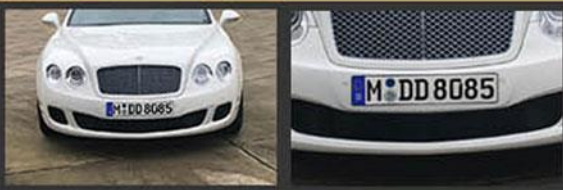






# User Manual

## ANPR demo for images

	
ANPR result:	 MDD8085
Make:	 BENTLEY
Model:	MULSANNE, CONTINENTAL, BENTAYGA, FLYING SPUR, AZURE, BROOKLANDS CONTINENTAL
Color:	 WHITE
Category:	 CAR

# ANPR DEMO FOR IMAGES

## USER MANUAL

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# Introduction

The ANPR Demo for Images (ADI) is a program that was developed by Adaptive Recognition Hungary to serve as a simple and versatile tool for evaluating our core LPR technology before having to first develop an application.

The goal of the SDK is to allow you to develop a similar or even a more complicated application based on the Carmen API in order to meet the exact requirements of the particular project where it will be deployed.

The demo can handle both a single image as well as an image directory as an input source.

Supported image formats: .jpg, .jpeg, .png, .bmp, .jp2

This application can be found in the following folder:

- On Windows: "c:\Program Files\Adaptive Recognition\CARMEN softwares\Demos\ADI\"
- On Linux: "\opt\gx64\ADI\_Demo\"

Not all images are adequate for ANPR, the input images must meet a specific set of criteria for the engine to be able to recognize them. Please study the following document to learn more about these requirements: [Imaging for Carmen®](#).

## ! Important


Please note, that this application is not available for ARM and CentOS6 packages on Linux.

# Main Screen

After starting the demo, you will be presented with the main screen of the application. This window is split into three separate sections; the **Result Image**, the **Result Tree** and the **Log** sections. All three sections provide information in connection with the scanned image.

ADI Demo 7.4.0.16 (64 bit) [ANPR: cmanpr-7.3.12.254 : bra] - [MMR: mmm-7.3.1.35 : mmm-bra] - [License: local]

File Edit Process Help



**Result Image**

**ANPR Result Tree**

- EZJ0074
  - Text(ASCII): EZJ0074
  - Plate category: COMMON
  - Confidence: 88
  - Type: BRA (657027)
  - Color(RGB): (0,0,0)
  - BkColor(RGB): (255,255,255)
  - Dedicated Area: (255,255,255)
  - Frame: ((1977,1047),(2089,1044),(2090,1078),(1978,1080))
  - Make&model: Mitsubishi ASX
  - Category: CAR
  - Color: blue
  - MMR confidence: 100
  - MMR time: 49
  - Characters (...)
  - Tips
- FOD0121
  - Text(ASCII): FOD0121
  - Plate category: ...
  - Confidence: 56


**Result Tree**

#	Path	Plate Text	Plate Text (ASCII)	Plate category	Country/State	Confidence	Frame	Character Size	Text Background	Text Color	Dedicated Area Color	ANPR Time(ms)	Make&Model	Category	Color	MMR confidence	MMR Time(ms)
1	C:/l...	EZJ0074	EZJ0074		BRA (657027)	88	((19...	18	(255,255,255)	(0,0,0)	(255,255,255)	158	Mitsubishi ASX	CAR	black	100	49
2	C:/l...	FOD0121	FOD0121		BRA (657027)	56	((10...	18	(255,255,255)	(0,0,0)	(255,255,255)	82	Chevrolet Ca...	CAR	yellow	100	47
3	C:/l...	EUI9755	EUI9755		BRA (657027)	72	((18...	17	(255,255,255)	(0,0,0)	(255,255,255)	71	VW	CAR	gray	91	48

**LOG**

Quick overview of the main screen

In the title you can see the following information:

 ADI Demo 7.4.0.18 (64 bit) [ANPR: cmanpr-7.3.15.14 : bgd] - [MMR: OFF] - [License: local]

