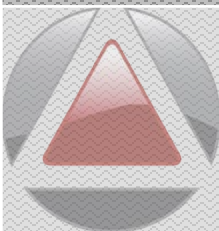


2011

About Digifort LPR System



LICENSE PLATE RECOGNITION

About Digifort LPR Recognition Engine

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**.



Meanwhile it provides the **highest technological performance** amongst today's license plate readers, Digifort LPR offers great flexibility for integrators of car plate recognition systems: it can 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)



MAJOR BENEFITS

Digifort LPR can provide and/or improve:

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

POPULAR LPR CAMERAS

Although there are many LPR cameras available, here are some that are highly recommended by Digifort.



Brand: ARH
Model: **FXCAM IBW 2000**
✓ CCD 1/3"
✓ Infra-Red
✓ IP66 Rated
✓ Analogue Camera



Brand: Messoa
Model: **SCR510**
✓ Sony CCD 1/3"
✓ Infra-Red
✓ IP66-IP67 Rated
✓ Analogue Camera



Brand: DemoCSI
Model: **TAG-1**
✓ Sony CCD 1/3"
✓ Infra-Red
✓ IP66 Rated
✓ Analogue Camera



REPORT EXAMPLES



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: OXL913
Camera: VLC ✓

Taiwan LPR Test



Security image print



Image details

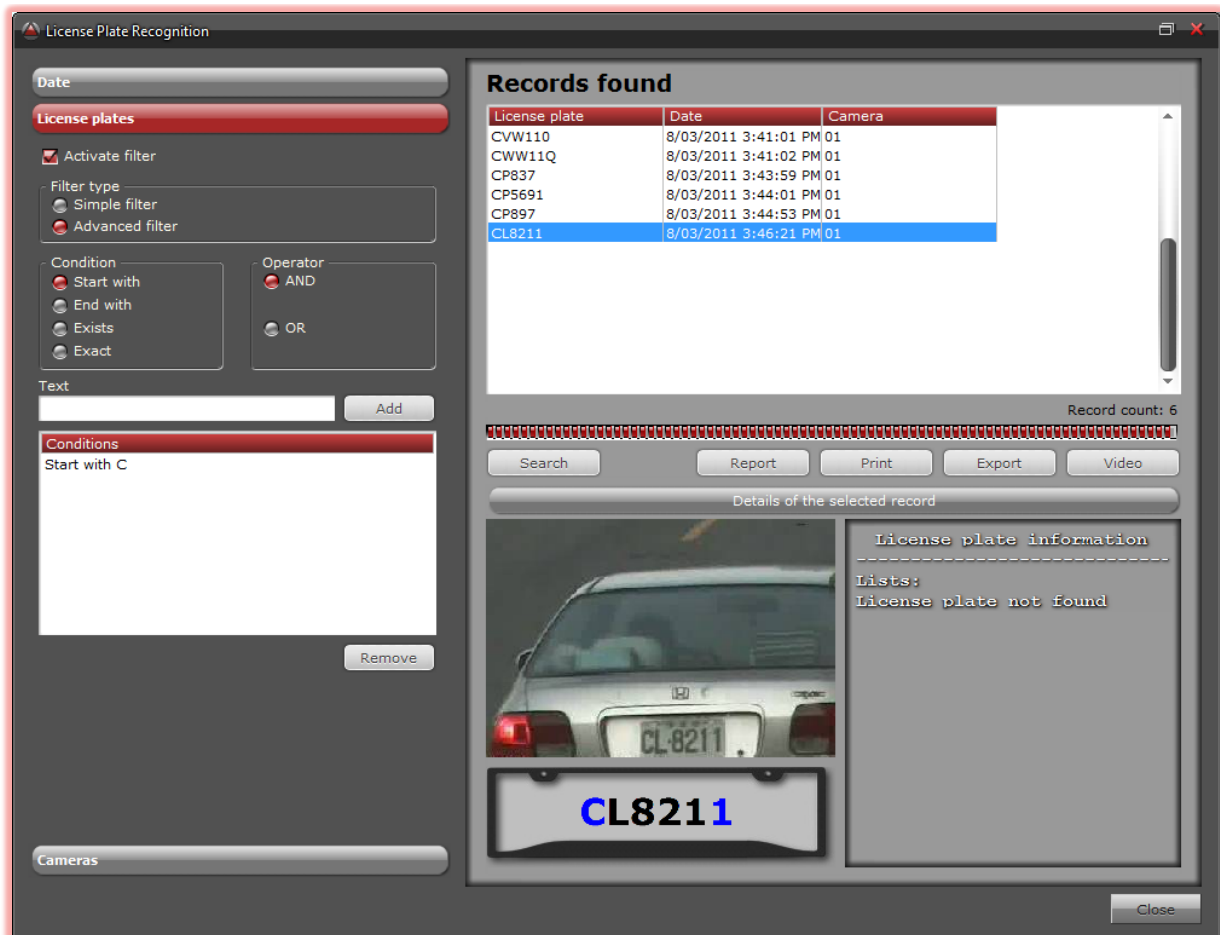
License plate	605CLQ
Camera Name	01
Date and Time of the Image	Tuesday, 8 March 2011 15:45:04
Operator Name	Dario
Date and Time of the Print	Tuesday, 8 March 2011 15:57:03

