

### **Table of Contents**

CHAPTER 1 PRESENTATION
CHAPTER 2 CENTOS 7 INSTALL
2.1 KICKSTART CENTOS INSTALLATION
CHAPTER 3 FIRST SETTINGS AFTER REBOOT9
CHAPTER 4 DOWNLOAD AND INSTALL METRICI LPR10
CHAPTER 5 LPR FIRST MANDATORY SETTINGS14
5.1 LPR- INITIATING14
5.2 APPLICATION SETTINGS15
5.3 USERS ADMINISTRATION17
5.4 LOCATIONS & CAMERAS18
CHAPTER 6 METRICI CONTROL PANEL SETTING AND USING
6.0 License activation24
6.1 LPR engine working mode and Trigger in25
6.2 LPR Input Stream28
6.3 Companion Stream28
6.4 Detection Window29
6.5 Live view29
6.6 Reporting, check action and Trigger out30
6.7 Plates
6.8 Car tracking33
6.9 Countries
6.10 Barrier and traffic light34
6.11 GPS
6.12 Weight Scale34
6.13 Radar
1



METRICI LPR 3.0 v2.2 User Guide	accurate recognition
CHAPTER 7 GLOBAL SETTINGS OTHER SETTINGS	
7.0 CRON JOBS	35
7.1 TIME TABLES	
7.2 LICENSES	
7.3 BACKUP AND RESTORE	
7.4 LOGS	
CHAPTER 8 LPR INTERFACE FEATURES	
8.1 LPR VEHICLES	37
8.2 VEHICLES FLOW	
8.3 LIVE VIEW	
8.4 REPORTS	
8.5 ACTIONS	40
8.6 GROUPS	
8.7 SMS	46
8.8 ALARMS	46
8.9 PLATES INFORMATION	49
8.10 VIDEO FILES PROCESSING	49
8.11 LPR SETTINGS	54
8.12 RED LIGHT INFRINGEMENT & SPEED	59
Chapter 9	60
ADD-ON: PARKING MODULE FOR LPR	60
9.0 GENERAL PRESENTATION AND FEATURES	60
9.1 SETTINGS	63
9.2 ZONES	65
9.3 CASH REGISTER	66
9.4 PARKING PRICES	66
9.5 TENANTS	67



	9.6 DASHBOARD	68
	9.7 BILLING	69
	9.8 LIVE VIEW	71
	9.9 PARKING REPORTS	71
СНА	APTER 10 ADD-ON WEIGHING STATION MODULE	72
	10.1 SETTINGS	72
	10.2 ADD EVENT	73
СНА	APTER 11 ADD-ON TOLL STATION MODULE FOR LPR	75
	11.1 SETTING	75
	11.2 EDIT LOCATION	76
	11.3 CASH REGISTER	76
	11.4 TOLL STATION PRICES	77
	11.5 REPORTS	78
	11.6 BILLING	78
	11.7 DASHBOARD	79

### USER GUIDE METRICI LICENSE PLATE RECOGNITION

### **CHAPTER 1 PRESENTATION**

If your installation is from scratch, read the entire manual.

If you have CentOS/ Redhat installed, go to Chapter 4

If the system is delivered by Metrici, it has all you need and go to Settings-Chapter5



Metrici LPR is a dedicated tool developed by Metrici to capture number plates with IP cameras, with special features and dedicated modules for different type of activities and installations.

As any software solution from Metrici, LPR is based on analyzing the video stream from IP cameras and recognizing different objects in the frames.

**Metrici LPR** is a complete solution for recognition of license plates placed on vehicles in accordance with the existing standards in each country.

- It works in 'free flow', which means analyzing the video streams from IP cameras in real time, on trigger (when receives command), or a combination of the two.
- The system can recognize an unlimited number of license plates in the same frame;
- Syntax analysis and simultaneous recognition of plates from several countries;
- Distributed operation (multiple cameras in multiple locations), with centralized reporting and administration;
- Predefined actions for each recognized license plate: open barrier, send warning e-mail, pop-up display on screen, change traffic lights, sends SMS;
- Multi-user reporting and administration interface with secure access and viewing rights for each location and user;
- Multi-threading operation with auto ranging based on the number of cores/threads available.

**Metrici LPR** can be used, day and night, for traffic monitoring systems, tolling and vignette control systems, parking, access control, border monitoring, industrial weighing systems, outdoor advertising auditing, gas stations and many other applications.

The user of the **Metrici LPR** must be aware that this software includes two solutions: one for license plate detection and recognition – the **Metrici detection engines** (managed in Metrici Control Panel) and the second one- a interface for managing one or more locations - Metrici LPR Web Interface.

Be aware that for the system to work you will make settings both in Metrici Control Panel, as well as in the Metrici Interface. So please read carefully this user guide.



The whole detection and analysis system is a three steps flow integrated in **Metrici** LPR:

The **ACQUISITION** block consists of one or more IP cameras, one for each monitored access point, and auxiliary equipment (IR illuminators, PoE switches etc).

The **PROCESSING** block consists of one or more computers containing software for real-time analysis of incoming video streams received from the IP cameras. Each interconnected camera needs its own analysis application. Analysis applications, or **detection engines** as are called by Metrici, are multi-threading and, therefore, they work faster on multi core and/or multiprocessor systems. Multiple analysis applications can be used simultaneously on the same computer. You can use more analysis applications in the same time on the same computer. This is the **CONTROL PANEL**.

The **ADMINISTRATION and REPORTING** block is in fact a web interface application that receives data from the analysis application and can display them in a user friendly way. This application can be located on one of the computers for ANALYSIS or a completely independent computer. Between the PROCESSING and ADMINISTRATION AND REPORTING steps there is no need to have IP connectivity on the local network; it is sufficient to have a public network allowing traffic on port 80- **This is the INTERFACE** 

For an optimum operation, we recommend installing **Metrici LPR** as exposed bellow on a computer meant for this purpose only.

For the software **Metrici LPR** to run, it needs a computer with 64 bits Linux OS. We will describe the process of installing CentOS7 operating system.

Note: In case you already have a computer running on CentOS 7, you will begin installation process with Metrici Install.

Note2: In case the system is purchased from Metrici, it is already installed and you only need to set it, so go from Chapter 5 and on.





### CHAPTER 2 CENTOS 7 INSTALL

The procedure for installing Metrici is the same no matter what module what engine you are using. The first step is to install CentOS 7 operating software, under which Metrici works.

### 2.1 KICKSTART CENTOS INSTALLATION

The indicated method to install CentOS7 and Metrici is the kickstart one- this is a completely automatic option and will result in creating new partitions on your system: 8 GB for SWAP and the rest of the disk reserved for ROOT.

CAUTION! In case the system isn't new and has already some data written on it, the installation will delete everything on this computer when installing the operating system.

# NOTE! For installing CentOS 7 and Metrici LPR, it is mandatory to have internet access, but only during install. After that, the web access is no longer mandatory and Metrici can work offline.

Downdload the image for CentOS: you can find the operating system on Metrici site at <a href="http://support.metrici.ro/operating\_systems/">http://support.metrici.ro/operating\_systems/</a>

Download the Operating System and make a bootable stick or DVD.

NOTE! Before the installation, go to BIOS and make sure the PC will NOT BOOT in UEFI mode and will make the first boot from your stick.





At the first option screen, as in the next image, using the keyboard go to option Install CentOS, but **DO NOT PRESS ENTER**!

CentOS 7	
Install CentOS 7 Test this media & install CentOS 7	
Troubleshooting	>
Press Tab for full configuration options	on menu items.

**Press Tab** instead. You will notice some parameters on the bottom of the screen. See next image.







Add a space and then type **inst.ks=<u>http://support.metrici.ro/ks.cfg</u>** at the end of the code and then press Enter. See the next image.

### **ATTENTION!** If the storage is NVMe type, then you will have to type instead the following text

inst.ks=http://support.metrici.ro/ks-nvme.cfg

CentOS will be installed and all the settings made. This will create a user with the name "**metrici**" and a root password "**metriciadmin**".

Reboot the machine if it doesn't do it automatically.

CentOS 7	
Install CentOS 7 Test this media & install CentOS 7	
Troubleshooting	>
> vmlinuz initrd=initrd.img inst.stage2=hd:LABEL=CentOS\x207\x20	x86_64 inst.ks
=http://support.metrici.ro/ks.cfg_	
0 🖓 🖓 🖂 🔜 🖓 🔲	🎯 🛃 Right Ctrl



### CHAPTER 3

### **FIRST SETTINGS AFTER REBOOT**

After the first boot, the system will ask for you to read the license agreement. You complete this task by choosing **LICENSE INFORMATION**.

In case you accept the terms, confirm by checking option I accept the license agreement.

You may continue after you click **FINISH CONFIGURATION** button, on the lower right.

#### NOTE

It is possible that during the reboot, the system to ask for license agreement in a written text as in image bellow. In this case the steps explained above will be ignored.

metricitest [Running] - Oracle VM VirtualBox	-		×
File Machine Mew Input Devices Help			
<ol> <li>[1] License information         (License not accepted)         Please make your choice from [ '1' to enter the License information         ' to quit           'c' to continue   'r' to refresh]: 1</li> </ol>	n spo	ike	'q
License information		:====	
1) Read the License Agreement			
[ ] 2) I accept the license agreement.			
Please make your choice from above ['q' to quit i 'c' to continue i 'r' to refresh]: 2		====:	====
License information	:====	====	
1) Read the License Agreement			
[x] 2) I accept the license agreement.			
Please make your choice from above $l'q'$ to quit $l'c'$ to continue $l'r'$ to refresh]: _			
🔟 💿 🗗 🖉 🛄 🕲 🖉	💽 Riç	ght Ct	ri 📰

After the reboot, you can authenticate by using the user and password defined during installation- case of kickstart installation **metrici** with **metriciadmin**.

You navigate through the last settings, click Next.



### CHAPTER 4 DOWNLOAD AND INSTALL METRICI LPR



For **Metrici** kit to be downloaded, open Firefox browser from **Applications** menu, upper left.

	Not secure   support metricito/	software/metrici.LFR-installer/							
👬 Apps 🔺 Bookn	narks 💼 🔽 LunaPic   Free Onlin	🚥 Digicare 🛛 😋 Horde :: My Portal	Ø Photo editor online /	📆 Popcorn Time - New	UPI UPI	Radio Free Europe	🗤 News   English	Dictionar ro-en	😫 Fi
Index of /so	ftware/metrici.LPR-	installer							
	Name					Last mod	lified		

	Parent Directory	
?	metrici.LPR-v5.4-installer-2019-02-13.el7.run	19-Apr-2019 14
?	metrici2-v3.0-installer-2019-02-27.el7.run	19-Apr-2019 14
	<u>GPU/</u>	11-Dec-2018 1

Access the address http://support.metrici.ro/so ftware/metrici-installer/ Download metrici2-v3.5installer-2020-12-14.el7.run, or the latest version of the software, with the suffix el7.run Save it on disk

Firefox automatically sends some data to Mozilla so that we can improve your experience.

Index of /software/matricil/PR-ins.



Choose What I Share

1/4

Appli	cations * Places * 🛃 efox Web Browser *		Wed 14	1:54		41	0
	index of /software/m	etrici.LPR-installer - Mozilla Firefox			•		2
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?	metrici LPR-v4.6-installer-2016-08-31.el7.run	31-Aug-2016 17:09	Clear List				
?	Metrici.LPR-uninstaller.run	25-Aug-2016 18:03	2.8K				
?	metrici LPR-v4.5-installer-2016-06-21.el7.run	21-Jun-2016 18:22	BeW				
2	metrici.LPR-v4.4-installer-2016-03-14.el7.run	14-Mar-2016 17:18	81M				
?	metrici LPR-v4.3-installer-2016-02-25.el7.run	26-Feb-2016 18:49	B3M				
2	metrici LPR-v4.2-installer-2016-01-06 el7 run	06-Jan-2016 13:59	81M				
?	metrici LPR-v4.1-installer-2015-09-03.el7.run	03-Sep-2015 18:10	70M				
?	metrici LPR-v4.0-installer-2015-02-13.el7.run	13-Feb-2015 17:07	70M				
21	metrici LPR-v3.9-installer-2014-10-22.el7.run	22-Oct-2014 17:28	70M				

Open the folder where the file was saved. (Mouse right click and choose- Open Containing Folder).

You need to change the administration rights for the file (rigt click on the filechoose **Properties** menu).



lie Machine View	v Input Devices	metricitest	: [Running] - Ora	de VM VirtualBox			-		×
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You access the menu **Files**, submenu **Preferences**, on the Operating system menu bar





Anniirations	View Input Devices Help	W-414%8		0
< > @	Home Downloads	Q = = - 0 ×	- 1	
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Document	installer, 3016, 10,		6	
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J Music	Views Behavior	Display List Columns Preview		
Pictures	Behavior			
Videos	Single click to open items			
Trash	Double of the operations			
a Computed	Eventshie Test Eles			
a standard and	EXECULADER LEXE FIRES			
	Run executable text files whe	en they are opened		
Browse N	Run executable text files when     Yew causes	en they are opened		
Browse No	Run executable text files when     View effective	en they are opened		
Browse N   Connect t	Run executable text files who	en they are opened		
Browse N     Connect to	Run executable text files who View excerning Ask each time Trash	en they are opened		
Browse No     Connect to	Run executable text files whe     View excerning     Ask each time     Trash     Ask before emptying the Tras     Include a Delete command th	en they are opened		
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Browse NV     Connect to     To m     To m     To m	Run executable text files which     View executable text files which     Ask each time  Trash     Ask before emptying the Tras     Include a Delete command the  riot LPR-ware-Installer-2014-10-22  matrically sends some data to Mozalla a	en they are opened they are op	What ISI	hare

In the **Behavior** tab, check the option **Run** executable text files when they are opened.

