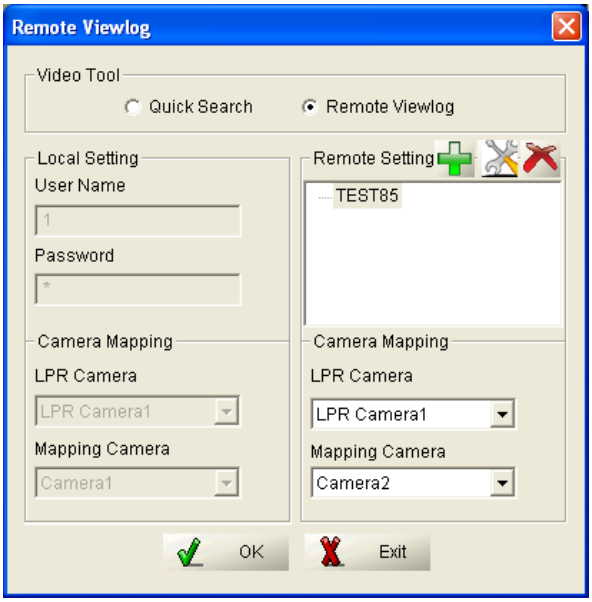


Figure 11

3. Select **Remote ViewLog** and click the **Add** button . This dialog box appears.

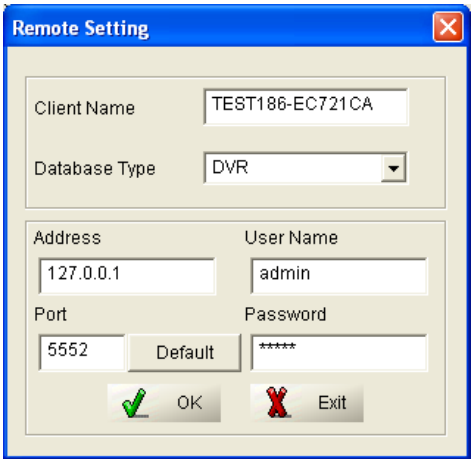


Figure 12

4. Type the client name as same as the host name on the client DVR, GV-Video Server or GV-Compact DVR. Select database type. Type IP address, user name and password to log into the client. Keep the port value as default or change it to match the related port on the client. Then click **OK**.
5. In the Camera Mapping section, map the camera of GV-LPR with the corresponding camera of the client. Then click **OK**.
6. Open **Recognition Database**, select the recorded event of interest in the list, and click the **Recognition Video** button . The Remote ViewLog player appears and playback starts.

The Controls on the Remote ViewLog Player

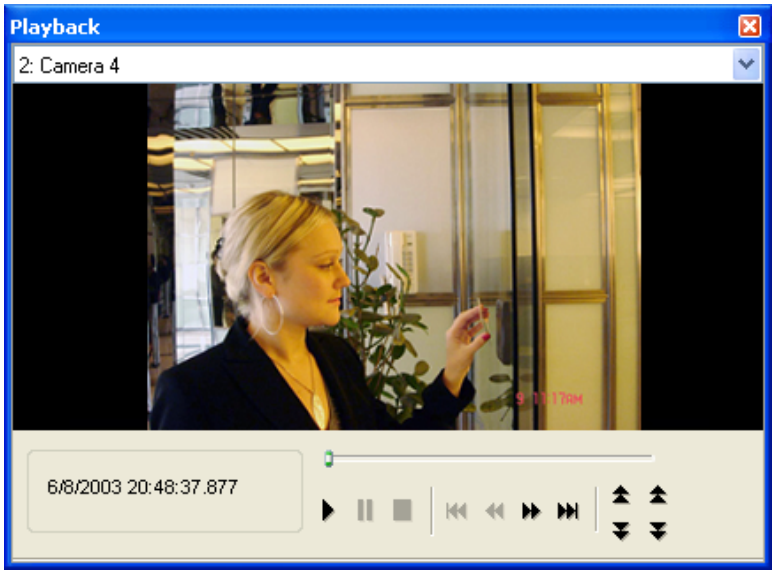
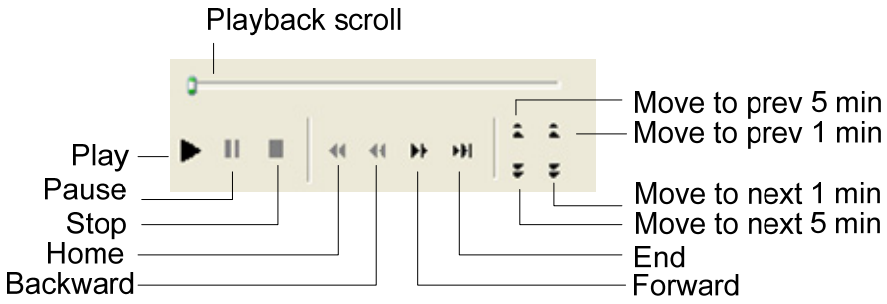