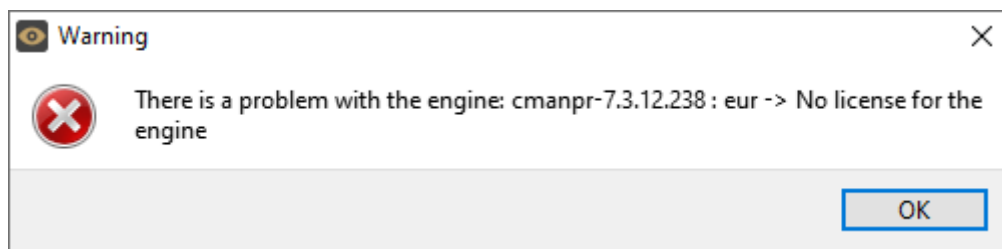
**ANPR:** the currently used ANPR engine region and version

**MMR:** the currently used MMR engine region and version

**License:** showing where CARMEN® is looking for the licenses (local/network)

## Note

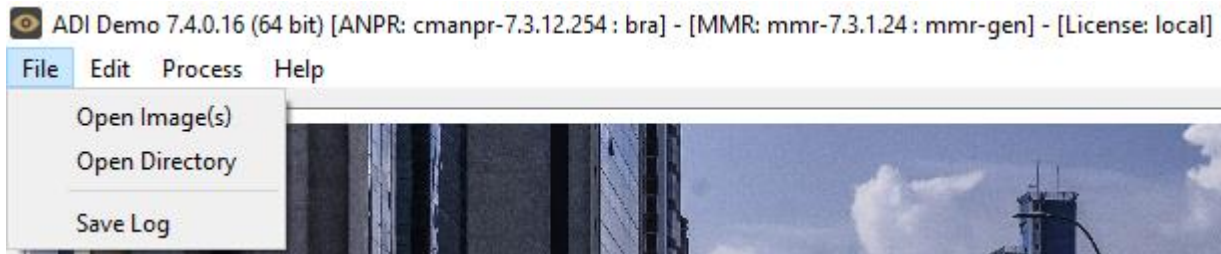
In case of missing hardware key, the following error message will appear:



# File Menu

The ADI menu bar consists of four menu buttons, located in the upper left corner of the program window as follows:

File, Edit, Process, and Help.



The **File** menu contains the following menu items:

## Open Image(s)

Click to select specific images for LPR processing.

## Open Directory

Click to specify a directory containing images for LPR processing.

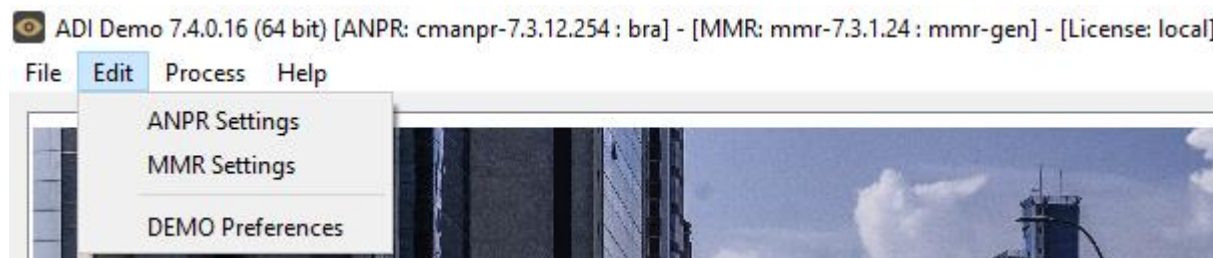
## Save Log

Click to save the results log manually. The log can also be saved automatically by adjusting the Demo Preferences under the Edit menu.



# Edit Menu

The **Edit** menu contains the following menu items:



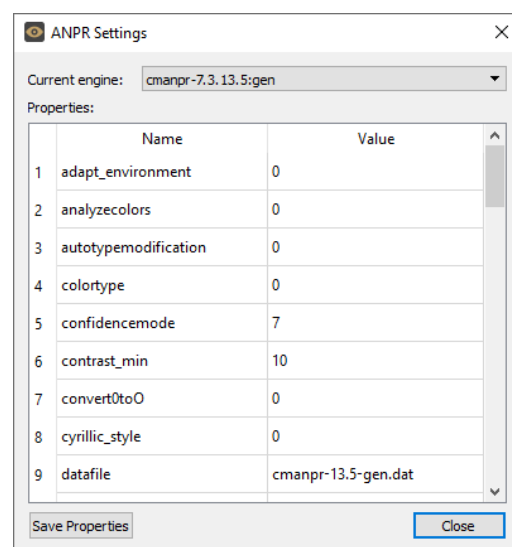
## ANPR / MMR Settings

Contains various configuration options related to the ANPR / MMR process. The engine used for processing is also selected here.

