VIDEOINSIGHT

License Plate Recognition

Summary

Video Insight v5.5.22 supports License Plate Recognition (LPR) or Automatic Number Plate Recognition (ANPR) from any of the 2,500 VI supported cameras. Identified plates are stored in Video Insight SQL database. Users can search for specific plates during time periods and create groups of plates that can trigger the VI Rules Engine.

Hardware Requirements

Video Insight LPR is integrated into the IP Server and runs alongside the surveillance engine. Performance requirements vary based on the number of LPR cameras, but as a suggestion, each LPR cameras will add 10% the CPU utilization of an Intel i7 class processor.
The following is the suggested minimum system configuration:

- Intel i5 or higher
- 2GB or higher of RAM
- USB 2.0 port for hardware key
- 32bit or 64bit versions of Windows XP, Windows 7 and Server 2008

Recommended camera position

The LPR engine can read the plates from images taken in various conditions however if you want to achieve over 95% recognition rate with short recognition times, you have to calculate the position of the camera accurately. The best position for reading images is when the angle between the camera axis and the direction of the vehicle movement is minimal (see below).

The distance between the camera and plate is also important. If the camera is too far from the plate, the characters may not be large enough for recognizing them. In this case, zoom-in until you reach the proper size. If the distance is too short it may happen that a part of the plate is over the camera's field of view (when the vehicle is near to the side of the lane or the plate is not at the middle of the vehicle).
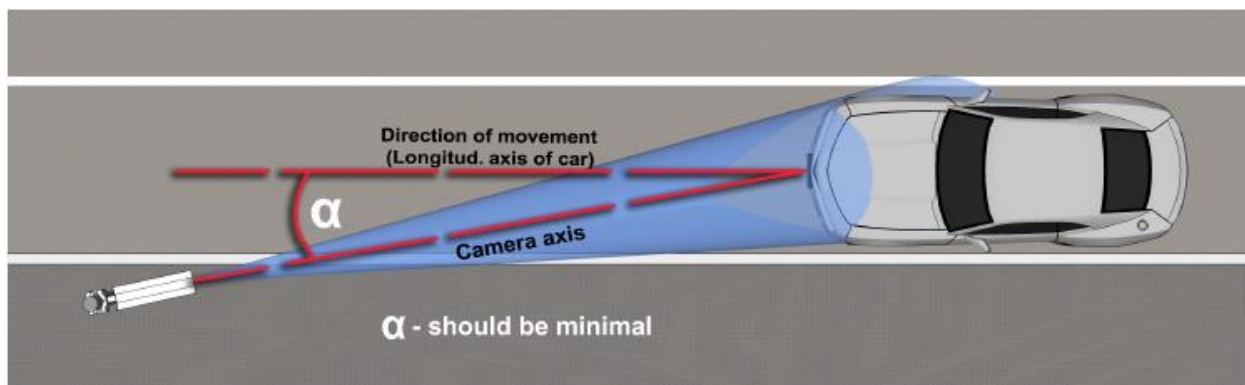
LPR accuracy is also dependent on the size of the characters on the image. For English characters, it is recommended to have an average of at least 16 pixel characters in height while for Arabic or other special characters; it is recommended to have 20 pixel height. In addition, large characters are not suitable for LPR. Try and avoid camera placements where the character size is greater than 50 pixels in height. Each character should be at least 2 pixels wide.

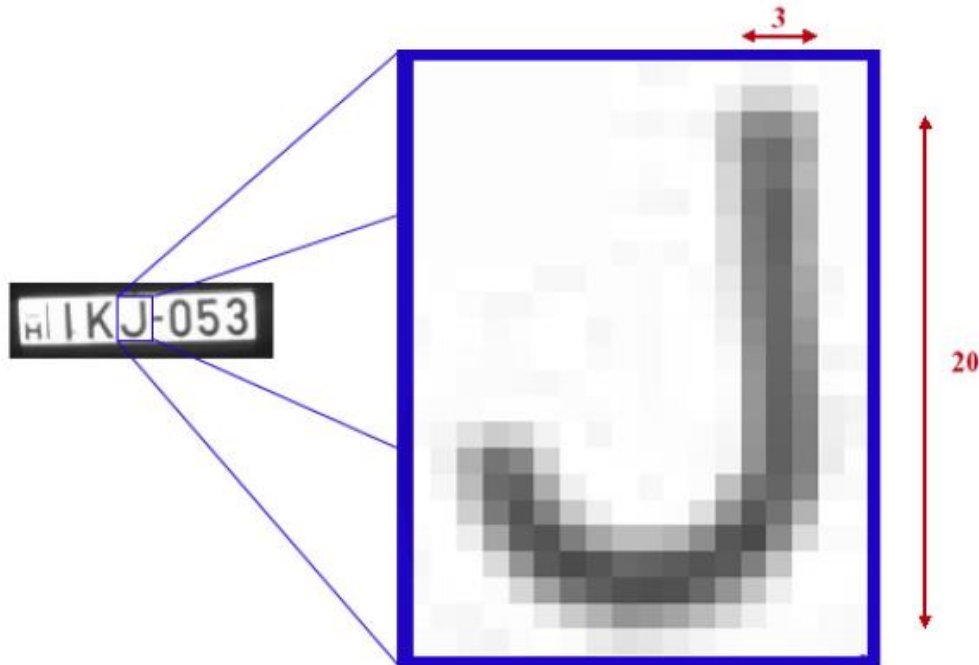**Sample Image:** *Proper character sizes (in pixels) on the sample image*