Double click on the installation program to launch Metrici. When asked, write the password for the user you are logged in CentOS7.

#### Wait for the installation to end, and reboot.



### CHAPTER 5 LPR FIRST MANDATORY SETTINGS IMPORTANT!

For a perfect setup, a user will have to do settings both in The Metrici Interface (where the data are sent and collected) as well as in Metrici Control Panel, where the detection is made.

> All settings in the following chapters are mandatory to be addressed for the system to work!!!

> > 5.1 Initiating 5.3 Users Administration 5.4 Locations and Cameras 6.1 LPR Engine Working Mode 6.2 LPR Input Stream 6.4 Detection Window (if necessary) 6.6 Reporting, Check Action and Trigger Out 6.9 Countries

### **5.1 LPR- INITIATING**

When login to Metrici Interface, you will see a list of all Metrici Modules. You will only have access to the module you bought. The others will be blocked.

At the first log in to the Interface on localhost or on a remote server you will use the following credentials:

User: metrici@metrici.ro

Password: metriciadmin Metrici recommends changing this password after log in.

After that any number of users and passwords can be added, deleted or modified.



#### NOTE!

### No matter what module you manage, the first settings will be made in Global Settings.

- FILLER 2018-10-05 00:00 m 2018-10-05 23:59 m ALL - A
٩
Parking place Status Date of change Time Location Camera Gro
15-5 Free 2018-10-05 11:34:16 Bucharest Buc2
15-5 Busy 2018-10-05 11:34:09 Bucharest Buc2
12-1 Busy 2018-19-05 11:26:39 Bucharest Buc3
on module 15-17 Busy 2018-10-05 11:25:16 Bucharest Buc2
ce Detector 15-5 Free 2018-10-05 11:25:15 Bucharest Buc2
ettings 12-8 Free 2018-19-05 11:21:07 Bucharest Buc3
12-7 Free 2018-10-05 11:21:07 Bucharest Buc3
12-9 Free 2018-10-05 11:21:07 Bucharest Buc3
12-9 Busy 2018-10-05 11:20:57 Bucharest Buc3
12-8 Busy 2018-10-05 11:20:57 Bucharest Buc3
12-7 Busy 2018-10-05 11:20:53 Bucharest Buc3
15-16 Busy 2018-10-05 11:17:54 Bucharest Buc2
15-5 Busy 2018-10-05 11:14:36 Bucharest Buc2
15-14 Free 2018-10-05 11:13:41 Bucharest Buc2
15-5 Free 2018-10-05 11:11:29 Bucharest Buc2
15-3 Free 2018-10-05 11:07:48 Bucharest Buc2

# **5.2 APPLICATION SETTINGS**

In this menu you set the name of the owner. Also, you add the email address from which the alarm methods are sent.

accurate recognition	✿\$ Global settings ► ✿ Application Settings	
Find Q	Name	Value
🗖 LPR	Owner's name	Metrici LPR
🔡 QR Code	From e-mail address	metrici@metrici.ro
P Parking module	Outgoing mail server	localhost:25
\$ Toll station module	API key	H50818F6 Renew api key
🖨 Parking Place Detector	Use API key	×
<ul> <li>Global settings</li> <li>Application settings</li> </ul>	Pictures storage	On disk
eta Users Administration Time tables Q Locations & Cameras People Q System overview Profile & Protocol		4

After you click the green button upper right, a menu like next one is opened.





metricí accurate recognition		
Find O	Clobal settings  Application Settings  Edit Appl	lication Settings
riiu	Owner's name	Metrici LPR
⊐0 LPR	From e-mail address	metrici@metrici.ro
🛱 QR Code	Output and the second second	SMTP host
P Parking module	Outgoing mail server	localhost
Toll station module		SMTP port
		25
Parking Place Detector		SMTP username
📽 Global settings		
Application settings		SMTP password
Users Administration     Time tables		
Locations & Cameras	API key	H50818F6
People	Use API key	0
System overview	Pictures storage	On disk 🔹
Backup & Restore     Solution	(S) Cancel	R Save
	G Gunder	

Owner's name is the name of the company or person who owns the Metrici system and has administration rights for it. "From email address" field is the address from which an email is sent when set in the Interface. This has to be a valid e-mail address.

Outgoing email services and SMTP ports are filled as they are known by the owner.

Outgoing mail server: localhost

SMTP host: set to 25

Metrici knows natively to send emails from localhost, but there are servers who refuse to receive mail without authentication. In that case you have the options to send mails via SMTP. You will fill in the data of the remote mail server as they were set.

SMTP port

SMTP username

SMTP password

API Key is an auto generated one. You will need this in case of a third application integration.

# **5.3 USERS ADMINISTRATION**

Any number of users can be added to the system. Each one of them can have its own administration rights. When a user is inactive, he will not be able to log in any more in Metrici Interface. However, it may be made active again by another user with administration rights.



When a new user is added, choose a name for it, designate and email address, choose the language in which the menu is displayed, set a password and confirm it. These data will be used when login by that particular user.

Finally click on the sections for which this user has administration and viewing rights, or just viewing rights.

At the default first page, choose on what menu or sub-menu you want this user to see first every time he logs in to Metrici Web Interface.

You will also set here on what location, camera and menu in the Interface the user has access to.

metrici accurate recognition	Edit profile	
Find	Name:	
Logout	E-Mail:	@metrici.ro
🛱 QR Code	Password:	
P Parking for LPR	Confirm password:	
\$ Toll station for LPR	Save Changes	
💁 Weighing for LPR		
🖨 Parking Place Detector		
🕸 Global settings		

If a user wants to change his password, when in Interface, click on human symbol upper left and choose edit profile. Enter a new password and Save.

### **5.4 LOCATIONS & CAMERAS**

No matter what module you manage, it is mandatory to set a location and add at least one camera to it for the system to properly work.

For a new location to be created, choose sub-menu Locations&Cameras and add a new location, click on the green button, upper right of the screen. Choose a name for it and Save. You can also set **Seconds to suppress action, which** is a time interval for a location in which an action will not be executed, even if set in the interface. It is in fact a time interval in which a number plate is ignored.



metricí accurate recognition	🕸 Global settings 🕨 🎈 L	ocations & Cameras		+ Add locat
Find Q	Location	Cameras	Cameras types	Actions
⊐4 LPR	$\smile$	Back entrance Back exit Buc1	License Plate Recognition - Default License Plate Recognition - Parking Parking Place Detector	
🖁 QR Code		Buc2 Buc3	Parking Place Detector Parking Place Detector	
Parking for LPR		Buc4 Entrance door	Parking Place Detector QR Code Recognition	
\$ Toll station for LPR	Bucharest	Exit door Gate 1	QR Code Recognition License Plate Recognition - Default	[7] Cameras [7] Edit ☐ Delete
Weighing for LPR		Gate 2 lesire 2 Mobile	License Plate Recognition - Parking QR Code Recognition License Plate Recognition - Default	
🖨 Parking Place Detector		QR User Service road 1	QR Code Recognition License Plate Recognition - Default	
🕸 Global settings		Service road 2 Toll station	License Plate Recognition - Default License Plate Recognition - Toll Station	
Application settings		Transit 2 Weighing	License Plate Recognition - Verault License Plate Recognition - Weighing Station	
en Users Administration	Buzau			Cameras C Edit 盲 Delete
• Q Locations & Cameras	Town	Camera 1	Parking Place Detector	🕼 Cameras 🕼 Edit 📑 Delete
<ul> <li>⊘ Licenses</li> <li>■ Backep % Destore</li> </ul>	Test			🕼 Cameras 🛛 🖉 Edit 👕 Delete
<ul> <li>Logs</li> </ul>	Timisoara	lesire 1	License Plate Recognition - Default	C Cameras C Edit 盲 Delete
	Test Dragos			🕼 Cameras 🕼 Edit 🔋 Delete
	Bulgaria	test bulgaria	Parking Place Detector	Cameras C Edit 盲 Delete
	Sector 3	Park Lake	Parking Place Detector	Cameras Cameras
	Cluj	2 benzi	License Plate Recognition - Default	🗷 Cameras 🛛 🖉 Edit 📑 Delete
2019 Metrici Version 2.1				





After a location has been created, click on its name or on the "Cameras" green button to add new cameras and edit it. The Edit button will only let you change its name.

Add a new camera or cameras to a location, by click on the Add Camera button on the upper right. Each camera you add to the system has some features.

Name: Choose a name for this camera to easily identify it and locate it

#### IMPORTANT!

**Authkey** (autogenerated): This field is automatically filled by the Metrici software when a camera is introduced in the system. You will need this key and the id in the Metrici Control Panel to integrate the camera with the Web Interface and to have the videostream in live view and other functionalities.

**Camera URL**: Is the IP address of the camera from which the video stream is received.

**Camera barrier URL**: is useful for LPR applications to open a barrier from live view, with a click on the screen. This is the IP address of the barrier connected to this particular camera. A camera can command only one barrier. You fill in here the IP address of the barrier controller.

**Camera Type** is the Metrici application for which this camera is used for. Choose the appropriate one- license plate recognition, Parking Place Detector, QR code recognition etc. Keep in mind that if you don't select the correct application, you won't see that camera and settings in your module and the system will not work at all.





tricí 🔷 🗸 🗸		
a a	Global settings V Locations & Cameras V Edit came	era for location Bucharest
	Name:	Back entrance
LPR	Authkey (autogenerated):	57W2KQSF
QR Code	Camera URL:	http://google.ro
arking for LPR	Open barrier URL:	http://dev2.metrici.ro/open
oll station for LPR	Camera tune:	License Plate Decognition - Default
eighing for LPR	Gantera type.	Elective Plate Recognition Derudit
arking Place Detector	Obfuscate images:	No
	⊗ Cancel	B Save
Pron jobs		
Jsers Administration		
Time tables		
Locations & Cameras		
Licenses		
ckup & Restore		
ogs		

**Obfuscate images:** Is the Metrici feature that enables you to be GDPR compliant. For each camera in a location you can choose to blur the event photo recorded by Metrici. From the moment this option is checked, all photos for that camera will be blured. The option can be unchecked at any given time, but the already altered images will remain as such.

After all the cameras were added to the system you will see a list like in the next image.

#### IMPORTANT!

The ID and the authkey for each camera are mandatory to be added to the Metrici Control Panel – where detection engines are installed, on the server which runs the software. This can be on the same machine or other one.

When the ID and the cameras are added to the Metrici engines in Contro Panel, this will facilitate the communication between the engines and the Web Interface. If this step is omitted, no data will be recorded in database and the system will not work. See next chapter.



ate recognition

CÍ 🐣 - <						
Q	u Global settings ↓ Location	s & Cameras 🖡 🖣	ew location Bucharest			+ Add tamer
_	Cameras		Authkey	Camera URL	Camera Type	Actions
	Back entrance	6	57W2KQSF		License Plate Recognition	🔀 Edit 👕 Delete
Code	Back exit	7	QIC28288		License Plate Recognition	🕼 Edit 👕 Delete
king module	Buc2	15	11BIDVG4		Parking Place Detector	🕑 Edit 👕 Delete
station module	Buc3	12	Q3IKC6Z6		Parking Place Detector	🕑 Edit 盲 Delete
king Place Detector	Buc4	14	57X0463T		Parking Place Detector	🗭 Edit 🝵 Delete
bal settings	Entrance door	4	V4ATH4WU		QR Code Recognition	🕑 Edit 🥛 Delete
plication settings ers Administration	Exit door	5	W17IQCIO		QR Code Recognition	🕑 Edit 盲 Delete
ne tables	Gate 1	1	TX8343V2		License Plate Recognition	🗭 Edit 🖀 Delete
ople	Gate 2	2	0N2740F2		License Plate Recognition	🕑 Edit 👕 Delete
stem overview ckup & Restore	Service road 1	10	YR9BG147		License Plate Recognition	🗹 Edit 🥤 Delete
igs	Service road 2	11	R3J55E1Q		License Plate Recognition	🕑 Edit 盲 Delete
-	Transit 1	8	364RLWRS		License Plate Recognition	🕑 Edit 👕 Delete
	Transit 2	9	0706W9Y7		License Plate Recognition	🕑 Edit 盲 Delete

All cameras on the system can be later edited or deleted, as the user chooses.

### **CHAPTER 6**

### **METRICI CONTROL PANEL SETTING AND USING**

**Metrici Control Panel** application is in fact the "place" for processing detection engines and analyzing the video stream.

A setup Metrici may include one Interface and one Control Panel on same localhost (same server), or more Control Panels, on several machines, depending on how many cameras and detection engines are used, as the hardware have a maximum supported engines, depending on specifications: CPU, GPU, RAM etc and one central Interface.