By clicking this menu item, the following pop-up window will appear:

**Engine:** Click the drop-down menu to select an engine from the list of installed engines.

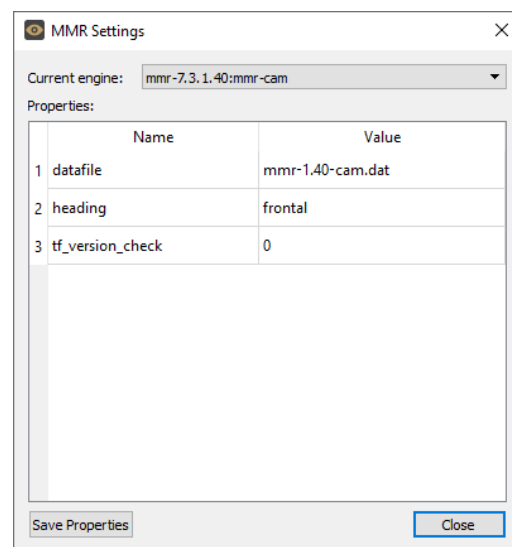
**Properties:** Lists the property values for the selected engine. To adjust the pre-set values, click on one of the value fields and then input a desired value. A full description of the engine properties can be found in the [CARMEN® ANPR Reference Manual](#).



ANPR Settings

Click on the **[Close]** button to apply your changes. These settings will remain active until the application is closed or until the engine in use is replaced with another one from the drop-down list. When you exit the application, the changes will be lost and the values will revert to the ones saved in the gxsd.dat configuration file.

Clicking on the **[Save Properties]** button will write the current values of each property into the gxsd.dat configuration file. This feature requires write permissions to the gxsd.dat file. The default values of an engine can be reset by reinstalling (uninstalling and installing) it, check it [here](#) how to do that. This function works only with ANPR properties as the MMR properties are read only.



MMR Settings

## Demo Preferences

Contains various configuration options related to the demo software.

By clicking this menu item, the following pop-up window will appear:

### ☒ Auto-Log:

If checked, the results will be logged automatically.

### ☒ Find All Plates:

If checked, the engine will search for all plates in the image that conform to the set parameters.

### ☒ Find Empty ADR

If checked, the engine will search for the Empty ADR plates as well.

### ☒ Loop (toggle:L):

If checked, the program continuously repeats processing of the specified image sequence/folder.

### ☒ Process Sample Image At Start-Up:

If checked, the engine will process the specified sample image right after application start-up.

### ☒ Real plate frame drawing

If checked, the real plate will be framed.

### ☒ Show ROI

If checked, the set ROI will be visible on the image.

### ☒ Show ROU

If checked, the set ROU will be visible on the image.

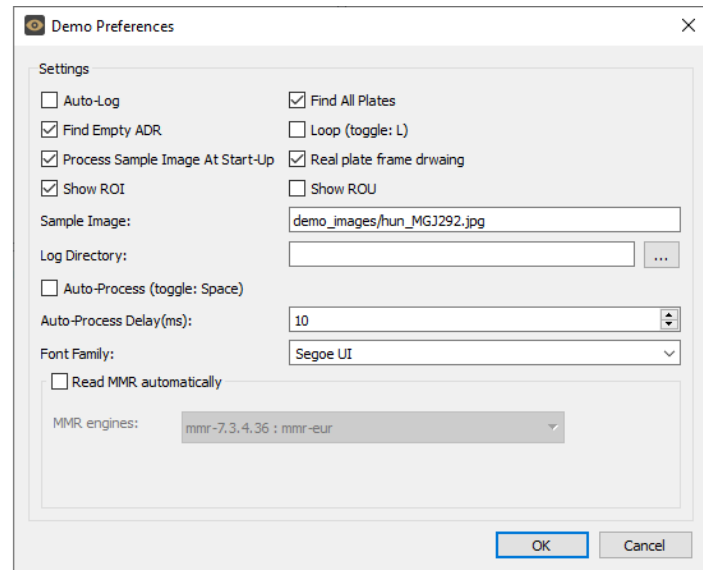
### Sample Image:

This field shows the file that is loaded into ADI upon starting the application.

