License Plate Recognition

About Digifort LPR System

The Digifort LPR offers general-purpose license plate reading from any type of cameras. Allow or Ban a certain list of number plates, and set actions accordingly, such as send email, trigger alarm or trigger an output to open the gate – automatically!

The **Digifort License Plate Recognition Engine** possesses all the features a high quality license plate recognition system that is **fast, highly accurate**, **fail safe**, **stable**, and **intelligent**.

r
be **integrated** into practically any system which needs **automatic vehicle recognition**.

Features of *Digifort LPR*

The Digifort LPR offers **general-purpose license plate reading** from digital pictures of any type of cameras. Whether it is a megapixel-size, 12bits/pixel high dynamic range, high resolution digital image or a 320x240 size colour CCTV video picture provided as input, Digifort LPR provides balanced reading of car plates.

The automatic number plate recognition engine is powered by CARMEN® with over 98.5% recognition rate (correct reading/total number of input) working 24h/day, 7days/week. CARMEN® is a **proven product** - and a living automatic vehicle recognition technology

Technical Specifications of Digifort LPR Engine

Supported Operating Systems	Windows Family (XP, Vista, 7, Server 2003/2008) 32/64Bit
Type of Plates	Recognition is country and font independent. Any Latin, Arabic, Chinese, Korean and Cyrillic characters can be recognized.
Trigger	Trigger is not necessary but recommended when recognizing from live video and more than 2 LPR cameras using single CPU core license. Motion Detection as trigger for 2 LPR Cameras maximum per CPU core license.
Sample Processing Time	Standard engine: 50ms @ CPU 2GHz *B&W images, 768x288 pixels (PAL/2)*
Processing Time Dependence	Image quality (complexity, noise level etc.) Image size Processing power (CPU speed) Parameter settings
Output	Plate number in ASCII/UNICODE Confidence levels for each tips Single Plate detection per image
System Requirements	Intel Core2 Duo 1.8GHz or higher CPU (1024MB RAM)

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MAJOR BENEFITS

Automatic highway toll collection systems	Border control systems
Traffic Analytics during peak periods	Building a database of traffic movement
Automatic access control point management	Bus lane or red light enforcement
Automation of weigh-in-motion systems	Automation of airport and harbour logistics
Enhanced vehicle theft prevention	Security monitoring of roads, checkpoints, etc.
Effective law enforcement	Prevention of drive-off's at gas stations, drive-in restaurants, etc.

POPULAR LPR CAMERAS

Digifort.

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email	Sales@optiviewusa.com
Internet	www.OptiviewUSA.com

License plate list

Print date : 9/12/2010
Showing only records from 9/12/2010 to 9/12/2010

Records grouped by camera

VLC

Date: 9/12/2010 11:15:27 AM
License plate: CVW110
Camera: VLC

Date: 9/12/2010 11:16:03 AM
License plate: A3V053
Camera: VLC

Date: 9/12/2010 11:16:06 AM
License plate: HN1422
Camera: VLC

Date: 9/12/2010 11:16:07 AM
License plate: 0XL913
Camera: VLC

Taiwan LPR Test

Security image print

Image details

License plate		605CLQ
Camera Name		01
Date and Time of the Image		Tuesday, 8 March 2011 15:45:04
Operator Name		Dario
Date and Time of the Print		Tuesday, 8 March 2011 15:57:03

Operator Notes

Test Printing From Digifort
<any notes here>

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REPORT QUERIES SCREEN

- ✔ Select Single/Multiple LPR Camera Objects
- ✔ Print Reports from AND/OR Queries
- ✔ Save to PDF
- ✔ Export to CSV (comma-separated values)
- ✔ Save to PDF

- ✔ Jump to Playback/Recording
- ✔ Advanced AND/OR Queries
- ✔ Scroll through queried results with Snapshot Preview
- ✔ Trigger Event(s) on detected number plate
- ✔ Ability to Link to 3rd party system via HTTP API

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These rating are represented as colour characters on the virtual number plate in the main GUI.