The data processed in these servers will be send for recording and reporting towards the **Metrici Interface**, where they can be easily accessed in a friendly format. The detection application can work independently, but **Metrici Control Panel** makes sure that the engines are not jamming and are working as they are meant to do. Also, this is where you can set, change or later execute many useful options, as we are about to explain in this chapter.

Metrici Control Panel application will launch automatically each time the computer is on.

You can add a new detection engine by using the **Add** button. When adding a new application, you set the CPU and the number of **processing cores** for each camera



and it is to run on processor or GPU. The more processing power for each camera, the better the detection, and the application will operate more frames in real time.

ID	Name	App type	CPU cores	Exectype	Output type	Status	Load
	Camera1	Metrici LPR		Foreground with watchd		Started	
		ID: Name: Application type: CPU cores:	0 0 Cameral Metrici LPR	[v]			
		Execution type: Output type:	Foreground	with watchdog 🗠			

After adding a camera and a application type, for a complete setup, such as connectivity, checking country syntax for recognized plate, actions to be executed, enter in **Execution type and choose Foreground with watchdog** working mode.

### At a later date, this working mode can be changed. The four possible settings for this mode are:

- Background: the application will operate without showing the results of the detection on screen, but will send the data to Metrici Interface. This mode saves processing power.
- Background with watchdog: is the same way as Background, but the application will automatically restart in case of reboot or in case the computer is shut down.
- Foreground: the application detection is visible. This mode is especially used when installing the system to check the position of the camera, settings etc.
- Foreground with watchdog: the same as Foreground, but the application will automatically restart when shut down.

Metrici recommends a working mode set at **Background with watchdog after** installation.



### **6.0 License activation**

At the Beginning of the installation or after you've done all the settings in Metrici Control Panel you may want to activate your license. In Metrici Control Panel, click on Request license. In the new window fill in the product key that is written on the

		Metrici C	ontrol Panel v2.0				
. key is active, 4 li	icenses enabled.						
Name	App type	CPU cores	Exec type	Use GPU	Log level	Status	Load
eral	Metrici LPR	1	Foreground with watchd	No	Medium	Started	15 %
era2	Metrici LPR	1	Foreground with watchd		Medium	Started	10 %
	L key is active, 4 l Name Ieral	L key is active, 4 licenses enabled. Name App type leral Metrici LPR lera2 Metrici LPR	L key is active, 4 licenses enabled. Name App type CPU cores eral Metrici LPR 1 era2 Metrici LPR 1	L key is active, 4 licenses enabled.         Name       App type       CPU cores       Exec type         leral       Metrici LPR       1       Foreground with watchd         vera2       Metrici LPR       1       Foreground with watchd	App type       CPU cores       Exec type       Use GPU         eral       Metrici LPR       1       Foreground with watchd       No         era2       Metrici LPR       1       Foreground with watchd       No	L key is active, 4 licenses enabled.         Name       App type       CPU cores       Exec type       Use GPU       Log level         rera1       Metrici LPR       1       Foreground with watchd       No       Medium         rera2       Metrici LPR       1       Foreground with watchd       No       Medium	L key is active, 4 licenses enabled.         Name       App type       CPU cores       Exec type       Use GPU       Log level       Status         rera1       Metrici LPR       1       Foreground with watchd       No       Medium       Started         rera2       Metrici LPR       1       Foreground with watchd       No       Medium       Started

license certificate received from Metrici. Press OK

This will generate a c2v file that will be saved on computer, usually on desktop.

Go to <u>http://support.metrici.ro/activate/</u>. In the designated fields write a valid e-mail address to which you have access and a phone number. Load the previously generated c2v file by pressing "Load the license request file". In the end press "Request activation".

It is important that you have access to the mail you provided because you will receive there the info for activation.

In about a two hour interval you will receive an email answer from Metrici such as

#### Activation license for LPR Metrici

Hello, you can download the activation file at:

http://support.metrici.ro/activate/keys/8457847584788928ks.v2c





#### Product code: 7866869\_dfc93mo398-4k12e9i-29038-a9879-876nmcu6687.

You will download the file from that link, save it on computer and click on "Update license" in Metrici Control Panel. You will load there this file received from Metrici and Open.

# 6.1 LPR engine working mode and Trigger in

Keep in mind that a user must set each detection engine individually, as every camera has its own application/engine.

By pressing the **Settings** button, the first option is **LPR engine working mode & Trigger in** which will set the working mode for the detection software.

Trigger in refers to an external signal sent toward Metrici to start detection.

Metrici LPR can be active in continuous mode and try to detect plate numbers around the clock or if it receives a command/ trigger from a compatible device, such as Barix Barionet, LAN Controller connected to an inductive loop or a sensor etc . If you want to use continuous mode, skip to next point in this chapter. If you want to use trigger facility, keep reading below.

Metrici Virtual Trigger is useful in applications where a cross checking is used. This detection engine is receiving a signal to start detection from another engine – can be one of same type- in our case LPR, or different such as QR, CCR or PPD.

For example a LPR detection triggers a Qr code recognition which triggers a Container Code Recognition. From here, in Metrici Interface you can set different actions when one, two, or as many conditions you want are satisfied for an action to be made. The first rule is the events have each one a rule established in database and the detection to be triggered, as there is a unique verification key for every detection.



PR engine working mode and Trigger IN	4
LPR engine working mode:	Started by TRIGGER +
Trigger device and type:	Metrici Virtual Trigger 🔹 UDP port 350
How many seconds to analyze after the t	rigger is received:
Enhanced recognition mode: 🕑	

In this menu, if we choose Mertici Virtual Trigger, we inform the application that will **receive** a signal to start detection from another one.

To learn how to set a different engine to **send** the trigger see Chapter **Reporting**, **Check action and Trigger out.** 

Keep in mind that when setting the detection with trigger you can also choose how many seconds the LPR engine is trying to detect a number plate. See next image.

When setting another Metrici engine to send a trigger to this one, you set the port for the second one as the one generated by Metrici when you choose Metrici Virtual Trigger. For example, in the next image you will se port 3504. So the second engine, the one which sends the trigger will send the trigger to this port.

You first set the receiver – choose Metrici Virtual Trigger. Remember the port and you copy this in the second engine (the sender) at Reporting, Check action and Trigger out menu.

In case a trigger is received, no matter which one (virtual or from external device), and there is no number plate or this is not visible, dirty, partial etc., Metrici LPR engine will generate an event and will be added to database with the ID UNKNOWN. This will be accompanied by a still frame that you can check and see if there was a vehicle or not.

Also in this setting you can choose to enable an Enhanced recognition mode. What this will do is increase the accuracy, but will delay the detection. In fact the system will check the characters from number plates, individual- letter by letter, against the fonts for each country set in the Countries tab. The more countries there are, the





more will last to have an answer so Metrici advice is to be cautious with setting and not to use unless absolutely mandatory.

PR engine working mode and Trigger II	N		
LPR engine working mode:		Started	by TRIGGER 🕶
Trigger device and type:	Metrici Virtual Trigger	-	UDP port 3504
How many seconds to analyze after the t	trigger is received:		1
Enhanced recognition mode: 💽			

**Vehicle Classification**. Sometimes you need to know what type of vehicles are transiting an area. Also, you may need a security feature to only take actions when a vehicle is present, so the license plate belongs to one and is not written on a piece of paper or someone just holds on in hands. For that, you need to check the option vehicle classification is this menu. For this security feature, you will also need to make some settings in Metrici Interface. For now the categories are: bike, car, SUV/Pickup, van, bus, truck, tram, utility heavy machines.

BJ-LPR - Metrici LPR v6.6 Plus		- X	
LPR Input stream view	Plates view Last detec	cted plate	
		Metrici LPR v6.6 Plus - Settings	×
	Detected p	LPR engine working mode and Trigger IN	
The second se	Plate num	LPR engine working mode: CONTINUOU	JS 👻
		Trigger device and type:	port 3504
		How many seconds to analyze after the trigger is received:	1
and the second s		Enhanced recognition mode:	
		Venicie Cusinication. (9)	
the second s		Companion stream	
and the second se	-	Detection window	
		Live view	
The second se		Reporting, Check action and Trigger OUT	
		Plates	
		Car tracking	
Connected HIKVISION H264 RTSP 81.180.227.162:8891 3 fps 2048 x 1536		Countries	
Companion stream view	Settings	Barrier and traffic light	



### **6.2 LPR Input Stream**

Section **LPR Input stream** will be filled with connectivity data of the camera: camera's IP, as well as the user and password as they were established when installing the camera.

Be careful to choose the correct camera name and the video stream type: Mjpeg, H.264, as was set in the camera. If you don't set the correct type, you will not see images live and the detection will not work also. If your model of camera isn't on Metrici list, just choose Generic camera and the video stream type.

PR engine working mode and	d Trigger IN					
PR input stream						
.PR input stream type:			1	HIKVISIO	N H264 RTSP	-
.PR input stream IP address:	8	31.180.			Port:	8891
LPR input stream user / pass:	admin		1	0		
Limit fps to (0 = unlimited):						0
ompanion stream						

### **6.3 Companion Stream**

**Companion Stream** This option allows the user to set a new camera that will record an image along the one that captures the license plate. The images from the two cameras will be saved together on web interface. You will fill the IP of the camera, the user and the password.

**Companion Stream Type**: Choose the model of the second camera. In case this model is not on the list, choose Generic camera and the video format it uses.

**Companion Stream IP address** is the IP address of the second camera as was set when installed.



**Companion stream user /pass -** user and password of the camera as were set when installed.

### **6.4 Detection Window**

**Detection window** tab, when checked, will reduce the area scanned for license plates. This will allow a greater speed of detection, a smaller need of computer resources and faster processing. This option can be used for barriers, or in other areas where license plates can only be seen in a space smaller then the entire view field of the camera.

By changing the values from this function, you can modify the zone where the detection soft to look for plates. Detection window can also manually be set, with "click and drag" from the corners of the pink square.

Applications - Places -	eral - Metrici LPR +4.7 +			Wed 15:55		.0.	
		Metrici LPR v4.7	- Settings				Ī
LPR input stream view	LPR engine working mode & Ext	ernal trigger				_	
	LPR input stream						j
	Companion stream						
generating 1	Detection window						
	Datection window active:						
	Detection window origin X: 10	10 C	Detection window erigin Y:	100 🗘	1	-	i
	Detection window width: 10	0 0	Detection window height	100		Last see	en
NO							
	Live view						
	Reporting and check action						
	Plates						
	Car tracking *						
The second second	Countries						
- a - comments	Barrier and traffic light						
Disconnected	GPS						
Companies stream view							

### 6.5 Live view

**Live view**. By checking this button, images from detection camera will be "broadcasted" to the web interface or to an IP address. If it is not checked, no live view will be displayed in Metrici Interface.



	Metrici LPR v5.1 - Settings	
LPR engine working m	ode & External trigger	
LPR input stream		
Companion stream		
Detection window		
Live view		-
ive view active:		
Live view URL:	http://localhost/io/live_view.php	
		/
Reporting, check actio	n and external query	

In order to have access to live view functions in web interface you click on Live view active and fill in the data for url. If the access is only on localhost you will write an URL such as <a href="http://localhost/io/live\_view.php">http://localhost/io/live\_view.php</a>. If the access is web based you will write an address such as <a href="http://lp\_ADDRESS/io/live\_view.php">http://lp\_ADDRESS/io/live\_view.php</a>. If the access is web based you will write an address such as <a href="http://lp\_ADDRESS/io/live\_view.php">http://lp\_ADDRESS/io/live\_view.php</a>. If the access is web based you will write an address such as <a href="http://lp\_ADDRESS/io/live\_view.php">http://lp\_ADDRESS/io/live\_view.php</a>.

# 6.6 Reporting, check action and Trigger out

In this menu you will fill in the data from **authkey** / **id** generated by **Metrici LPR Web Interface**. These values were automatically set by **Metrici LPR Web Interface** when a camera was introduced in the system. This is the only way in which you integrate the communication between the detection unit – meaning the engine application and analysis centre- the interface. If you will not fill these data, you will not have access to Live View and Car Flow functions in Web Interface, it will not build a database and it will not create reports and statistics. The detection itself will work, but will keep all data on a local buffer, where you don't have access to and will not send them to the database.