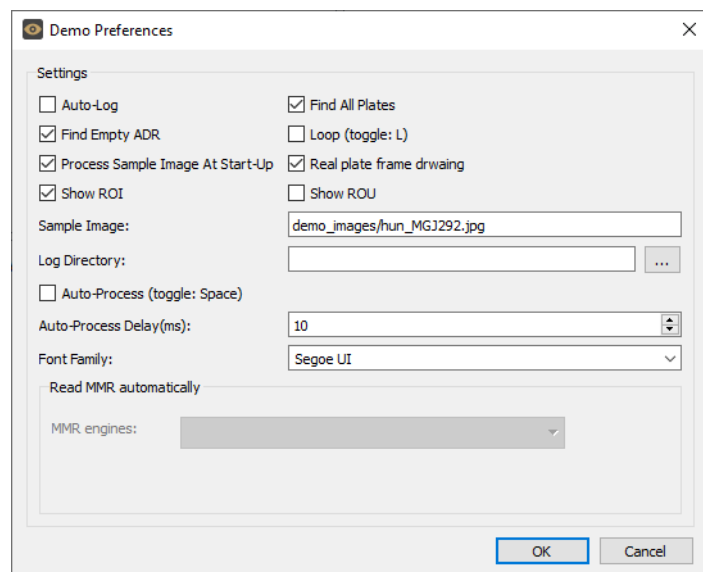
### Log Directory:

Displays the directory, where the log file will be saved. Click [...] button to specify another directory.

The default folder is: *"installation folder / logs"*



**MMR engine is installed**



**MMR engine is not installed**

☒ **Auto-Process (toggle: Space):**

If checked, the application runs through the images and do ANPR on them automatically.

**Note**

If 'Auto-Process' is on, you will not be able to examine the individual results, even if there is no more image to processing. You must set it back to 'Manual'. You can do it by clicking on the image and then pressing the 'space' on the keyboard.

**Auto-Process Delay(ms):**

Type or use the arrows to adjust the amount of delay (in milliseconds) before the next image is loaded during Auto-Process.

**Font Family:** Select the font style of the Result Tree (LPR details in the upper right corner of the ADI screen).

☒ **Read MMR automatically:** (can be checked only in case if you have any MMR engine installed).

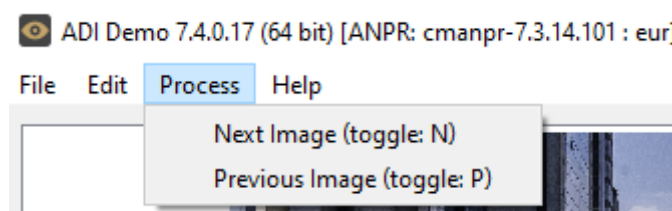
If checked, ADI demo will give you back the MMR results automatically.

**Note**

MMR engines need separate MMR licenses and must be the same region as ANPR license to be able to work together. GEN MMR engine can work with every ANPR engines (except GEN ANPR engine, which is not capable to run with any MMR engine)

## Process Menu

The **Process** menu contains the following menu items:

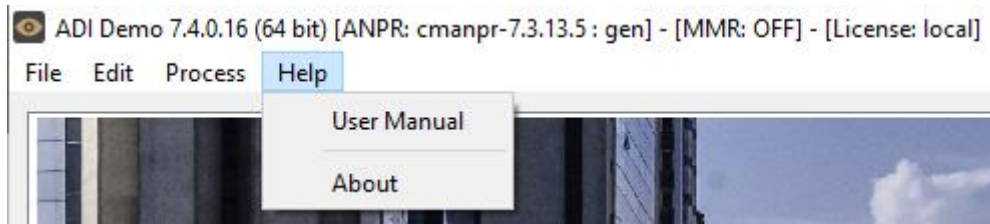


Click **Next Image (N)** or **Previous Image (P)** to navigate between the images. Alternatively, you may also use the N/P keys on the keyboard or simply click once on the image.