Accuracy, or Confidence level, is how certain the LPR engine is that the detected character is the actual character on the image.
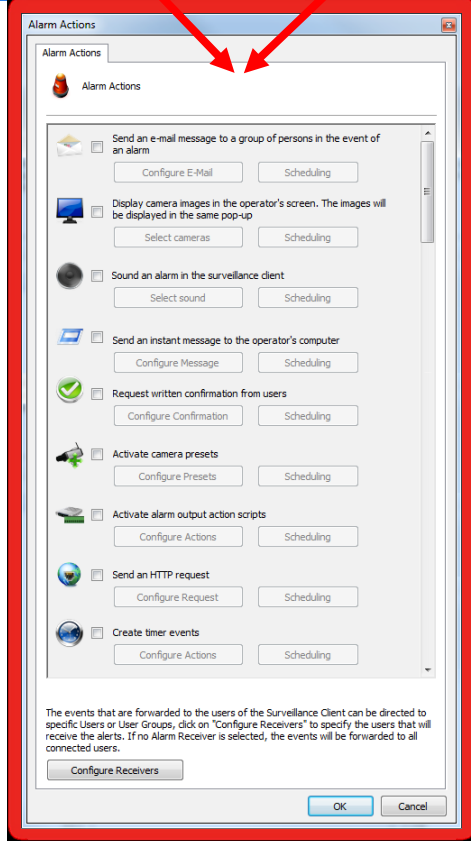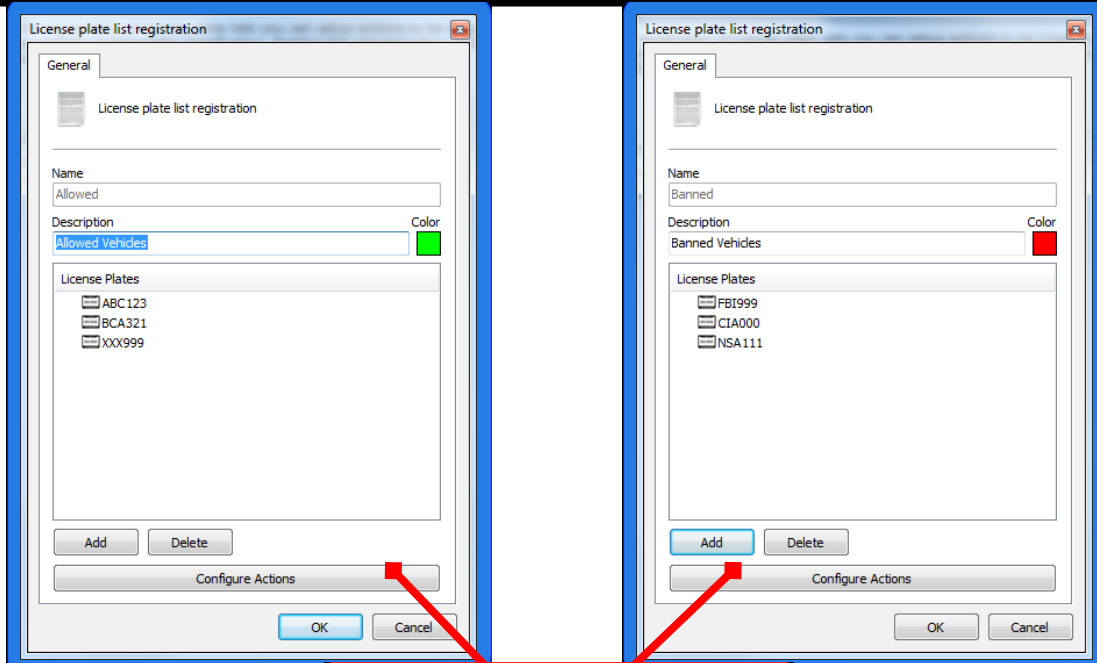
This also allows configurations of a single camera for multiple lanes of traffic for LPR detection, or simply, narrowing down the detection area.
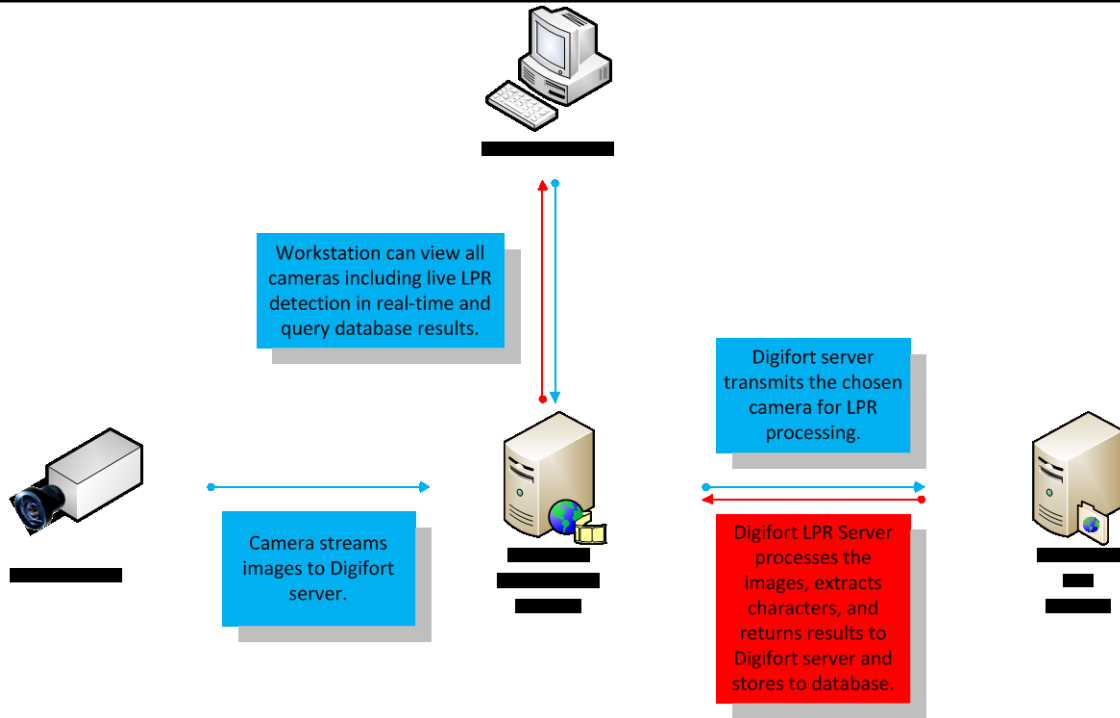

OSD Timestamp is ignored.