**NOTE**: ID and Authkey can be viewed in in **Metrici LPR Interface** on Global Settings **menu, Locations&Cameras** submenu and choose a location to view all the cameras set in. As in the next image. Each camera introduced has a unique ID and authkey - **See chapter 5.5.** 

metrici	OE Dobel schings 🗧 Leophor	e S Goweres + N	iew localize Dusharcol			
ed Q	Cameras	0	(ANT)	Comore URL	Comors Type	Actions
ILPR	Each erthrade	~	SPACED IF		Licence Plate Recognition	12 feit Erete
GR Code	Eack pat-	7	0020208		License Flate Recognition	Of Cor
Parking module	Build	15	11803004		Forking Place Detector	Di Lee
Tol I station module	Buch	12	00802625		Parking Place Detector	De later
Ranking Place Detector	Bue 1	14	57X04837		Fairling Place Delector	IZ Icc. Door
Global settings.	Estuarios dicos		VENTHERE		OR Code Recognition	
8 Application settings 3 Users Administration	Exit door	5	W170200		GR Code Recognition	(2 Ect. ECteore
5 Time tables 3 Leveloue & Generes	- Rate 1	1	12854297		Liverse Fiele Recognition	OF DOI: 10 Device
People	Gate 2	2	ON0740F2		License Plate Recognition	Of Fox
) System overveet ) Hereings & Bristown	Envice rood 1	13	Y8380147	2	License Piele Recognition	CP Lot. E Deiete
F Laga	Service road 2	11	P3.66610		Licence Pitre Revogencien	12 fre 🗎 Delete
	Transit 1	0	204FLMRS		License Plate Recognition	😰 Koz 🖉 Greate
	THEM 12	2	@F068/9Y7		Licence Plate Ronogritten	De los

**Reporting URL** – the virtual address where the system will send the data of recognized license plates and the images from the cameras. This will be as http://IP\_ADDRESS/io/Ipr/new\_plate\_event.php. In case that reporting and administration interface is intalled on same computer with the analysis application, IP\_ADDRESS will take the form 127.0.0.1.

The system tries to send the reporting event until a receiving confirmation comes from the server.

**Check action URL** – the address of the unit for checking the actions to be executed if a license plate is recognized. The actions can be set in **Metrici LPR Web Interface** and take a form such as: open barrier, send e-mail, popup on screen, change traffic light. See chapter LPR/Actions.

It will have a form like: http://IP\_ADDRESS/io/lpr/check\_action\_event.php. In case that reporting and administration interface is intalled on same computer with the analysis application, IP\_ADDRESS will be 127.0.0.1.

Reporting address and check action addresses can be different as check action is the first one to execute when a car is detected, afterwards reporting when a car exits from the field of view of the camera. In a parking installment or other scenarios with barriers, you will go to Metrici Interface and set a rule for the camera connected to the barrier to open it when recognizing a plate number, or the % rule (everybody has access)

**Check action minimum probability between 0.1 and 1.0** tells the system which is the minimum value at which a license plate is checked for possible actions in database. In short, how sure is the engine has done a correct reading. We recommend a value of 0.6. This means that a plate has been seen in at least two frames.



	Metrici LPR v6.0	0 - Settings
LPR engine working mode a	nd Trigger IN	
LPR input stream		
Companion stream		
Detection window		
Live view		
Live view Reporting, Check action and Reporting LIRL	l Trigger OUT	trici rofic/loc/reporting_event.php
Live view Reporting, Check action and Reporting URL: Check action URL:	t Trigger OUT http://dev2.me http://dev2.me	etrici.ro/io/lpr/reporting_event.php etrici.ro/io/lpr/check_action_event.php
Live view Reporting, Check action and Reporting URL: Check action URL: Check action minimum proba	http://dev2.me http://dev2.me http://dev2.me	etrici.ro/io/lpr/reporting_event.php etrici.ro/io/lpr/check_action_event.php 1.0): 0.6
Live view Reporting, Check action and Reporting URL: Check action URL: Check action minimum proba Send trigger at check action	http://dev2.me http://dev2.me http://dev2.me ability (between 0.1 and to IP address:	etrici.ro/io/lpr/reporting_event.php etrici.ro/io/lpr/check_action_event.php 1.0): 0.6 UDP port: 0

**Send trigger at check action to IP address** is useful in cross checking situations or when you want two events to be registered together in database. For example at a weighing station a LPR detection in front of truck triggers a LPR detection for the back of the truck.

You will fill in here the IP address of the Metrici server or the address of a server on which another Metrici engine is installed. If more Metrici engines are on the same server you will fill in an adress such as 127.0.0.1, with the UDP port as in the one allocated in "LPR engine working mode and Trigger in" menu.

# 6.7 Plates

For **Plates** tab, the optimum value of **Plate min. length** and **Plate max. length** will be set only after placing the camera and choosing an appropriate resolution, depending on results. You can start with a Plate min. length = 120 and Plate max. length = 1000. Metrici recommends that a plate number has a minimum width of 200 pixels. So be sure to place and set the camera accordingly, to achieve such a result.



The option **Same plate delay (seconds)** will set how many seconds the program to wait for a license plate to be back in sight for reporting a new detection. For example, if we set this value at 5 seconds, the software will record a new event for a license plate if it gets more than 5 seconds between the time when a license plate exits the camera view and a new entry in the view field.

**Single plate mode** button, when activated, it assumes there is only one license plate in frame, any given moment. This mode will reduce the number of "false positive" detections in case a car stays for a longer period of time in the same position.

### 6.8 Car tracking

**Car tracking** will establish the direction of movement for the cars. The data from this option can later be accessed in the **Metrici LPR Web Interface.** Be careful to set the arrows correctly, especially when managing parking lots. In this cases, **the direction is the movement (coming or leaving) of the vehicle in relation to the location not to the camera view**. For example, if a vehicle approaches the camera, but in fact it is leaving a location, the set in Metrici will be for LEAVING. An example could be at the exit from a parking with the camera looking towards the interior. So the number plates coming towards the camera are in fact leaving and this is how you set it.

### **6.9 Countries**

From the list of available countries, one can choose the ones from which the license plates to be recognized. In case only a few states are selected, license plates from other countries, not on this list, will be ignored by the detection engine and **will not be saved** in reports, lists or images.

In case "catch all" option is checked, the bigger the risk of recording "false positives", but all the possible license plates will be scanned. For example, it is possible to have saved in database entries with "Taxi" box or identification numbers of buses, other noise in the image.

#### IMPORTANT!

For a greater speed and an accurate recognition we recommend choosing only a few countries and the **first position on the list to be the country where the system is installed.** 



## **6.10 Barrier and traffic light**

Will set the parameters for closing and opening a barrier when a license plate is recognized.

You will fill in here the URL address of the device.

### Instead of a barrier it can be any device that takes commands by HTTP protocol.

**Delay before closing barrier** will set the time interval, in seconds, the system waits before closing the barrier after it opened it for a recognized license plate.

**Traffic light ON** URL will be filled in case a traffic light is installed, which will commute when a license plate is detected if this option is checked for that particular number in Action list.

All the settings from **Barrier and traffic light** menu will be correlated with the **Metrici LPR Web Interface** menu for each license plate that is in action lists.

### 6.11 GPS

In case you will set a GPS device, this will save the data together with the image from the cameras.

# 6.12 Weight Scale

When integrating a weight scale, an IP address will be saved in the dedicated box. Metrici developed special firmware for communicating with industrial weighing scales. Each detected license plate will be recorded in database together with the weight of the vehicle.TCP Port can be changed manually accordingly to the data on set. See the Weighing Station Module user guide for more info.

# 6.13 Radar

When Metrici Observer Radar is connected, after filling the required data (IP address and TCP Port), the image of the license plate detected by Metrici will be saved together with the recorded speed of the vehicle. TCP Port can be changed and manually saved, depending on Barix settings on location.



NOTE: The detection system **Metrici Control Panel** can work independently of internet connection, records the data in a local buffer and will later save the information on server and on **Metrici LPR Web Interface**, when a connection at internet /network is set.

### CHAPTER 7 GLOBAL SETTINGS OTHER SETTINGS 7.0 CRON JOBS

A user can set to receive reports by mail at a established time interval. You can select here what type of report to receive, where to send it, on what time interval: hourly, daily, weekly, monthly or once a year.

# 7.1 TIME TABLES

A time table is designated to apply some rules or settings on a specific hourly/daily/weekly program. To be more flexible in setting, a user can choose to have alarms or actions made only when special conditions are met.

This setting is applied for now at any Metrici module, **except** Parking Place Detector.

For example, a user can set to receive an alert email only when certain conditions are met.

Generally, the time table is used in Parking module, also, for toll stations, but also for QR code recognition engine.

Metrici has a default time table "All the time" which is valid 24/7. But customized time tables can be made that to be used in action settings.

Click on the green "Add time table" button upper right. Choose the days of the week for which you want to set a time table. You can choose as many as you want from one to all week and choose an hour interval, also and Save.

This will create a time table for that period.



metricí accurate recognition	🛠 Global settings 🕨 🚞 Time Tables 🕨 Add new time ta	able
Find Q		
	Name:	
LPR	Week days:	Sunday
🛱 QR Code		Tuesday
		Thursday
P Parking for LPR		Friday Saturday
Toll station for LPR	Start time:	00 • : 00 •
Weighing for LPR		
	End time:	00 1 . 00 1
Parking Place Detector	⊗ Cancel	B Save
Global settings		
Application settings		
😂 Users Administration		
] Time tables		
O Locations & Cameras		

Customized time tables can be as specific as to complete a action or not only on Mondays, for example, from 8 till 9 a.m.

# 7.2 LICENSES

You can see here what type of licenses you have activated on your interface. The ones you don't have access to are crossed out. You can update your license anytime with new modules and engines.

# **7.3 BACKUP AND RESTORE**

You have two options for backup:

#### 1. Export general settings

In this case you will save all the data set in Metrici Interface, but without the events. You will be able to save this way info about all the users, their administration rigts, the locations name and settings of the cameras etc.



2. **Full export** (entire database) will save an SQL file with all the data as the first one plus the events, but without the detection photos.

In case of backup click on restore button, browse to a folder and choose an SQL file saved as the steps described before and click on Save.

# **7.4 LOGS**

The user with administration rights can view here all the logins of any user and the changes one made within the system or menus. You can search events by date, user or time interval. You can export in excel format the search results.

### **CHAPTER 8 LPR INTERFACE FEATURES**

# **8.1 LPR VEHICLES**

In this menu you see all the details of detections. All detected license plates will be displayed here.

metricí accurate recognition	FILTER	DATE & TIME	<b>a</b> 2019-07	-29 23:59 🗰	COUNT	TRY	ALL -	ALL	DIRE	CTION	GROUP	INFO ?	ок	
Find Q	EXPORT			EXPORT										
			ENGLE E	001 8										
🖨 Cars	_									_				
□¤ Car flow	PLATE	Country	Date	Time	Location	Camera	Direction	Time Inside	Action	Info			15 00 DIV	
🖵 Live view	IF 20 BI	V RO	2019-07-29	11:51:09	Bucharest	Gate 1	k				IF 2	OBIV	IF ZU BIV	
Les Reports	B 888 X2	F RO	2019-07-29	11:50:58	Bucharest	Gate 1	⇒	1d 13:32:11			12		upu	1000
Alarms	B 777 AN	ID RO	2019-07-29	11:45:44	Bucharest	Gate 1	l€		-				1	
Plates information	B 101 G	A RO	2019-07-29	11:43:56	Bucharest	Gate 1	l€				dpc	107	25	
Settings	B 102 KI	P RO	2019-07-29	11:42:35	Bucharest	Gate 1	⇒	-	-		W			
🔡 QR Code	B 639 DA	W RO	2019-07-29	11:39:09	Bucharest	Gate 1	l€	-	12	-	ALMERICO M			-
P Parking for LPR	B 10 WA	B RO	2019-07-29	11:37:48	Bucharest	Gate 1	↦				0.0000000			1 miles
\$ Toll station for LPR	B 95 AP	K RO	2019-07-29	11:37:01	Bucharest	Gate 1	l€		10	÷			And	
Weighing for LPR	B 500 DI	s RO	2019-07-29	11:36:02	Bucharest	Gate 1	⇒	-			-	-		7
	B 60 NY	A RO	2019-07-29	11:29:17	Bucharest	Gate 1	I <del>←</del>	-	-					
Parking Place Detector	B 40 EF	D RO	2019-07-29	11:26:52	Bucharest	Gate 1	⇒	0d 00:17:20	-	÷				
🕸 Global settings	IF 06 VE	T RO	2019-07-29	11:22:08	Bucharest	Gate 1	⇒		14		IF 20 BIV	😭 Today (1)	This Week (1)	
	B 284 PN	IV RO	2019-07-29	11:20:17	Bucharest	Gate 1	⇒	-				This Month	(2)	
	B 117 SN	IS RO	2019-07-29	11:14:14	Bucharest	Gate 1	↦	4	ц.	-	Options for	+ Add to actio	ons list Export PDE	
	VL 79 ME	RO	2019-07-29	11:12:18	Bucharest	Gate 1	I <del>C</del>	-			IF 20 BIV			
	0.77.40	- 00	0010 07 00	11.11.00	Ducharaat	Cate 1	14							

You see a list of events and you have a top bar where a search can be filtered,


The available options for the filters are date and time, country, location, camera, direction or info (which is a field where each number plate introduced in database can have some additional info), speed, red light. You can also filter cars by the group it belongs to.

The events list include a time stamp for the detected number, the country from which the detected license plate is registered, hour, location in which the number was seen, the camera which detected it, direction of moving (as set in Metrici Control Panel) time inside (useful for parking applications but not only), if a action is set for that particular number and info.

On the right side of the screen, there are several more information for the selected number plate from the list.

The photo from the moment of detection is accompanied by data about number of events for that number on that day/week and month

There is also a button to add that number to an action list (See Action list chapter) and one button to export that event in PDF format.

### **8.2 VEHICLES FLOW**

This is a method to generate alarms for certain events for the user who runs Metrici Interface. You have two options for the alerts: the alert consists of a beep sound when a detection is made. This is a format similar to liveview but not all the video stream is viewed, but only the last detection.