Image Requirements

For the best possible results, the images should contain:

- Reasonable good spatial resolution (The minimum character height is 16 pixels for Latin and 20 pixels for Arabic characters, 2 pixels line-width on the image)
- Reasonable good sharpness
- Reasonable high contrast
- Reasonable good lighting conditions
- Reasonable good position and angle of view

Installation

Video Insight LPR utilizes OCR technology from ARH. In addition to loading Video Insight, the Carmen Free Flow engine will need to be installed with the following steps:

1. Run Setup and select 32-bit or 64-bit installations.

2. Follow the instructions and when prompted to select the modules, leave all components checked and select Next to install.
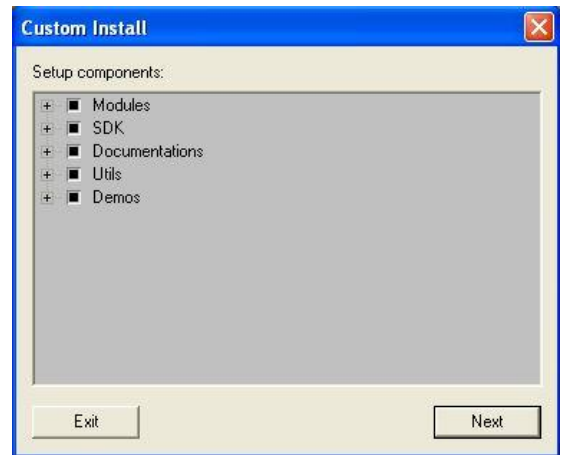
3. When prompted, select the appropriate LPR engine from the installation CD. Copy the engine (US) to a local folder and browse to the location.

    The "cmanpr-usa" engine should be listed on the left panel. Highlight the engine and click "Install Engine". When successfully installed, the engine will be listed on the right panel.
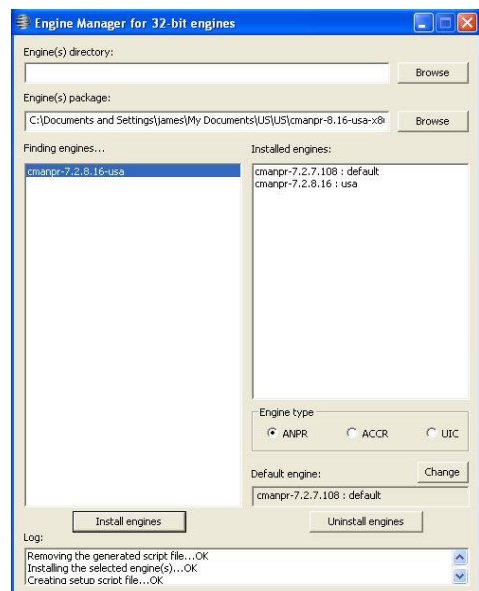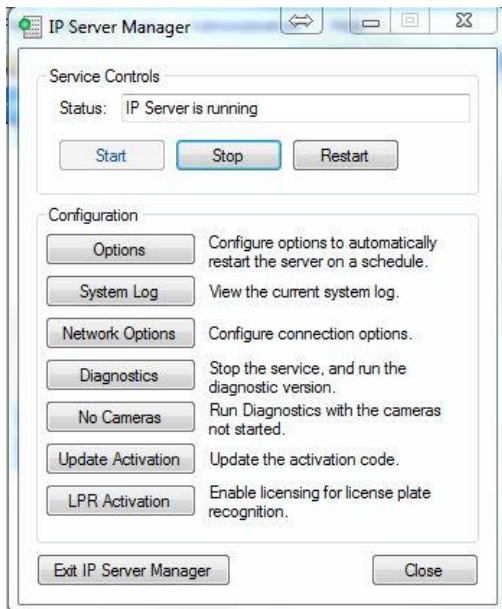
Activation