Operator Notes

Test Printing From Digifort
<any notes here>

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REPORT QUERIES SCREEN



License Plate Recognition

Date:

License plates

☒ Activate filter

Filter type:
☐ Simple filter
☒ Advanced filter

Condition:
☒ Start with
☐ End with
☐ Exists
☐ Exact

Operator:
☒ AND
☐ OR

Text:


Conditions
 Start with C

Records found

License plate	Date	Camera
CVW110	8/03/2011 3:41:01 PM 01	
CWW11Q	8/03/2011 3:41:02 PM 01	
CP837	8/03/2011 3:43:59 PM 01	
CP5691	8/03/2011 3:44:01 PM 01	
CP897	8/03/2011 3:44:53 PM 01	
CL8211	8/03/2011 3:46:21 PM 01	

Record count: 6

Details of the selected record



License plate information

Lists:
 License plate not found

CL8211

- ✓ 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

ACCURACY FACTOR

As each number plate is detected, characters are assessed for an accuracy/confidence level rating. These rating are represented as colour characters on the virtual number plate in the main GUI.

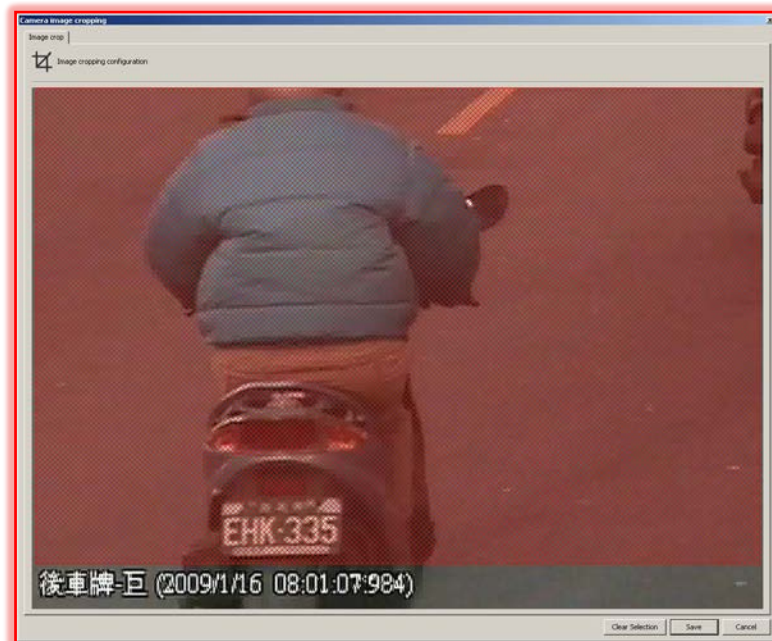
Accuracy, or Confidence level, is how certain the LPR engine is that the detected character is the actual character on the image.