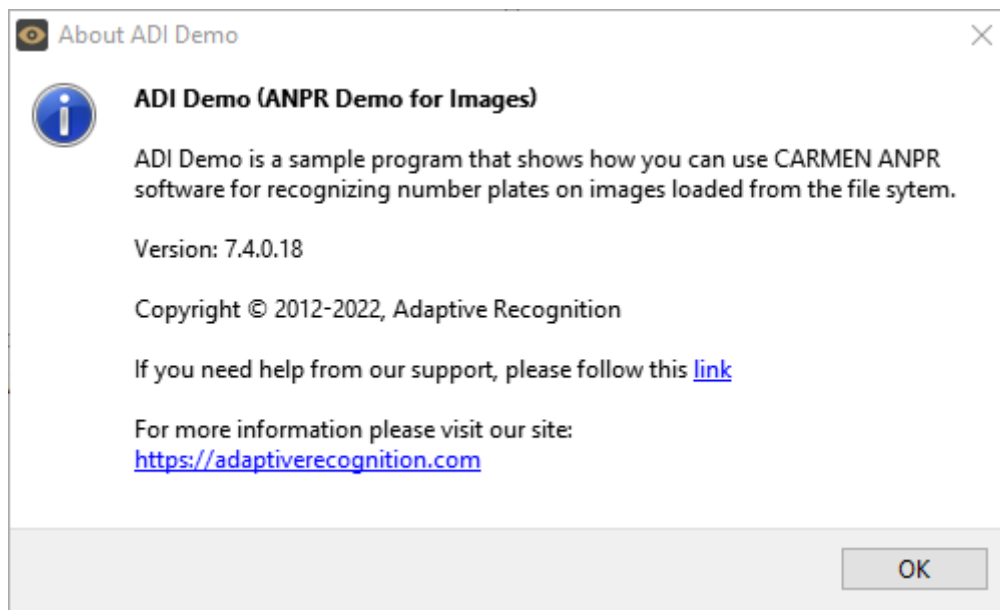
# Help Menu

The **Help** menu contains the following menu items:



**User Manual:** Opens this User Manual.

**About:** Provides the license, version, and copyright information for the installed application.



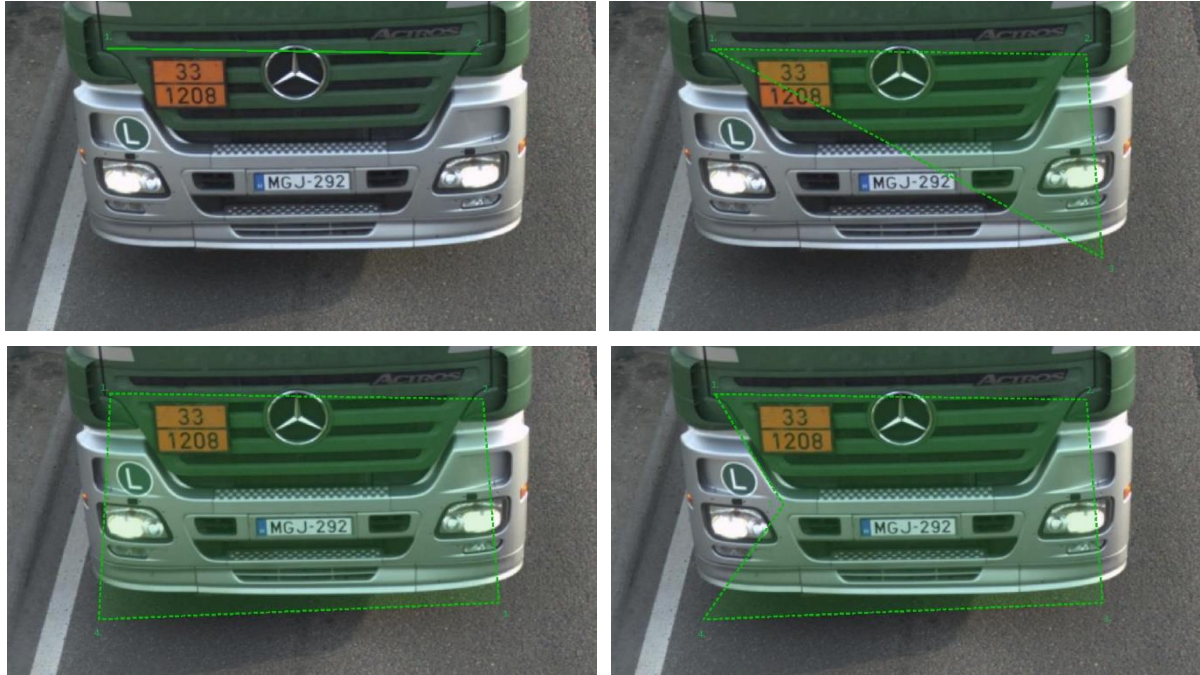
## Set ROI/ROU on the image

From CARMEN® 7.3.1.26 there is a possibility to set the ROI/ROU properties on the image which is loaded to ADI Demo application.