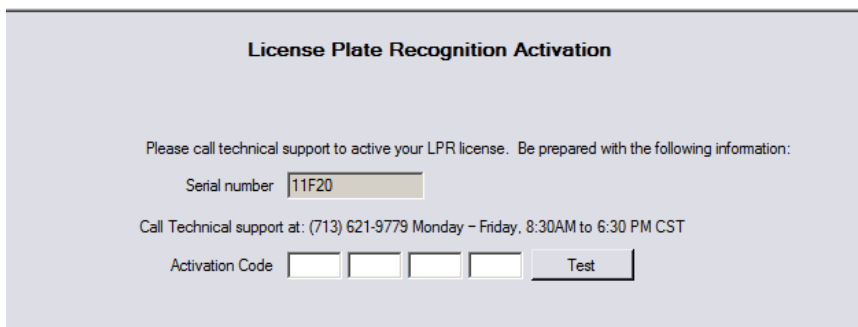The LPR feature is licensed on a per camera basis and synced to the Video Insight Serial Number.

1. Plug the provided USB Hardware key into any available USB port.

USB Hardware Key

2. Click "LPR Activation" from the IP Server Manager and enter your activation code.

3. After entering the activation code, select "Test" to confirm activation.

Adding LPR Cameras

Once the LPR license has been activated, you may add a camera for License Plate Recognition detection. In Monitor Station, under the Administration menu, select "License Place Recognition".

1. Using the drop down menu, select the installed LPR camera. The OCR engine will scan the image for any available plates. To improve accuracy and lower CPU utilization, draw a zone by clicking and dragging your mouse from left to right on the image. If you do not draw a zone the whole image will be searched for license plates, which could result in missed license plates and a higher CPU usage.

2. For MJPEG cameras, the frequecy of OCR can be adjust by using the Slider control. This adjustments determines how often the Server checks for license plates. The faster the Server checks, the more processor resources used.
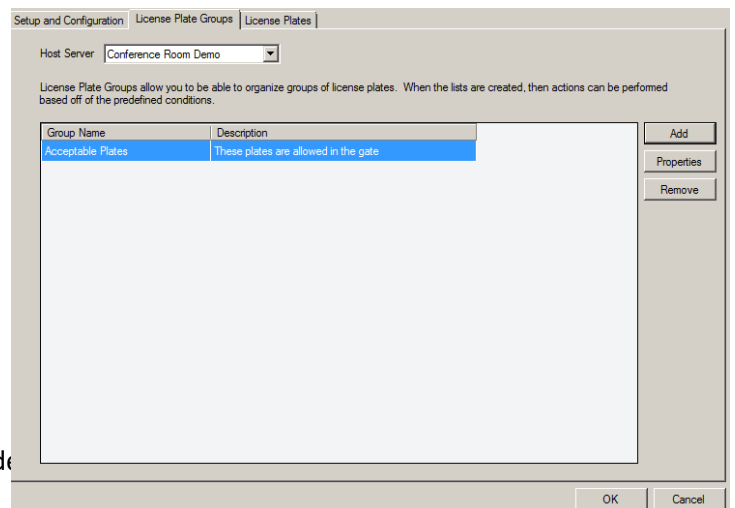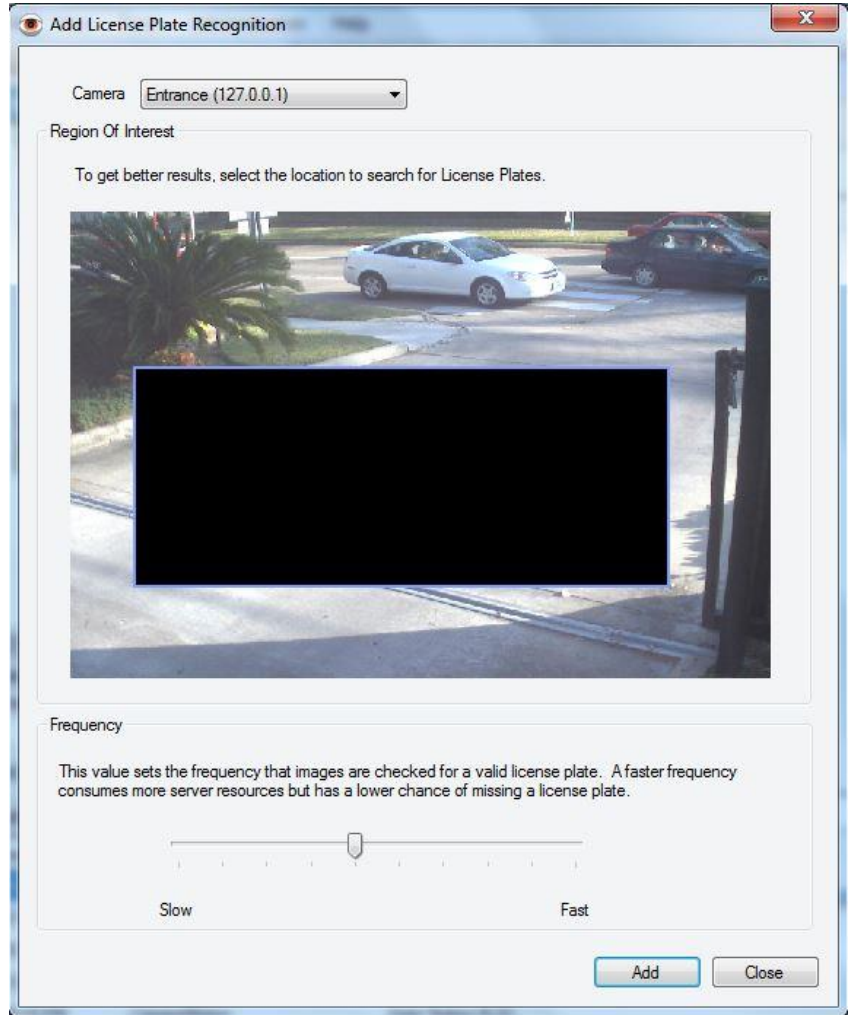
Using Groups