Figure 13



Right-click the window to have the following features:

Play Mode	Includes these options: • **Frame by Frame:** Plays back video frame by frame. • **Real Time:** Plays back video on real time. This mode saves waiting time for rendering, but drop frames to give the appearance of real-time playback. • **Auto Play Next 5 Minutes:** Plays back video up to 5 minutes. • **Audio:** Turns on or off the video sound.
Render	Includes these options: • **Deinterlace:** Converts the interlaced video into non-interlaced video. • **Scaling:** Smoothens mosaic squares when enlarging a playback video • **Deblocking:** Removes the block-like artifacts from low-quality and highly compressed video. • **Defog:** Enhances image visibility. • **Stabilizer:** Reduces camera shake. • **Text overlay's camera name and time:** Overlays camera name and time onto the video. • **Text overlay's POS/GV-Wiegand:** Overlays POS or GV-Wiegand Capture data onto the video. • **Full Screen:** Switches to the full screen view.
Tools	• **Snapshot:** Saves a video image. • **Save as AVI:** Saves a video as avi format. • **Download:** Downloads the video clip from a GeoVision IP device to the local computer.

6. Enhanced Recognition Database

- **Sorting in the Ascending or Descending Order**

By clicking on the respective column header in the list, you can sort query results in the ascending or descending order.

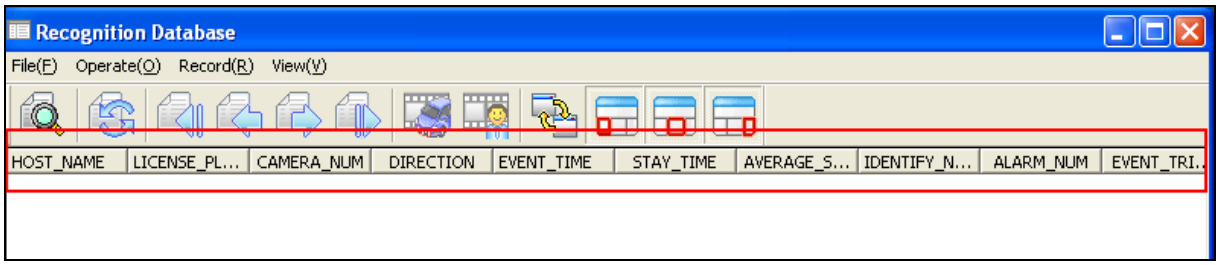


Figure 14

- **Enhanced Camera Search**

Now you can search the camera in three kinds of modes: Exact Match, Partial Match or Head Match.

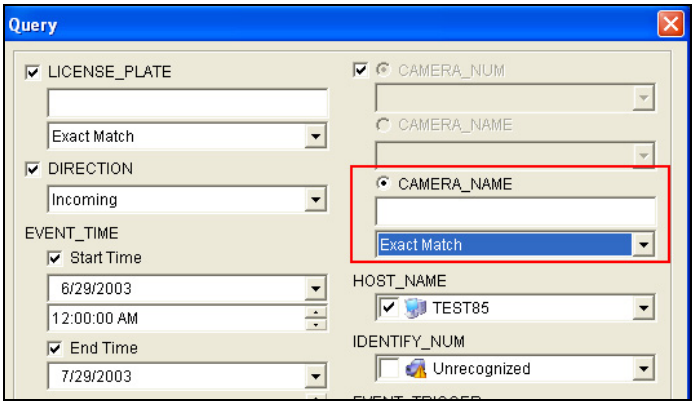


Figure 15

- **The Type of Event Trigger**

Now the type of event that triggers the recognition process will be recorded to the database for later retrieval. The types of events include Motion Detection, I/O Detection, Hot Key and GV-DSP LPR.