Steps:

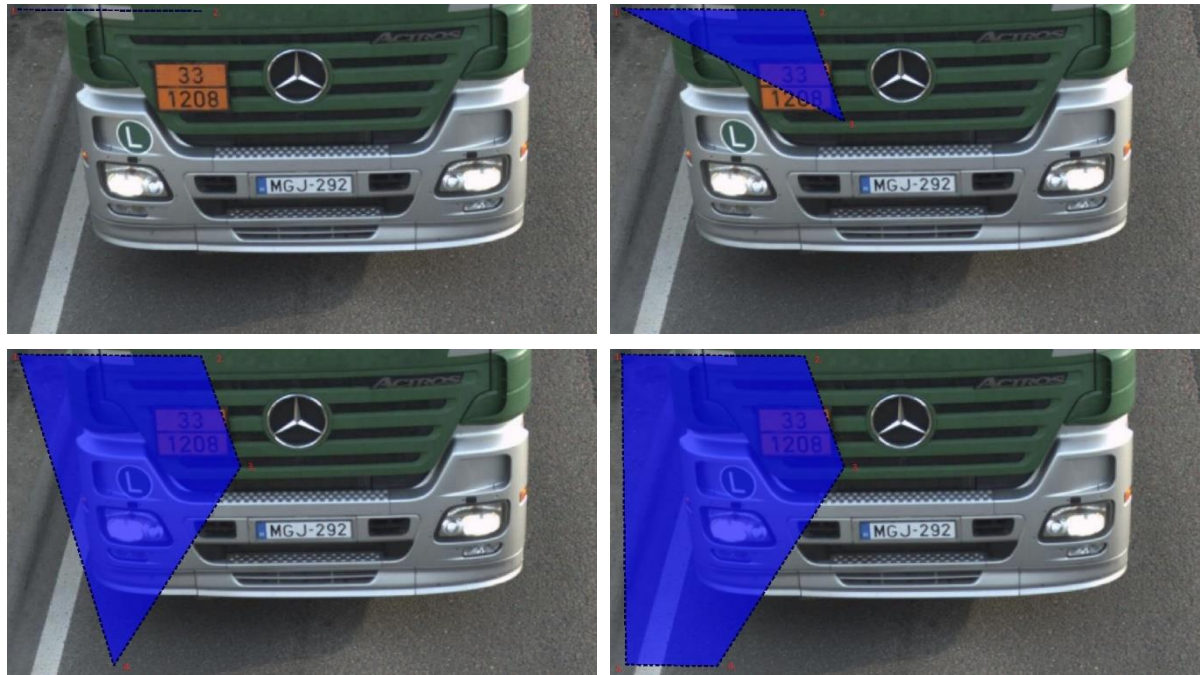
- Press CTRL+I (for ROI) or CTRL+U (for ROU)
- Start clicking the points of the polygon

ROI



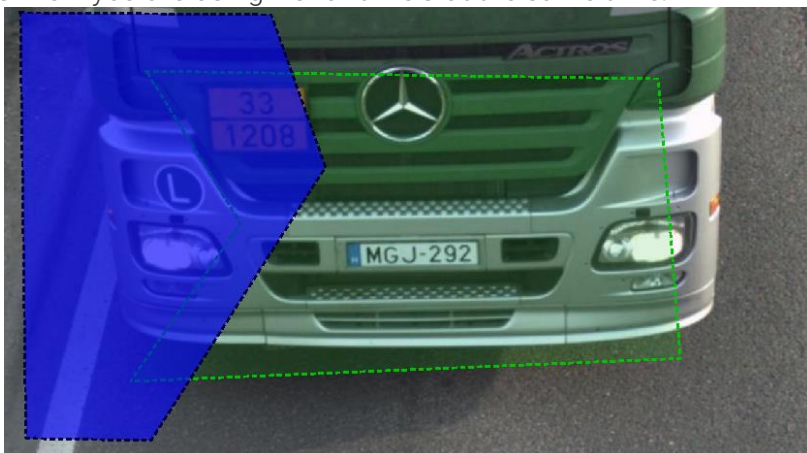
In written form: 206,95;943,106;975,508;183,541;342,314

ROU



In written form: 25,11;386,14;464,233;213,626;33,623

This is how it looks like if you are using ROI and ROU at the same time:



#### Note

ROU is the stronger property so if there is ROI and ROU on the same part of the image. The engine will not search on that area!