The available options are alerts for the **cars on the action list** (that are included in Metrici database- whitelist or blacklist ) or **cars not on the list**. When you select an alert method, the list will be filled only with detection of our selection. If None is selected then all the detection will be listed as they happen.

A user can also choose for which locations and which camera to see the results. If one manages more locations and only one is chosen, the car flow alerts will only display detection in the selected location.

A click on the detected license plate or on the photo will maximize the picture from the moment of detection.

### 8.3 LIVE VIEW

From the drop down list of available cameras choose one by one the cameras you want from the drop down menu and click on blue button "Add live view".



A view can be made full screen by click on the monitor icon. You can delete a camera from live view with a click on the "x". After a full screen camera, to return to all cameras, click on the "\_" sign.

If a barrier is connected to a camera, a green button will let you open the barrier with just a click in live view (useful in cases in which the number is not visible or is missing) and the action can not be implemented automatically by Metrici.

In case this option is used in Parking Module with LPR be aware to enter the correct number plate and the direction of movement in the pop up window, so that the system can correctly keeps track of available spaces.

metricí accurate recognition	2 -	< Bucharest / Back entrance	Add Live View		
	۹				
CI LPR			×		
					4
□1 Car flow				Plate number:	
🖵 Live view					
				Direction: Entrance *	
				Add to action list:	
				Open Parrier	
				Open barner	
		🖌 Open Barrier			
🖁 QR Code			Last license plate B 70 LIX		
P Parking for LPR					
\$ Toll station for LPR					

You also have the option to introduce that plate in action lists where more actions might be attributed to it.

By default the live view is automatically filled in with a URL as

<u>http://localhost/io/lpr/live\_view.php</u>. If the video is sent to another URL, replace localhost with it. For example http://metrici.ro/io/lpr/live\_view.php.

# 8.4 REPORTS

Several reports are automatically generated by Metrici. Each report can be exported in XLS file.

• **Cars each hour** will display number of recognized license plates (number of detections) as well as unique cars (as it is possible a number to be detected more times as it travels more often in a location or in front of a camera).



The reports can display a total sum for each hour for that location or an average by days. The average report will make a calculation for each hour of the day for all the days that we filter. The sum will display total number of detections for each hour, by adding the detections of each hour of the day for all the days that we filter. In top bar menu you can choose for what location or which camera you want to see the report.

- **Cars each day** will generate by default a report for all the days of the current month, but more days can be filtered from top bar menu.
- **Cars each month** will generate by default a report with all the months of the current year, but more months can be chosen for a report to be created.
- **Cars each camera** will generate a report with all the detections seen by each camera in a location
- **Top cars** will generate a list with the number plates that were detected more often. From top bar menu you can choose how long the list to be from 10/page to 100/page. For each event, when clicked you will see a list with all the detection for that particular number plate in the current month
- **Cars by origin** will generate a list with which country has more detections and the number. In case of Romania, the top will also be divided by counties.
- **Time inside** will display a report with the clients habits for a parking or a location. How long do usually clients stay inside a location.

# **8.5 ACTIONS**

In this menu you add cars to action lists or delete others. You can create groups, also

Actions list will display a list with all the number plates introduced in database, with the settings for each one.



accurate recognition	FILTER SEAF	arch te: Q		ADD + PLATE	EXPORT PLATES	IMPORT	L PL DA	ATES IN TABASE 6				
Find Q												
DI LPR	Plate	Info	Location & Cameras	Time Tables	Active	Open Barrier 1	Open Barrier 2	Send Email	Show Pop-up	Expires	Group	Actions
🖨 Cars 🖸 Car flow 🖵 Live view	B046915	test	Bucharest / Back entrance Bucharest / Back exit Bucharest / Gate 1 Bucharest / Gate 2	All the time	~	~	×	×	×	Never	N/A	💼 Delete
L⊯ Reports ∜ Actions	B100LSI	Test Vlad	Bucharest / Back entrance Bucharest / Back exit Bucharest / Gate 1 Bucharest / Gate 2	All the time	~	~	×	×	×	Never	N/A	💼 Delete
⊞ Groups III SMS - Q Alarms	B267AMC	test xx	Bucharest / Back entrance Bucharest / Back exit Bucharest / Gate 1 Bucharest / Gate 2	All the time	~	~	×	×	×	Never	N/A	💼 Delete
☑ Plates information ◎ Settings 器 QR Code	BV1213XXX	-	Bucharest / Back entrance Bucharest / Back exit Bucharest / Gate 1 Bucharest / Gate 2	All the time	~	~	×	×	×	Never	N/A	💼 Delete
<ul> <li>Parking for LPR</li> <li>Toll station for LPR</li> </ul>	PlateNumber	-	Bucharest / Back entrance Bucharest / Back exit Bucharest / Gate 1 Bucharest / Gate 2	All the time	~	~	×	×	×	Never	N/A	💼 Delete
ጭ Weighing for LPR Parking Place Detector	SB06UJH	-	Bucharest / Back entrance Bucharest / Back exit Bucharest / Gate 1 Bucharest / Gate 2	All the time	~	~	×	×	×	Never	N/A	💼 Delete
<b>©:</b> Global settings												

On top bar menu, one can search for a number plate in database. Also can Add plates, export or import lists.

The cars list will include plate number, info, Locations and Cameras for which that number has some settings set, time tables, whether this is active or not, which barriers to open (from 1 to unlimited), whether to send email, show popup, if it expire, if it belongs to a group or not.

When adding a new number plate to the lists, one of the fields to be filled require more attention.

First of all, write the number plate and info (if any). If this number plate belongs to a group you've created, select one. Be aware that a number plate introduced in a group will automatically copy all the settings of that group, for actions, time tables, location etc.

Locations and Camera: Choose for what location and for what camera that number plate has an action rule. One can choose that a number plate has only rights for one barrier, for example, in a location and not to all of them.



motrioi		
accurate recognition	CALPR > = Actions list > Add plate number to Actio	ns list
Find Q		
	Plate number:	
DI LPR	Plate info:	
🖨 Cars	Flate IIIO.	
	Group:	None
	Country:	??
1: Actions	Locations & Cameras:	Nothing selected
E Croups	Time Tables:	All the time
SMS		2010 00 00 10 107
	Expiration date:	2019-02-26 10:3/
		Never expire
	Active:	0
🔡 QR Code		
Parking for LDD	Open barrier:	
	Traffic light:	0
\$ Toll station for LPR	Sand a-mail:	
💑 Weighing for LPR	Gend e man.	
Parking Place Detector	Send e-mail Address:	
	Send e-mail Message:	
Slobal settings		
	Show popup:	
	Show popup message:	
©2018 Metrici. Version 2.0		

Choose a time table that you've created before if that number plate is assigned to a time table. The actions set in this menu will only work during that time table. For example, if you've created a time table Work Hours (Monday to Friday from 8 am to 8 pm) a barrier will be opened only in that time interval.

If that number plate has a expiration date for the actions, set one here or check "Never expire" otherwise.

Check **Active** button and choose what action to be made when this number is detected: open barrier, command a traffic light, send email or show a popup. For the email version, choose to what address the message should be sent and write what is the message.

**Only if it is vehicle**: Check this option if you want the action to be taken only if the number plate belongs to a car and it is not printed or someone holds it for example. To work properly, you will also check **Vehicle classification** option in **Control Panel**.

Action URL is the address of the hardware device that will be commanded when this number is detected: barrier, traffic light etc.

**Cross Check** is a special copyright feature of Metrici when an action is completed only when a series of conditions are met. Metrici checks in the all database and in all the Metrici engines if a unique key is to be found. Zero, by default, it means only one condition is met. If cross check is 1, then two conditions must be met simultaneously. For example, if for access control one uses LPR and QR code, might set a rule that a action to be made when both a number plate and a QR code are correct and linked in



database. A Metrici engine detects a QR Code and will triggers a LPR detection. If the two conditions are met and the number plate is connected in database to that QR code, the access will be granted.

The first rule is that the events have each one a rule established in database for that action and the detection to be triggered because there is a unique verification key for every detection. This means you have one detection that is triggered by Metrici Virtual Trigger in Control Panel settings.

The interconnection might be also between LPR and car classification or any other combinations.

#### IMPORTANT!

For all Metrici interface, whether we talk about searches, action lists or other data, the "\_" sign replaces a letter or a number, and the "%" sign replaces as many letters and numbers.

So you can create an action list for cars beginning with MAI, for example, and you will set a rule such as plate number MAI\_%,, you tell the system to initiate an alarm or open a barrier for any vehicle with license plates beginning with MAI followed by at least one other letter or number.

Also you can perform a search in database using the same special sign. A search could be as IF% where all the numbers containing the association IF will be displayed.

#### Blacklists

If you want to create a blacklist and have alarms for some particular license plates you can create a rule that specifies that when a number plate not on the action list, in groups, tenants etc is detected to trigger an event.

This is a situation where access is possible only for registered license plates- whitelist only, for example.

If you have particular license plates to initiate an alarm, then these will be added individually in action list, with the option send mail, or send SMS or initiate a http trigger to a hardware device.

#### Action list and access for everyone

Another example is when you have a paid parking lot with free access for everyone. In order to open the barrier for every car detected at the entrance, you will set an action for



license plate "%" to be active with open barrier, for every camera at the entrance. This rule will NOT be implemented at the exit.

The vehicle will be able to leave after the payment was done and the number plate is detected at the exit in case it is a payment parking.

CAUTION. If you make this rule for exit cameras and barriers, any car will be able to leave without payment.

This can be implemented in situations where the access is controlled, only vehicles from action list have the right to enter, for example, and then you leave the exit free flow rule.

So, to set this rule in Action list, from the drop-down list with locations and cameras you manage, choose the camera/cameras at the entrance barriers. You will create such a rule for every camera connected to a entrance barrier in the location. If you have 4 entries with barriers and 4 exits with barriers, this step will be repeated for each one of the 4 entrances.

You will also check the **Active** button and **Open barrier**. At the Action URL you will fill in the URL address of the barrier for each camera.

Keep in mind that for leaving the vehicle has a **time interval** set in Parking Setting at **Grace minutes after payment**.

For more information and settings, read the Parking module for LPR user guide info found on **Chapter 9**.

# 8.6 GROUPS

The groups options are introduced so to make things more easy for the users. When creating a group, keep in mind that all the settings set for this will be assigned to the cars that are introduced in, so the users doesn't have to manually introduce actions for each number plate.

When a group is formed, be aware to correctly set the rules for that group, the locations and the camera where the action takes place, the time table, if it is has an expiration date etc.

All these settings will be transferred to a number plate if this is allocated to the group. When introducing a new number in the action list, you just fill in the **Plate number** and



choose to what group it belongs to, leaving the other field as they are. The license plate will copy the group's settings.

In this menu you will see a list of all the groups you have created. When a name is clicked you will see a list with all the plate numbers assigned to that group and the actions to be made as well as the locations and cameras where these actions are active.

You have the option to import lists in CSV format.

For this click the IMPORT PLATES button on upper menu. If you use a third party management program or an external file that is always updated keep in mind to check the option EMPTY GROUP BEFORE IMPORT for not to double the plate numbers in your list every time you import.

If a new import does not contain old plate numbers, but only new ones, this option will NOT be checked.



Each group can receive a new plate number one by one with click on ADD PLATE button, upper menu. You will fill in the plate number and the INFO field if you wish. The plate will automatically get all the settings for that group.

FILTER SEARCH	name Q ACTIO	E ONS	ADD GROUP	+ EXPORT GROUPS		Port 💄 Nups 💷	GRO	OUPS IN TABASE 5			
Group Name	Locations & Cameras	Time Tables	Active	Only if it is vehicle	Open Barrier	Trafic light	Send Email	Show Pop-up	Start date	Expires	ACTIONS
Dragos 22	Bucharest / Gate 1 Bucharest / Test Dragos Bucharest / Video file test Cluj / 2 benzi Hong Kong / Pedder Otopeni / LPR-AUTOPENI	Weekend	~	~	~	~	~	×		Never	☐ Edit ■ Delete
Tenants Rares Example	Bucharest / Gate 1	All the time	~	×	~	×	×	×	Not set	Never	🔀 Edit 📋 Delete

At any time after groups were created, you can export their settings as a csv file or you can import one.



For an export with the number plates belonging to a group, you click on its name, and choose option export .

### 8.7 SMS

In this menu, the user can introduce the phone number which have administration rights for the interface. In case with SMS module integration, the phone numbers introduced in this list can send, by SMS, plate numbers that will be automatically introduced in the actions list.

metricí 🔹 🛓		
accurate recognition	DI LPR	
Find Q		
	Name:	
CM LPR	Phone:	
🖨 Cars		
⊡d Car flow	Group:	Dragos 22
Live view	Hours till expire:	
- 🛄 Reports		
러는 Actions	Active:	
🗄 List	⊗ Cancel	+ Add number
- 🖽 Groups		
SMS		
🗘 Alarms		
🛯 Plates information		
Settings		
🔡 QR Code		

Filled in a name, the phone numbers and to which group is part of. Hours till expire is the time interval in which a plate numbers introduced by SMS in the action list by this phone has access rights, meaning a temporary right. After the time expires, the actions will no longer be completed. Click Add number green button when ready.