BLACK	Over 90% Accuracy
BLUE	from 70% to under 90% Accuracy
RED	under 70% Accuracy

DETECTION AREA

You can define a detection area (if using motion detection as trigger). 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.

LPR CONTROL LISTS

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.

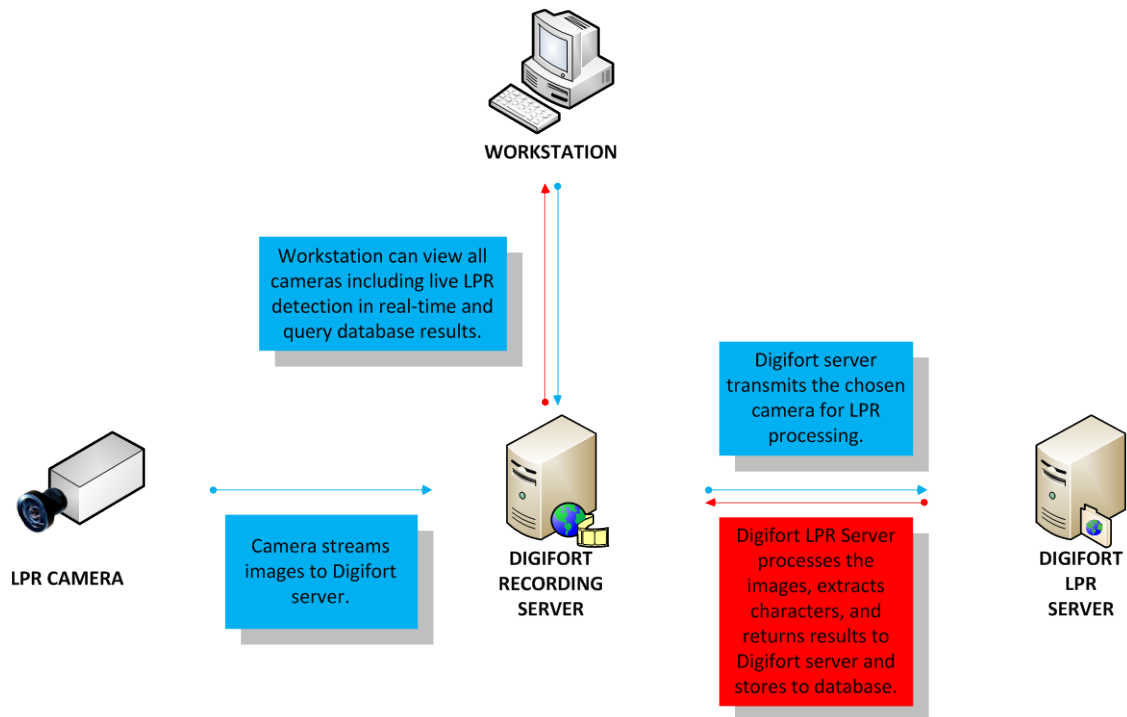
Configure Receivers

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.

HOW IT WORKS



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.

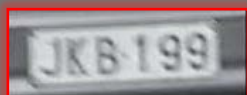
3. Camera Angle View

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



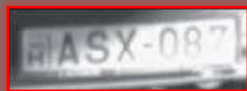
-Image too blurry



-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

GOOD EXAMPLES

- ✓ Good Position/Angle
- ✓ Clear Image
- ✓ Good Contrast
- ✓ Good Size of Numbers



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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

(recommended)

can be used worldwide and is country and font independent.

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.*

DISCLAIMER

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