- Once you have done, press CTRL+R (for both property)

#### Note

The property will be saved into the set property, but if you would like to save them to GXSD.DAT as well, do not forget to press Save Properties button in the Edit -> Demo Preferences menu

#### Note

Currently this function is capable to draw/save only one polygon for one property.

# ANPR Result Tree

The ANPR Result Tree is located to the right of the input image display area. It is divided into three main sections.

## 1. License plate result:

Provides a detailed summary of the recognized image:

- **Text(ASCII):** alphanumeric license plate text in ASCII characters
- **Plate type:** category of the license plate
- **Confidence:** overall confidence level (%) of the plate.
- **Type:** code containing country/state ID of the plate.
- **Color:** color of the dedicated area of the license plate.
- **BkColor:** background color of license plate text.
- **Dedicated Area Color:** color of dedicated area in RGB format
- **Frame:** pixel coordinates of the plate corners.

Only available if MMR is enabled!

- **Make&Model:** the recognized vehicle Make and Model data
- **Category:** the recognized vehicle category
- **Color:** the color of the recognized vehicle
- **MMR Confidence:** overall MMR confidence
- **MMR Time:** MMR processing time in milliseconds

ANPR Result Tree	
▼ EZJ0074	
Text(ASCII):	EZJ0074
Plate category:	NONE
Confidence:	88
Type:	BRA (657027)
Color(RGB):	(0,0,0)
BkColor(RGB):	(255,255,255)
Dedicated Area Color:	(255,255,255)
Frame:	((1977,1047),(2089,1044),(2090,1078),(1978,1080))
Make&Model:	Mitsubishi ASX
Category:	CAR
Color:	black
MMR confidence:	100
MMR time:	52
▼ Characters (...)	
▼ E	
Code:	0x0045
Confidence:	99
Color(RGB):	(0,0,0)
BkColor(RGB):	(255,255,255)
Frame:	((1984,1059),(1996,1059),(1996,1077),(1985,1077))
> Z	
> J	
> 0	
> 0	
> 7	
> 4	
▼ Tips	
> E	
> Z	
> J	

## 2. Characters:

Individual details for each recognized character. Ordered from left to right then up to down.

- **Code:** unicode character ID
- **Confidence:** confidence level (%) of the overall plate
- **Color:** color of the character
- **BkColor:** background color of character
- **Frame:** pixel coordinates of the character corners



### 3. Tips:

List of preliminary results from which the engine assembled the result.

- **Code:** unicode character ID
- **Confidence:** confidence level (%) of the overall plate
- **Color:** color of the character
- **BkColor:** background color of character
- **Frame:** pixel coordinates of the character corner

The application puts a frame around the image area, where it has located a license plate.



ANPR Result Tree	
▼ EZJ0074	
Text(ASCII):	EZJ0074
Plate catego...	NONE
Confidence:	88
Type:	BRA (657027)
Color(RGB):	(0,0,0)
BkColor(RGB):	(255,255,255)
Dedicated A...	(255,255,255)
Frame:	((1977,1047),(2089,1044),(2090,1078),(1978,1080))
Make&model:	Mitsubishi ASX
Category:	CAR
Color:	black
MMR confid...	100
MMR time:	52
► Characters (...)	
► Tips	
► FOD0121	
► EUI9755	

When ADI is not in automatic mode, and it encounters an individual image with multiple plates, it will display all results from that image in the same result tree (if **Find-All-Plates** is checked in Edit -> Demo Preferences).



## ANPR Data

Results of the ANPR process are displayed in the **log** section in the bottom part of the screen. The log contains the following data:

- **Path:** location of the image file.
- **Plate Text:** alphanumeric license plate text.
- **Plate Text (ASCII):** alphanumeric license plate text in ASCII characters
- **Plate category:** category of the license plate.
- **Country/State ISO 3166-1 alpha-3** country code.
- **Confidence:** overall confidence level of the plate.
- **Frame:** pixel coordinates of the corners of the license plate.
- **Character Size:** average height of the characters in pixels.
- **Text Background:** background color of text in RGB format.
- **Text Color:** character color in RGB format.
- **Dedicated Color:** color of dedicated area in RGB format.
- **ANPR Time(ms):** ANPR processing time in milliseconds.