### 8.8 ALARMS

Different kind of alarms can be set in Metrici Interface. A new alarm can be set by click on the green button Add alarm.



An alarm can be sent to an email address or to a phone number in case of integration with SMS module.

When creating an alarm, be aware this is a two step process. First of all you name the alarm and choose what action to be made (SMS or email), then you choose the conditions that must be met for the alarm to activate.

metricí 🔹 🛓		
accurate recognition	DI LPR > Alarms > Add new alarm	
Find Q		
	Alarm name:	
CI LPR	Active:	•
a Cars	Send e-mail:	
- ⊡3 Car flow	Send e-mail.	
Live view	Send e-mail Address:	
t Actions	Send e-mail Message:	
- 🗘 Alarms		
🛯 Plates information		
Settings	Send SMS:	
🖩 QR Code	SMS Number:	
P Parking for LPR	Message:	
\$ Toll station for LPR		
A Weighing for LPR	⊗ Cancel	+ Add alarm
🖨 Parking Place Detector		
😻 Global settings		

Name the alarm, click active, then set the email address and the message to accompany the alarm or choose to which phone number a SMS alert to be sent.

Click Add alarm when ready. After the alarm was created, click on its name to add conditions to it – these are the steps to be made for the alarm to initialize.



metricí accurate recognition	<			_
Find Q	Send E-Mail to: vlad@metrici.ro	<ul> <li>View alarm Masini 30 minute</li> </ul>		+ Add condition
LPR	with message: #PLATE_NUMBER	este inauntru de mai mult de 30 minute		
🛱 Cars				
🖾 Car flow				
🖵 Live view	IF			
Let Reports		Plate inside location = Bucharest	Edit 👕 Delete	
12 Actions	-			
Alarms	AND	Last datetime of plate <=	Edit 🗍 Delete	
Plates information				
Settings				
🛱 QR Code				
P Parking for LPR				
\$ Toll station for LPR				

Click on the green Add Condition button upper right to add conditions to the alarm. You can add as many conditions as you want to an alarm.

Alarm item is the type of the alarms: Plate inside location, Last direction of plate, Last datetime of plate, Plate in group, Plate inside location, Speed.

You will have to add a degree of comparison and the location in which this condition is applied in.

"=" a condition belongs to, is equal to a specific value

"!=" this condition means that the setting is different/ not included in Alarm Item

"<" smaller than (is usually used for the alarms with time units)

"<=" smaller or equal to (also used for the alarms set with time units or percentage)

">" bigger than ... usually set for alarms set in timestamps

">=" bigger or equal to a time unit, usually

For example to set an alarm when a car is inside the location for more than 2 hours, you will fix the parameters as

First condition: Plate inside location= "name of the location"

Second condition: last datetime of plate and SQL parameters <=DATE\_SUB(NOW(), INTERVAL 2 HOUR

with the email or SMS message #PLATE\_NUMBER is inside for more than 2 hours. See next examples



C3 LPR ► 4 Send E-Mail test@me with messag #PLATE_	Alarms → View alarm Cars 2 hours to: trici.ro e: NUMBER is inside for more than 120 minutes		+ Add condition
IF			
	Plate inside location = Bucharest	Edit 👕 Delete	
AND	Last datetime of plate <= DATE_SUB(NOW(), INTERVAL 120 MINUTE)	Edit 👕 Delete	

CI LPR • A Alarms • View alarm Cars 2 hours • Ed	it alarm condition
Alarm item:	Last datetime of plate
Degree of Comparison:	<= •
SQL Time Parameter:	DATE_SUB(NOW(), INTERVAL 120 MINUTE)
⊗ Cancel	₿ <sup>*</sup> Save

# **8.9 PLATES INFORMATION**

Is a list of the cars that were introduced in database along with other data on the info field. Click on the plate number or on Edit button to start editing that info. From top bar menu you can add other number plates to the list, you can export or you can import lists in CSV format.

# 8.10 VIDEO FILES PROCESSING

Metrici allows you to analyze and detect license plates in recorded videos format .mp4 or . avi extension. To have access to this feature, one must do some settings both in Metrici Interface and Metrici Control Panel.

First settings to be done in Global Settings/ Locations and Camera menu in Metrici Interface. You will select a location (click on its name) and add a new camera to it, virtually. Click on Add Camera button, upper right.



See next photo.

metricí accurate recognition	<b>≜</b> - <	Global settings	s 🔍 Los	ations & Cameras	View location Buchares				+ Add
Find	۹	Cameras	ID	AUTHKEY	Camera URL	Open barrier URL	Camera type	Obfuscate images	ACTIONS
LPR	>	Buc1	16	B10D922W		http://www.kkk.ro	Parking Place Detector	×	🕑 Edit 💼 Del
QR Code	>	Buc2	20	1X6M59Y4	http://google.ro	http://dev2.metrici.ro/open	Parking Place Detector	×	🕑 Edit 🛛 🗃 Del
Parking for LPR	•	Buc3	12	Q3IKC6Z6			Parking Place Detector	×	🕑 Edit 🗂 Del
Toll station for LPR	•	Buc4	14	57X0463T	85.204.46.88:6080		Parking Place Detector	×	😰 Edit 🗂 Del
Weighing for LPR	•	CCR test	39	BRMAD680			Container Code Recognition	×	Color Color Color
Parking Place Detecto	or >	Entropos door	4	VAATHAMU			OD Code Decognition		
Area Counter	>	Enridice door	4	V4ATH4WU			GR Code Recognition	•	Es edit 🛄 Dei
Container Codes	>	Exit door	5	W17IQCIO			QR Code Recognition	×	💽 Edit 💼 Del

In the new window, fill in a new name for the camera, and from dropdown menu in Camera Type (Tip de camera), choose License Plate Recognition - Video files processing.

metricí scourate recognition	¢€ Global settings ♀ Locations & Cameras ➤ Add camera for location Bucharest
Find Q	Name:
LPR >	Authkey (autogenerated): 8UV35ME7
뫲 QR Code ›	Camera URL:
P Parking for LPR	Open barrier UBL:
\$ Toll station for LPR	Camera true: License Plate Brecontion - Default
فه Weighing for LPR	License Plate Recognition - Default
🖨 Parking Place Detector 🕨	Ubtuscate images: Container Code Recognition
🕻 Area Counter 🔷 🔸	S Cancel Percegnition Parking Place Detector
🖧 Container Codes 🔹 🕨	License Plate Recognition - Parking License Plate Recognition - Toll Station
8 Thermal Analyzer >	License Pate Recognition - Weighing Station Anno Control - Merging Station
Visitors Journal	Thermal Analyzer
External event receiver	ID card reader
📽 Global settings 💙	License Plate Recognition - Video file processing
Application settings	
Cron jobs	
🏜 Users Administration	
🛗 Time tables	
Locations & Cameras	

Save the settings. Please remember that you will need the authkey and the ID camera gets from Metrici when is introduced in the Interface. These will be filled-in the engine settings in the Control Panel.

In fact, the next settings will be done in Metrici Control Panel. So add a new camera in Control Panel- see also chapter 6.



ID	Name	App t	ype CPU core	LPR	Use GPI	ų	Log level	Status	Load
)	Birou-poarta	Area Cour		LPR Plus	^	RT	Medium	Started	9%
10	JP1	Area Cour	10	QR Code		RT	Medium	Started	3%
11	JP2	Area Cour		Container Code		RT	Medium	Stopped	0%
12	Paso	Parking Pl	Name:	Parking Place Detector		RT	Medium	Stopped	0%
13	Tulcea	Area Cour	Application type	Area Counter		RT	Medium	Stopped	0%
4	Thermal1	Thermal A	CPU cores:	Line Counter		RT	Medium	Started	7%
15	Birou-curte	Area Cour	Execution type:	Thermal Analyzer		RT	Medium	Started	4%
16	Birou-usa	Area Cour	Use GPU	ID card reader		RT	Medium	Started	1%
17	Snapshot1	Snapshot	Log level	Snapshot			Medium	Started	5%
18	LPR Pedder	LPR Plus	Output type:	Normal	J	RT	Medium	Started	13 %
19	LPR-AUTOPENI	LPR				RT	Medium	Started	9%
20	Video file	LPR Plus		Cancel	Save	RT	Medium	Started	1%
21	Video file 2	LPR Plus	1	Foreground with watchd	[1] GeForce	RT	Medium	Started	1%

Click on Add button, bottom left. Choose a name for the camera and in Application type choose LPR Plus. Up photo.

In the engine settings, in LPR Input Stream, in LPR Input Stream Type choose Video File. Next photo



	Metrici LPR v6.6 Plus - Setting	Arecont MJPEG HTTP AXIS MJPEG HTTP	× _ ×
LPR input stream view	LPR engine working mode and Trigger IN LPR input stream LPR video file path: LPR video file path: Limit fps to (0 = unlimited):	AXIS MJPEG HTTP AXIS MJPEG RTSP AXIS H264 RTSP Bosch MJPEG RTSP DAHUA MJPEG HTSP DIVIOTEC MJPEG HTTP DIVIOTEC H264 RTSP Generic Camera MJPEG HTTP Generic Camera MJPEG RTSP Generic Camera H264 RTSP Generic Camera H265 RTSP	plate s list CC First seen Last seen Prb
NO	Companion stream Detection window Live view Reporting, Check action and Trigger OUT Plates Car tracking Countries Barrier and traffic light	Generic JPEG Picture HTTP HIKVISION MJPEG HTTP HIKVISION H264 RTSP Mobotix MJPEG HTTP Mobotix MXPEG HTTP Mobotix H264 RTSP Mobotix MOve H264 RTSP Novus MJPEG HTTP Novus H264 RTSP	
Disconnected Video file Companion stream view	GPS Weight scale Radar Hint: Leap to frequently used director [metrici@metrici counter]\$ ] ]Help 2Menu 3View	Pelco MJPEG RTSP Roseek RAW Samsung MJPEG HTTP Samsung H264 RTSP Sony MJPEG HTTP Sony H264 RTSP Uniview H264 RTSP Video file Vivotek MJPEG HTTP VLC MJPEG HTTP	About <u>Maximize Quit</u> C-\. 6RenMov 7Mkdir 8Delete

Then, in LPR Video File Path you will fill in the path to the folder where the engine searches for the files to analyze. in our next photo example, the path is home/metrici/counter, where 54.avi is camera's ID generated by Metrici in the Interface and the extension .avi shows that Metrici will analyze avi files. If mp4 files are to be analyzed the extension will be changed accordingly, but the ID remains the same.

But for a new installation, LPR Video file path will always be /var/www/metrici\_storage/ID.avi or

/var/www/metrici\_storage/ID.mp4



	Metrici LPR v6.6 Plus - Settings	×				- ×
LPR input stream view	LPR engine working mode and Trigger IN					
	LPR input stream		plate			
	LPR input stream type: Video file 💌					
	LPR video file path: /home/metrici/counter/54.avi					
	Limit fps to (0 = unlimited): 0	5	list	- 10		
			CC	First seen	Last seen	Prb
	Companion stream					
NIC.	Detection window					
	Live view					
	Reporting, Check action and Trigger OUT					
	Plates					
	Car tracking					
	Countries					
	Barrier and traffic light					
	GPS					
COMING	Weight scale					
Disconnected Video file	Radar					
VILLOTIC						
Companion stream view	<u>C</u> ancel <u>Save</u>	A	bout	Maximize	2	Quit

Then go to menu Reporting, Check Action and Trigger OUT and fill-in the authkey and the ID Metrici generated

Reporting URL:	http://dev2.me	trici.ro/io/lpr/reporting_	.event.php	
Check action URL:	http://dev2.me	trici.ro/io/lpr/check_act	ion_event.php	)
Check action minimum prob	ability (between 0.1 and	1.0):	0.6	
Send trigger at check action	to IP address:		UDP port:	0
	addition of the	E4014002		55

To effectively analyze a video record, go in the Metrici Interface menu LPR/ Video Files Processing.

If more cameras are introduced in the system choose the one you want to analyze a video record. From browse button, search the file you want to upload. Click save



and wait to reach 100%. Until final analyze, no other file can be uploaded for the same camera. See next photo.

No matter the name of the file, Metrici will change it in ID.avi or ID.mp4. After the video is done the extension will be changed again in a format ID.avi.bac. When another file will be analyzed, this one will be overwritten.

The engine will only analyze the type of files set in the Control Panel so make sure to upload that particular type, or change the settings accordingly.

Attention. The analysis is done in real time, so a 29 minutes file will be analyzed in 29 minutes. Also, remember that you have a limit of 2 GB upload for a file.

metricí accurate recognition	C MLPR  Video files processing	
Find Q	Camena: Test Dragos	
LPR     Vehicles     Vehicles	Upload file: Browse.	
Live view		
Actions     Alarms     Alares     Plates information	Video files processing status	
<ul> <li>Video files processing</li> <li>Settings</li> </ul>	Test Dragos 100%	
🔡 QR Code 🔸	Video file test 100%	

# **8.11 LPR SETTINGS**

You can set here some parameters for the LPR module, Minimum probability display is from what percentage up number plate is introduced in database. By default minimum probability is 0.6 which means a 60% probability.

Show original plate is an option to display the photo of the number plate as was seen by the system in the moment of detection.

In the next image with green circle we have the image from the camera and with red how the neural network recognized the number plate.