By selecting the Group Tab from the License Plate Recognition menu, unique groups can be created and plates added to each group.

These groups allow you to determine which plates get certain actions. There is no limit to the number of groups you create.

To add plates, select the License Plate tab. Information entered can be used as an instant pop-up to notify an operator as described later in this document.

The State, Vehicle Information and Owner Information fields are all for pop-up notification purposes only. The Plate Number is the only field that will trigger actions and events in the Rules Manager.

Event Viewer

LPR Actions are logged in the Event Viewer (Enable via View/Status/Event Viewer menu). Each plate is logged into the database when recognized and the operator can view the events in real time.

Time Occured	Event Type	Camera	Description
4:34:04 PM	SwitchToCamera	Gym	Switch Monitor Station's main layout to a camera
4:34:04 PM	LPRAlarm		
4:34:04 PM	LPREvent	Entrance	47MRJ7 - USA-TX

Searching

Using the Media Player in the Monitor Station, a user can search for individual plates, and view the recorded clips of each capture. Select "LPR" from the drop down menu to narrow the search results.
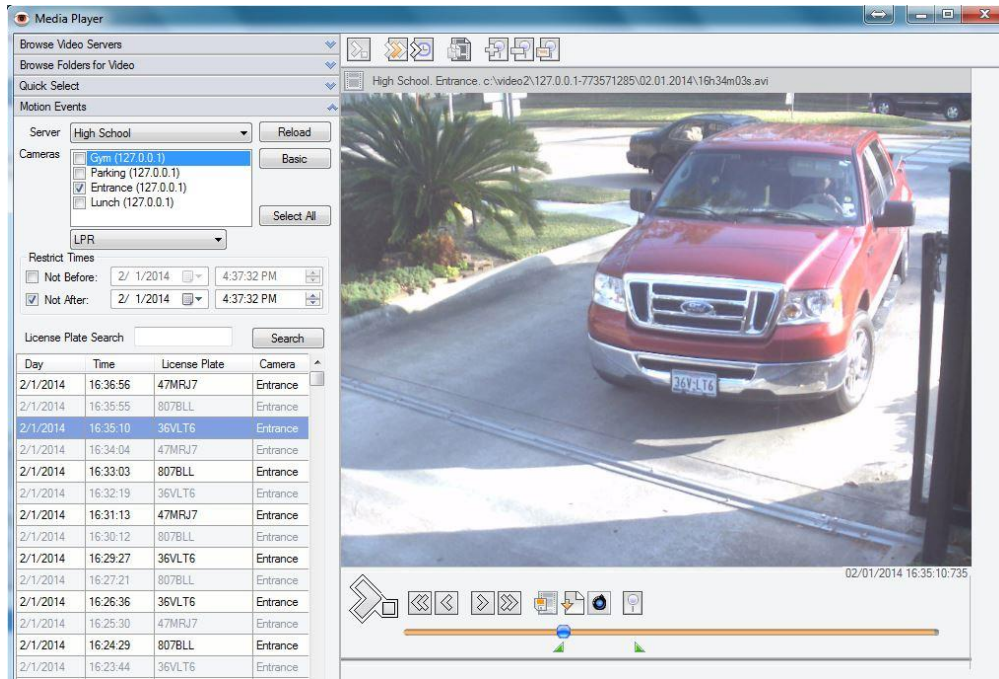
Using Rules Manager

Plate recognition can be used as a trigger in the Video Insight Rules Manager. Selecting License Plate in the Events section, allows rules to be trigged for plates in specific groups and actions taken for specific users of the Monitor Station.
Plates recognized in groups will display the information via a pop-up window.