Only in case if MMR reading is enabled in Demo Preferences and there is an ANPR result.

- **Make&Model:** the recognized vehicle Make and Model data
- **Category:** the recognized vehicle category
- **Color:** the color of the recognized vehicle
- **MMR Confidence:** overall MMR confidence
- **MMR Time(ms):** MMR processing time in milliseconds

If you need more information about MMR please check this document: [MMR Brief Description](#).

#	Path	Plate Text	Plate Text (ASCII)	Plate category	Country/State	Confidence	Frame	Character Size	Text Background	Text Color	Dedicated Area Color	ANPR Time(ms)	Make&Model	Category	Color	MMR confidence	MMR Time(ms)
20	C:/...	AGB228	AGB228	NONE	LTU (109001)	39	((28...	18	(255,255,255)	(0,0,0)	(255,255,255)	104	Mercedes Sp...	VAN	gray	100	40
21	C:/...	MC8238	MC8238	NONE	LUX (121005)	61	((24...	17	(255,255,255)	(0,0,0)	(255,255,255)	114	Peugeot 307	CAR	yell...	97	38
22	C:/...	GO1330	GO1330	NONE	LVA (108011)	66	((39...	17	(255,255,255)	(0,0,0)	(255,255,255)	89	Skoda Octavia	CAR	gray	100	39
23	C:/...	86VFL6	86VFL6	NONE	NLD (120040)	71	((22...	16	(255,255,255)	(0,0,0)	(255,255,255)	86	Renault Trafic	VAN	gray	100	40
24	C:/...	E252KE1...	E252KE177	NONE	RUS (171003)	60	((45...	14	(255,255,255)	(0,0,0)	(255,255,255)	95	Ford Focus	CAR	bro...	81	42
25	C:/...	KN959BH	KN959BH	NONE	SVK (103011)	68	((20...	16	(255,255,255)	(0,0,0)	(255,255,255)	112	Toyota HiAce	VAN	gray	100	41
26	C:/...	34EK0438	34EK0438	NONE	TUR (119003)	75	((28...	17	(255,255,255)	(0,0,0)	(255,255,255)	91	Renault Prem...	HVT	red	100	39
27	C:/...	KN959BH	KN959BH	NONE	SVK (103011)	68	((20...	16	(255,255,255)	(0,0,0)	(255,255,255)	102	Toyota HiAce	VAN	gray	100	42
28	C:/...	E252KE1...	E252KE177	NONE	RUS (171003)	60	((45...	14	(255,255,255)	(0,0,0)	(255,255,255)	89	Ford Focus	CAR	bro...	81	41

### Note

The table above can be saved in a semi-colon delimited log file by clicking **File/Save Log**.

By clicking a data row, the corresponding image and its result tree will appear above the log.

# Data Logging

The application saves each ANPR process in a log file.

Naming format of the log file:

ADI\_YYYY-mm-dd\_hhmm\_sss.log (ADI\_Year-Month-Day\_HourMinute\_Second.log)

E.g.: ADI\_2012-07-09\_1712\_001

If the date changes, the process of the automatic logging continues in a different log file.

When saving a log file, a separate *anpr* file with the same name will also be created in the same directory that contains the property settings of the currently used engine.

## *Format of the log file:*

UTF16 (LE) encoding

Semicolon separated values

First Line: header with information in the following order:

#;Path;Plate Text;Plate Text (ASCII);Plate category;Country/State;Confidence;Frame;Character Size;Text Background;Text Color;Dedicated Area Color;ANPR Time(ms);Make&Model;Category;Color;MMR confidence;MMR Time(ms);

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For further technical information about our products, please visit our official website.

Information regarding hardware, software, manuals, and FAQ are easily accessible for customers who previously registered to enter the dedicated ATSS site. Besides offering assistance, the site is also designed to provide maximum protection while managing your business information and the technical solutions utilized.

### New User

If this is your first online support request, please create an account by clicking on this [link](#).

### Returning User

All registered ATSS customers receive a personal access link via email. If you previously received a confirmation message from ATSS, it contains the embedded link that allows you to enter the support site securely.

If you need assistance with login or registration, please contact [atsshelp@adaptiverecognition.com](mailto:atsshelp@adaptiverecognition.com).