PLATE	Country	Date	Time	Location	Camera	Direction	Time Inside	Action	Info	D 086		00/207
P 9863 BT	BG	2019-07-03	11:40:03	Bucharest	Gate 1	↦	-	-	-	P 900.		7063 81
R 1 cars	■ 1 unique cars							« 1	н	R.		
										Events for P 9863 BT	😭 Today (1) 🚔 Th	s Week (1)
											This Month (1)	
										Options for P 9863 BT	+ Add to actions list	Export PDF

Delete plates after (days) is the time interval for which number plates are stored in database. 0 means the number plates/ detections are kept forever.

In this menu you can also edit the locations and cameras you manage for LPR in General Settings.

ognition 🚨 👻 <	mai 100									
Q	UN LPR	Locat	ions & Camera	s • view location e	ucnarest					- Add ca
	Cameras	ID	AUTHKEY	Camera URL	Open barrier URL	Camera type	Direction type	IP Lpr Engine	App ID Lpr Engine	Actions
	Back entrance	6	57W2KQSF	http://google.ro	http://dev2.metrici.ro/open	License Plate Recognition - Default	Decided by the LPR engine		N/A	🖬 Edit 📑 De
	Back exit	7	QIC28288		http://192.168.1.100	License Plate Recognition - Default	Decided by the LPR engine		N/A	🕑 Edit  📋 De
	Gate 1	1	TX8343V2		http://www.google.ro	License Plate Recognition - Default	Decided by the LPR engine	93.113.6.37	0	🕑 Edit  📋 De
	Gate 2	2	0N2740F2	http://www.k.ro	http://www.google.ro	License Plate Recognition - Parking	Decided by the LPR engine		N/A	🕑 Edit 🛛 📋 De
n	Mobile	32	A6MP4C08			License Plate Recognition - Default	Decided by the LPR engine		N/A	🕑 Edit  📋 De
	Service road 1	10	YR9BG147		http://dev2.metrici.ro/open	License Plate Recognition - Default	Decided by the LPR engine		N/A	🕑 Edit 📋 De
	Service road 2	11	R3J55E1Q		http://192.168.1.100	License Plate Recognition - Default	Decided by the LPR engine		N/A	😰 Edit 🛛 🧃 De
	Test Dragos	34	D61G34VN	http://google.ro		License Plate Recognition - Default	Decided by the LPR engine		N/A	🕑 Edit  📋 D
PR	Test Dragos1	37	LF637N06			License Plate Recognition - Default	Always coming		N/A	😰 Edit 🛛 🧃 De
2	Toll station	18	D25B3BE9			License Plate Recognition - Toll Station	Always coming		N/A	🕑 Edit 🛛 🧃 De
ector	Transit 2	9	0706W9Y7			License Plate Recognition - Default	Always coming		N/A	🕑 Edit 📑 De
	Weighing	21	434Y82WT		http://dev2.metrici.ro/open	License Plate Recognition - Weighing Station	Decided by the LPR engine		N/A	🕑 Edit 🍵 De

When selecting a location, a list will be generated with all the cameras introduced in that location, as in the image above

Click on a camera name to access its menu, as in the next image.





metricí accurate recognition	<b>≗</b> - <
-ind	Q
🗖 LPR	
Cars	
Live view	
Let Reports	
Actions	
Plates information	
- 🕸 Settings	
🗜 QR Code	
P Parking for LPR	
\$ Toll station for LPF	2
💁 Weighing for LPR	
🖨 Parking Place Dete	ector
<b>[]</b> Area Counter	
🕸 Global settings	

You can se set here some parameters.

#### The name of the camera

You can also see the **authkey** (authentificatiion key to communicate with **Control Panel**).

Camera URL: is the IP address of the camera which delivers the videostream.

**Open barrier URL** is useful in LPR application to open a barrier from Live view, with just a click on the image. You can set here the IP address for the barrier connected to this particular camera. A camera can only open/command only one barrier. In fact, the communication is not with the barrier, but with a LAN controller which commands the barrier.

**Direction Type:** This option is overwriting the direction information from detection engines. The setting options are **Always Coming, Always Leaving and Decided by LPR Engine.** 

These options were added for the situation in which the detection is decided by trigger from an inductive loop for example. So, when Metrici is trying to detect license plates, the vehicle is probably stopped. In this situation, Metrici can not calculate which direction that car is going. Metrici detects the direction of movement by analyzing the differences in two successive frames. If the car just stays Metrici can not detect direction.



So this setting was introduced as a way for Metrici interface to rightfully calculate the car flow in and out of a parking. If the setting is **Always Leaving**, Metrici will know that any successful detection means a car is leaving the parking and will increase the number of free parking spaces in that location.

The next settings refer to the possibility of an image snap when opening a barrier from Interface. Usually if a barrier is opened from interface, the event is recorded in database but no image is saved for that event. Next settings come to remediate that problem.

**IP LPR Engine** is the server's address on which the Control Panel is active. It can have the form localhost, or an IP adress as 192.168.1.1, for example.

**APP ID LPR Engine** will be copied from Metrici Control Panel. When a camera is introduced in the system it automatically receives an ID in Control Panel.

**APP ID** for each camera is the first column of the left in Metrici Control Panel, as in the next image.

			Metrici	Control Panel v3.3					×	
SE	NTINEL key is active, 32 I	licenses enabled.							C	V
6	Name	App type	CPU cores	Exec type	Use GPU	Log level	Status	Load		n
	ВЈ	Parking Place Dete	1	Background with watchd	[1] GeForce GT	Medium	Started	14 %		
1	B1	Parking Place Dete	1	Background with watchd	[1] GeForce GT	Medium	Started	12 %		
2	TEM	Parking Place Dete	1	Background	[2] GeForce GT	Medium	Stopped	0 %		
3	KOP	Parking Place Dete	1	Background with watchd	[2] GeForce GT	Medium	Started	13 %	ist seen	Prb
4	BJ-LPR	LPR / ANPR	3	Background with watchd	[2] GeForce GT	Medium	Started	2 %		
5	ELK	Parking Place Dete	1	Background	[1] GeForce GT	Medium	Stopped	0%		
6	QR USER	Parking Place Dete	6	Background	No	Medium	Stopped	0%		
7	PARK LAKE	Parking Place Dete	1	Foreground	[2] GeForce GT	Medium	Stopped	0%		
8	Cluj	LPR / ANPR	3	Foreground with watchd	[1] GeForce GT	Medium	Started	13 %		
9	Birou-poarta	Area Counter	1	Background with watchd	[1] GeForce GT	Medium	Started	15 %		
10	) Birou-spate	Area Counter	1	Background with watchd	DI CeForce CT	Medium	Started	17.%		



For a succesful functionality, some more settings have to be done: you select **Metrici Virtual Trigger** in Metrici Control Panel. For this, pick a camera, set it in **Foreground with watchdog** and access its settings.

For LPR Engine Working Mode and Trigger In tab, select Working mode Started by trigger. In the dropdown menu for Trigger device and Type choose Metrici Virtual Trigger, as in the next image.

	Metrici LPR v6	2 - Settings	×				×
LPR input stream view	LPR engine working mode and Trigger IN			-			
ET MILLE	LPR engine working mode:	51	arted by TRIGGER -	olate			-
1-116	Trigger device and type:	Metrici Virtual Trigger	▪ UDP port 3508	24	071	זער	
	How many seconds to analyze after the trigger is re	ceived:	1	17	5/6	770	
	Enhanced recognition mode:			104	188 px		
- <u>-</u>	LPR input stream			CC	First seen	Last seen	Prb
	Companion stream			RO	14:06:44	14:06:45	1
En E	Detection window			RO	14:06:45	14:06:46	1
AB-0)	Live view						
Contraction of the second seco	Reporting, Check action and Trigger OUT						
Contraction of the local division of the	Plates						
7 сомина	Car tracking						
	Countries						
	Barrier and traffic light						
	GPS						
	Weight scale						
Connected AXIS H2	Radar						
Companion stream view		<u></u>	ancel <u>S</u> ave	bout	]		Quit

If all settings were properly done, when opening a barrier from liveview in Interface, a trigger is sent to the LPR engine and a photo capture will be saved in database for that event.

#### Press Save button when done.

**Border Camera-** with two options- yes or no. A border camera is usually installed in a parking lot and this type of camera is the only one who is allowed to increase or decrease number of free places inside the parking lot. For example, the border cameras are the ones at the barriers. If any other cameras are installed throughout the parking lot, you will set them as border cameras – no. There are parking lots where, for



example, cameras are installed in strategic points around the parking lot to guide drivers.

# 8.12 RED LIGHT INFRINGEMENT &SPEED

Keep in mind that this menu works only when you have a companion camera linked to the LPR detection one. This camera should watch the face of a traffic light in ful view- not obstructed by any other object!

When RED LIGHT INFRINGEMENT menu in left column is chosen, a new filter menu appears on top of the page, where you can filter cars crossing on red light or not.



If you choose yes, you will see only car that did not stop on red light of a traffic light. This option is only available to LPR Plus module and can be activated when you have a companion camera working with the LPR one. For this menu to work you will make a detection area around the traffic light in your companion camera stream in Metrici Control Panel and Metrici will permanently see what color the traffic light is and will "inform" the LPR detection engine. When a detection is made and the traffic light is red, the event will be saved in database as a RED LIGHT INFRINGEMENT. Also keep in mind that the LPR detection area should suppose to be past the traffic light.

The Speed menu works in the same way, but when a Metrici Controller Radar is connected to the LPR engine, any LPR event will have a speed attached to it that could be filtered in the Interface the same way as red light ones.



### Chapter 9

### ADD-ON: PARKING MODULE FOR LPR

The parking module adds some features to the basic LPR. Among the features introduced by Parking are: possibility to create tenants and subtenants, possibility to reserve parking spaces for them, manage a location by floors or sections.

Be aware that to have the settings for Parking module visible in the interface, you must first introduce at least one camera in General Settings/ Locations and Camera as camera type Parking for LPR. You will also need a valid Metrici license.

### 9.0 GENERAL PRESENTATION AND FEATURES

Some other features are common to all LPR modules, some are dedicated to this specific module.

- The module allows defining the total parking spaces in a parking lot. The system calculates the number of occupied spaces and can command a traffic light or a display when the parking is full, or almost full at a capacity of...
- An unlimited number of spaces can be managed
- The parking can be organized in sections or stories and each one can be managed individually
- It can display total number of free parking spaces by stories or sections, if it is the case, and some other customized messages on a LED display
- It keeps track of the cars, free spaces, busy spaces, total. Any of this information or some others from Metrici can be sent to a LED display
- A user can define an unlimited number of timetables and pricing units, by the hour, half an hour, daily, fixed price, one pass etc.



- A timetable can be set to deny access in the parking between certain hours, or after 10 PM, for example.
- A time interval can be set in which a client who entered a parking can exit without pay(15 minutes, 2 hour etc)
- Integration with cash registers
- A user can set the mode for pricing roundup (up or nearest value).
- A time interval without pay can be defined. In this time interval, a visitor can exit without limitations.
- It automatically calculates time spent inside, total value to be paid and can deliver a receipt. Automatic calculation of the receipt is based on the timetables the manager sets: e.g. a differentiated price for day/night, week days/weekend, work hours or not. Depending on the time and interval spent inside, the system will generate a receipt. Any customized information can be printed on the receipt.
- The barrier can also be "manually" opened from live view the event is recorded in database.
- It supports an unlimited number of operators, LPR cameras and cash registers. Each system operator can have its own administration rights.
- It supports defining groups and vehicles with subscription and free access.
- An unlimited number of tenants can be defined in interface. Each one of them can have their own interface in which to manage the car fleet, access program, access list. Each tenant can organize his own subtenants- for example a company can give a number of spaces to each of its departments, from there to each subdepartment. The numbers of levels of definable sub rentals is unlimited.
- The administrator has access to reports regarding the traffic, the payments, top cars, number of cars daily, monthly, number of cars at each camera, peak hours etc.
- The reports can be exported in PDF or XLS format.
- The system calculates time between 2 consecutive detection for each number: e.g. time spent inside, time on track, last events in the last day, week, month.
- Preserve tenants spaces: this option is to be used in parking lots when you want that parking spaces for the tenants to be always available for them and not for the other clients even if they are not occupied. Even if not all the



spaces for the tenants are full, the software will not include them in the calculation for available spaces if this option is checked.

- The system lets the user set special access lists: White list. The cars on this list can have a different statute: open barrier, free access, no charge.
   Possibility of a Black list: when a plate on that list is detected, the system will send an alert – email, SMS, pop-up.
- The system grants access in the parking based on a SMS which contains the license plate number. As a security feature, the number which sends the SMS must be on the white list for the phone numbers accepted, as in which can grant access to someone inside the parking. As a customized feature, this also could be integrated as a payment method.
- Alarms features: Alerts by e-mail or SMS when an event occurs: a certain number is detected, or a car stays more than x hours in the parking.
- Any number in the database can have special setting: for example the timetable in which can have access, the entrance where is free to enter etc.
- A detection window can be set.
- An ambient camera can be set along the LPR camera and the images from the two cameras are linked and both are saved in database. The user can have a larger image from the moment of detection or from a different angle, with the face of the driver etc.
- The system can function continuously or at trigger: inductive loops, radar, sensors.
- Also, a time interval can be set for a client to exit after he paid.
- Parking management with the interface from anywhere in the world and from any device (smartphone, computer, tablet) with internet access through the dedicated site.
- Special privilege for vehicles or group of vehicles which can have access free of charge.
- Search filter din database by number plate, location, date, camera, country, group.
- Integration with external systems and databases.
- Logs: Metrici saves information about the communication with external systems. In case of a malfunction, a log file can be accessed to fix the problem. Metrici keeps track of all the changes of a user.