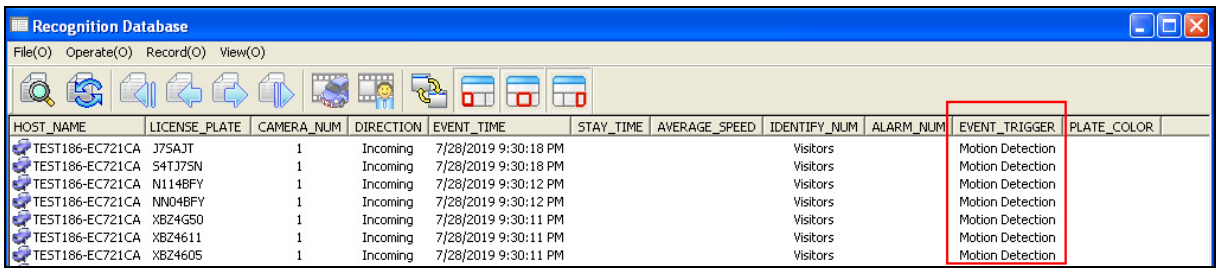


Figure 16

7. Other Features

- **New Screen Resolution Support**

Starting from version 3.1, GV-LPR supports the screen resolution of 800 x 600.

- **Enhanced Resolution Setting for Captured Images**

1. The **Save Image as JPEG File** option was moved from the System Configuration Properties dialog box to the Alarm Definition Setting dialog box. The relocation allows you to set different resolutions of the captured images for each camera.
2. When the video stream is from the IP camera, you can set the resolution of captured images to match the resolution setting of the IP camera. For example, if the video stream is at megapixel resolution, the image captured will also be megapixel. For this new setting, select **Resolution by source.**

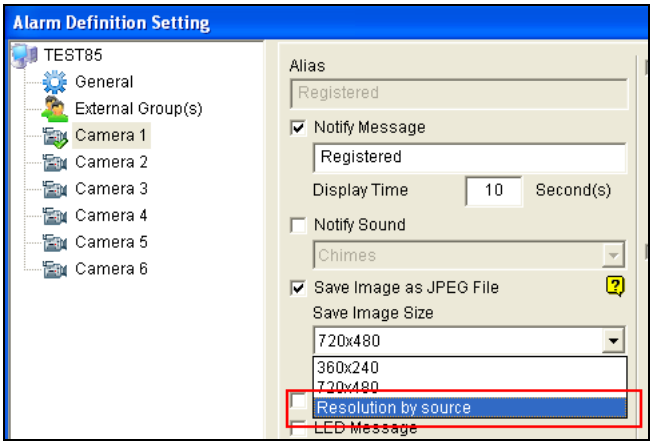


Figure 17

- **Different Triggered Outputs for Each Camera**

The **I/O Trigger** option was moved from the System Configuration Properties dialog box to the Alarm Definition Setting dialog box. The relocation allows you to set different triggered outputs for each camera.

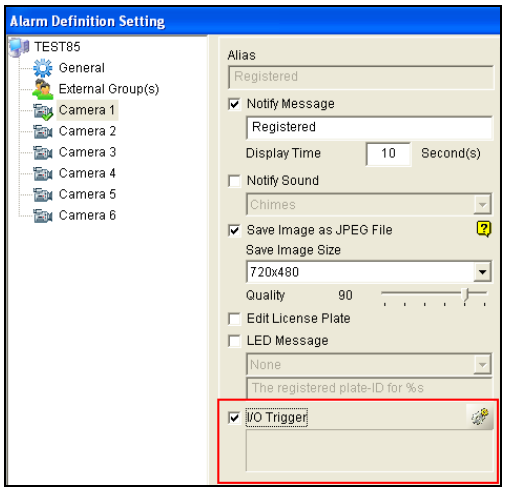


Figure 18

- **Enhanced Display of Camera and Group Names**

Now in the Alarm Definition Setting dialog box, you can choose to display only camera and group aliases, or aliases and ID number together.