License plate list registration

General

License plate list registration

Name
Allowed

Description
Allowed Vehicles

Color
[green]

License Plates
- ABC123
- BCA321
- XXX999

[Add] [Delete]

[Configure Actions]

[OK] [Cancel]

License plate list registration

General

License plate list registration

Name
Banned

Description
Banned Vehicles

Color
[red]

License Plates
- FBI999
- CIA000
- NSA111

[Add] [Delete]

[Configure Actions]

[OK] [Cancel]

Alarm Actions

Alarm Actions

- Send an e-mail message to a group of persons in the event of an alarm
  [Configure E-Mail] [Scheduling]

- Display camera images in the operator's screen. The images will be displayed in the same pop-up
  [Select cameras] [Scheduling]

- Sound an alarm in the surveillance client
  [Select sound] [Scheduling]

- Send an instant message to the operator's computer
  [Configure Message] [Scheduling]

- Request written confirmation from users
  [Configure Confirmation] [Scheduling]

- Activate camera presets
  [Configure Presets] [Scheduling]

- Activate alarm output action scripts
  [Configure Actions] [Scheduling]

- Send an HTTP request
  [Configure Request] [Scheduling]

- Create timer events
  [Configure Actions] [Scheduling]

The events that are forwarded to the users of the Surveillance Client can be directed to specific Users or User Groups, click on "Configure Receivers" to specify the users that will receive the alerts. If no Alarm Receiver is selected, the events will be forwarded to all connected users.

[Configure Receivers]

[OK] [Cancel]

LPR Control List is a group of number plates to which an action or multiple actions can be applied.

When these number plates are detected, actions are automatically executed by Digifort.

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HOW IT WORKS

Workstation can view all cameras including live LPR detection in real-time and query database results.

Digifort server transmits the chosen camera for LPR processing.

Camera streams images to Digifort server.

Digifort LPR Server processes the images, extracts characters, and returns results to Digifort server and stores to database.

Note: Digifort LPR server, can run on a separate server, or on the same server as Digifort recording server. Primary factor that influences this is the number of LPR cameras that you wish to process.

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Getting the best images for LPR

What is required?

To get the most accurate results from an LPR system, the captured images/video are the most important factor.

The requirements are;

1. **LPR Camera**
   Cameras specifically designed with high shutter speeds to capture fast moving objects without image blurring. Most megapixels cameras will blur on fast movements so you may consider slowing or stopping the vehicles if not using an LPR camera.

2. **Minimum Resolution 320x240 @ 3FPS**
   Character size on number plate must be minimum 16 pixels high. Resolution is not important as long as the captured image has good spatial resolution, sharpness, contrast, lighting conditions and angle of view.

3. **Camera Angle View**
   Camera needs to see the entire vehicle and the number plates so a person watching the video can read the number plates with their own eyes. If a person can make out the number plates with ease, then the Digifort LPR engine will also work well.

Examples;

	-Characters too small (less than 16 pixels high) *-Low Spatial Resolution*
	-Image too blurry
	-Low Contrast / too Dark
	-Overexposure / too Bright
	-Bad lighting conditions
	-Distorted Image
	-Interlacing
	-Good Spatial Resolution *-Good Sharpness* *-High Contrast* *-Good Lighting Conditions* *-Good Position and Angle of View*

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GOOD EXAMPLES

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How LICENSING works?

What is required?

To enable Digifort IP Surveillance for LPR detection, 2 licenses are required;

1. **Separate Server (Recommended)**
   A separate server is recommended for LPR detection, although not always necessary – depends on number of LPR cameras and configurations.

2. **Digifort LPR Base License**
   Digifort requires a license that will allow a LPR license dongle to be inserted & detected. Without the LPR BASE license, you will not be able to use Carmen or Kapta dongles on the system. Contact sales@digifort.com for more information.

3. **Carmen FreeFlow License (Dongle) OR Kapta Dongle**
   Carmen or Kapta dongles can be purchased directly from the manufacturer or through Digifort.

   Kapta   *is for South America only, and is looking for a particular format of the number plates. 3 Letters, 4 Numbers (EG: XXX-1234)*

   Carmen   *can be used worldwide and is country and font independent.*
   (recommended)

   NOTE: *Carmen and Kapta both use hardware protection; therefore they do not offer any* **DEMO** *options. A license/dongle needs to be purchased for demo purposes and the price can be negotiated with the manufacturer.*

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