By default, only camera and group aliases are displayed. To display aliases and ID number together, select **Enable camera ID or expanded group ID** at the bottom of the Alarm Definition Setting dialog box.

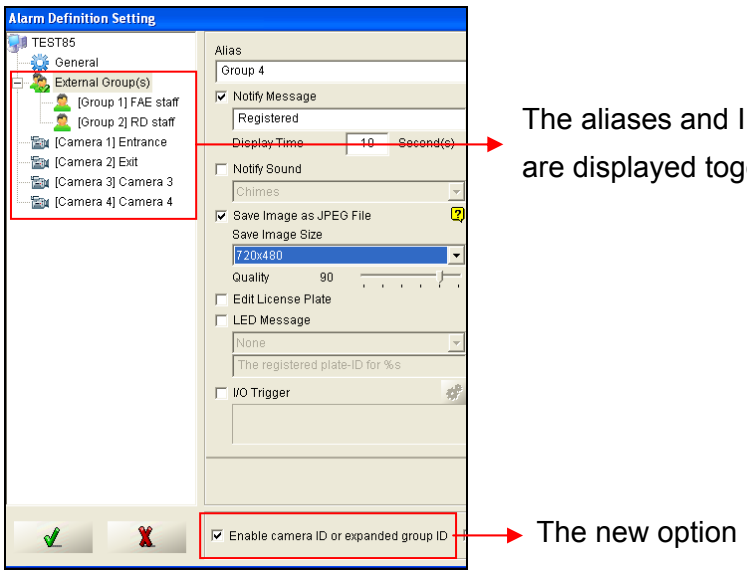


Figure 19

Appendix

Supported IP Devices

Brand	Model
GeoVision	GV-Compact DVR
	GV-IP Camera
	GV-Video Server
Arecont Vision	AV1300
	AV2100
	AV3100
	AV3105
	AV3130
	AV5100
	AV5105
	AV8360
AXIS	206
	207
	207MW
	207W
	209FD
	209FD-R
	209MFD
	209MFD-R
	210
	210A
	211
	211A
	211M
	211W
	212
	213
	214
	215
	216FD
	216FD-V
	216MFD
	216MFD-V
	221
	223M
	225FD
	231D
	232D
	233D
	241Q
	241S
	P3301
	Q7401

Brand	Model
Bosch	VIP X1
	VIP X2
Canon	VB-C50i
	VB-C300
IQEye	301
	302
	510
	511
	701
	702
	703
	705
	752
	753
	755
JVC	VN-C20U
	VN-C205U
	VN-C215U
	VN-C625U
	VN-C655U
	VN-V25
	VN-V26
	VN-V686U
Mobotix	M12D Series
Panasonic	BB-HCE481A
	BB-HCM110
	BB-HCM311
	BB-HCM331
	BB-HCM371
	BB-HCM381
	BB-HCM403
	BL-C10
	BL-C30
	WV-NS202A
	WV-NW484
	WV-NW964
Pelco	IP110 Series
	IP3701Series
SONY	SNC-CM120
	SNC-CS10
	SNC-CS11
	SNC-CS20
	SNC-CS50N
	SNC-CS50P

Brand	Model
SONY	SNC-DF40N
	SNC-DF40P
	SNC-DF50N
	SNC-DF50P
	SNC-DF70N
	SNC-DF70P
	SNC-DF80N
	SNC-DF80P
	SNC-DM110
	SNC-DM160
	SNC-DS10
	SNC-DS60
	SNC-P1
	SNC-P5
	SNC-RX530N
	SNC-RX530P
	SNC-RX550N
	SNC-RX550P
	SNC-RX570N
	SNC-RX570P
	SNC-RZ25N
	SNC-RZ25P
	SNC-RZ50N
	SNC-RZ50P

Note: The supported models of M12D series include M12D Sec-DNight, M12D Web, M12D IT-DNight, M12D Sec and M12D Sec-R8.