### 9.1 SETTINGS

accurate recognition	P Parking >	v location Bucharest			<b>G</b> * View Location Global Settings			
Find Q								
	Parking Settings	Edit parking settings						
🛱 QR Code		Value:						
P Parking for LPR		Parki	ing spaces		999			
🙆 Dashboard		Ca	rs inside		2			
🖽 Billing		Free minu	ites after arrival		0			
Let Reports		Charge free min	nutes if staying longer		×			
ter Settings		Minim	num charge		0			
\$ Toll station for LPR		Rounding method						
Neighing for LPR		Grace minut	tes after payment		7			
🖨 Parking Place Detector		URL to trigger	when parking is full		http://google.ro			
😂 Global settings		URL to trigger when	parking lots are available:		http://yahoo.com			
		Seconds to	suppress action:		10			
		Receipt	s expire after:		30			
		Show	open barrier		~			
		Show pri	ice differences		×			
		Preservet	tenants spaces:		×			
	Zones				+ Add new zone			
@2018 Metrici Version 2.0	Zone name	Total Cameras	Parking Spaces	Cars Inside	Actions			

Click on the upper right green button Edit Parking Settings to modify the values of your parking.

- Parking spaces: total number of places that are inside the location
- **Cars inside** are numbers of cars that are already inside the parking when the parking module was activated. This number modifies live, but you can manually alter that number for the system to keep a correct count down. You can also empty the parking from this menu when you want. Or just add new numbers according to your needs. Be aware that if a vehicle leaves the parking without being registered or detected by Metrici, this will be considered as inside. When the parking is considered full by Metrici, it will no longer open the barrier. A parking might be in this situation if a barrier is open by remote control or even from Metrici Live View without writing the license plate and the direction.
- Free minutes after arrival- is a time unit in which a car entering the parking can exit without pay



- Charge free minutes if staying longer is an option that if checked will count as paying time even the minutes defined in the prior step and will be added to the amount to be paid
- **Minimum charge** is the minimum amount of money a client will pay no matter how long he stayed
- **Rounding method**: There are two methods for rounding a sum to be paid: Ceiling and nearest value. Ceiling is suppose for the system to calculate the sum to be paid always to the highest value. For example, a 2 hours and 15 minutes stay will be charged as a three hour stay. The nearest value will round up low or high, as it is the case. For example a 2 hours 29 minutes stay will be calculated as a 2 hours parking, and a 2 hours 31 minutes stay will be counted as a three hours parking.
- **Grace minutes after payment** is a time interval in which a client can leave the parking after he paid.
- URL to trigger when the parking is full is the address of a hardware device to be accessed when there are no more spaces in the parking. This can be a LED Display, a traffic light, a barrier etc.
- URL to trigger when parking lots are available is an IP address of a hardware device to be accessed when there are free spaces.
- **Receipts expire after** is the time interval in minutes in which a receipt is valid- in minutes.
- **Show open barrier** when checked a button to open barrier appears on screen on liveview
- Show price differences when checked is a useful feature for when a client pays but will not exit in due time (in the time we set at the menu Grace minutes after payment). When this option is active it will display a total amount to pay and the difference between what he already paid and what owes next.
- Display Text: The code written here tells a Metrici display what information to show for that specific location. Here you will also find the URL you will fill in the display for it to know where to look for information. This will have a form such as <u>http://IP\_OF\_THIS\_SERVER/io/Ipr/location\_display.php?id=1</u>. More information on this subject you can find in displays' users manuals
- In this menu a user has also the option to empty the parking. In case this button is clicked Metrici will count from zero- will consider there is no car in the parking and will display all the places as free.



• Seconds to suppress action is a time interval for a location in which an action will not be executed, even if set in the interface. It is in fact a time interval in which a number plate is ignored. This is useful in locations in which a car is seen with one camera and then almost immediately after by another camera so not to open the barrier twice for example. This settings is to be found on LPR/Settings. Clik on Edit button to set how many seconds an action to be ignored.

# 9.2 ZONES

A zone of a parking lot can be a story or a section of a parking. In cases, you have zones in your parking, Metrici will keep track of the places free/busy for each one.

Click on a zone name or on Edit button to modify the data for a parking zone.

metricí accurate recognition	P Parking >	Edit zone Etaj 1
Find Q	Mana	Ptoi 1
CM LPR	Name:	15
📲 QR Code	Cars Inside:	0
P Parking for LPR	Display Text:	#RBUSY #BSPACES3
€3 Dashboard Billing		#GFKEE #FSPACES3
Let Reports     @ Settings		Codes that you can use for your display are are shown below: #Y= yellow #R= red
\$ Toll station for LPR		#G= green #TSPACES= Total number of parking spaces #BSPACES= Number of occupied parking spaces
▲ Weighing for LPR		#FSPACES= Number of free parking spaces
🖨 Parking Place Detector	S Cancel	Z Save modifications
<b>ଙ୍କି</b> Global settings		

Choose a name for your zone, as Story 1 or Section C, for example, allocate a number of parking spaces. When creating the zone, at Cars inside menu you write the number of cars that are already in that zone.

Display text is the text that will be shown on Metrici LED Displays where

#RBUSY #BSPACES3 will display in Red a text as BUSY 385 (where 385 is a number got in real time from Metrici database).



# **9.3 CASH REGISTER**

Click on the green button Add New Cash Register to add a cash register. A cash register is only linked to a camera.

When new cash register is set, choose a name. Default item name is the name to be printed on the receipt – for example " Parking Tax Mall Promenada"

Receipts expire after is the time interval in which the receipts are valid .

If more parking prices are defined (see next chapter), when charging a number plate more options appear as in the next image. You just choose the correct one fro that particular vehicle.



# **9.4 PARKING PRICES**

You can set here as many parking prices as you want.

Click on Add price button to add a new price



accurate recognition	P Parking > ③ Settings > View location Bucharest >	Edit price
Find Q	Name:	1 ora
C1 LPR	Price:	5
🖁 QR Code	Time table:	All the time
P Parking for LPR	Parking price type:	Hourly price
🙆 Dashboard		
🗎 Billing	S Cancel	C Edit parking price
- 19 Settings		
\$ Toll station for LPR		
💁 Weighing for LPR		
🖨 Parking Place Detector		
<b>ଙ୍କଂ</b> Global settings		

Choose a name for it, what is the sum and the time table for this price. The price will only be applied in this time table.

Parking price type can be hourly, half an hour price and one-time. Hourly will calculate that price per each hour of stay, half an hour price will calculate the price for each half an hour of the stay, where one time is a fixed tariff no matter how long a car stays in the parking.

If you have a parking that has differentiated tariffs for weekdays and weekend, for morning or over night, you will have to do first a timetable for that time intervals. Then you go to parking prices and define the prices for that periods (hourly or onetime).

# **9.5 TENANTS**

The tenants are a group of people/vehicles that have some things in common. As for example, a big office building can create a tenant for every company in the building that rented space. Or a factory can create tenants for every department and so on. At its own turn, a tenant can create its own subtenants and so on to unlimited levels.

The only condition that you have to respect is to be careful that the subtenants doesn't have allocated more parking spaces than its "parent".



Add a new tenant by click on the green button.

metricí 🔹 🗸		
accurate recognition	P Parking > ③ Settings > View location Bucharest >	Add new tenant
Find Q		
	Name:	
C1 LPR	User:	me@metrici.ro
🖫 OR Code		
	Password:	
P Parking for LPR	Parking Spaces:	
🖓 Dashboard		
🗏 Billing	Preserve Tenant Spaces:	
Lut Reports	Tenant parent account:	None
- 🚱 Settings		
\$ Toll station for LPR	S Cancel	+ Add new tenant

Choose a name for it which will be displayed in Metrici Interface. The user and password are the sign in credentials with which this tenant will access his own interface to manage his number plates and other data.

By default these data are filled automatically with the users credentials that creates the tenant, but can be different.

Allocate a number of spaces for that tenant and choose whether or not these parking places will be reserved by checking "Preserve Tenant Spaces" button. In this case the number of spaces allocated to this tenant will not be counted for everyone and will not be displayed as such but will always be reserved.

Also keep in mind that if a tenant has, let's say, 10 parking spaces, but has a list of 15 cars that are allocated to him, after the first 10 enter the parking, the barrier will not open for the remaining 5 even if there are spaces available in the parking. Other of tenant's vehicles may enter as his cars from inside the parking start to exit, so that he will not have more then 10 cars at the same time inside the parking lot.

Tenant parent account: if this is a subtenant for another tenant, choose who the tenant parent is.

Click on Add new tenant when ready.

# 9.6 DASHBOARD

Will display some graphics and information as the next picture



metrici ± -	FILTER	LOCATION	* <b>OK</b>						
nd Q									
C# LPR			C PARKING OVERVIEW					Today payments	
SE OR Code			PARKING SPA	CES				Payment type	Amount
P Parking for LPR			999					Cash	0
@ Dashboard			CARS INSIDE					Cand	0
Billing La Reports Billing Settings Toll station for LPR Billing Weighing for LPR Ring Place Detector Clobal settings			2 FREE SPACES 997 In TENANTS Tenant name	Parking spaces	Cars inside	-0.2% occupied Free spaces	Occupied	Total amount	0
			Dregos (dragos1)	12	0	12	0 %		
			Dragos Ianou Gabriel (idragos)	110	0	110	0%		
			Dregos lencu111 (dregos111)	140	0	140	0%		

Total number of spaces defined in the parking lot, how many are busy and how many are free.

Also, the information about tenants will show how many spaces each tenant occupied.

On the right there are info about the financial records of that day.

# 9.7 BILLING

This menu is useful when a car wishes to leave and it has to pay. The menu is also useful for when the number plate is not visible. There are two lists of cars in this menu. Cars that are inside the parking and cars that already paid but haven't left the parking lot.

For the data to be shown in this menu, please select location, and cash register which will be used to bill the car.

The menu show info about the cars that are already inside and can be billed. When click on a number plate a window like next one will open, with all the options for payment available.



metricí	Darking ) 🖾 Billing ) 🖬 Char	ne plate: R222BBR				
Find Q		e plate. 0222000				
	Entrance time	Current time	Time Inside	Already charged	-	
31 LPR	2019-09-27 12:38:56	2019-10-09 14:41:06	12d 02:02:10	Already charged	B22	2BBB
🖁 QR Code	Open barrier: 🗧 Open barrier for Entra	nce → Open barrier for Exit				
Parking for LPR	First charged at	Current time	Time insid	e from first charge		
🐵 Dashboard	2019-10-08 19:36:27	2019-10-09 14:41:06	0	d 19:04:39		
🖽 Billing						
🖽 Reports	Information:					
Settings	Payment method:	Cash		•		NOIMAGE
Toll station for LPR	· · ·					
Weighing for LPR	Charge 100 Pay by time ©					
Parking Place Detector	Charge 4 Charge 5	Charge 20 Charge 30	Charge 100 Big Truck	Charge 120		
Global settings	Charge 140	Vall	big huck	Bus	Events for	
	Big bus				B222BBB	Today (U) 📰 This Wee
						This Month (0)

The system automatically calculates how long the car stayed in the parking and the amount to be paid if there is an hourly price.

If it is a one-time tariff, choose the appropriate one. All prices are color coded.

The information field is what to be printed on the receipt, besides the usual data (for example a company name or a Tax Identification Number).

Method of payment is cash or card. Choose the appropriate one for the cash register to properly function.

The red **Drop** button button will "take" the car out of the parking and the number of free spaces is automatically incremented by one- in fact the vehicle is simply discharged from the system. This is useful when a car left and the system didn't see it or the cameras didn't work etc.

The blue buttons **Open barriers for exit** and **Open barriers for entrance** are optional are to be used when the cash register is at the barrier and the operator can manually open the barrier. If the barrier is at another location, the barriers will be open automatically when a number plate is recognized and the system knows it already paid. The car at the barrier must be in the established grace minutes.

If the car won't leave the parking in the time set in "grace minutes after payment", the barrier will not automatically open at the exit. A new bill will must be issued for that vehicle to may exit.



### 9.8 LIVE VIEW

This menu allows to see a flow in real time of cars entering or exit a parking from a camera or all cameras in location. When a license plate is detected, an operator can manually open a barrier, from the tab on the screen. Also some additional information are displayed, such as the tenant (if it is the case) and how many parking places has available for it and if access is granted.



### **9.9 PARKING REPORTS**

- **Amount each day** will display how much was collected each day of the current month or another time interval chosen from the filters.
- **Amount each** month will display a monthly financial report.
- **Receipts** will display a list with all the receipts printed by the system for the chosen time interval, along plate number, a time stamp, location, cash register, payment method and value.
- **Cars inside** includes a list with all the cars that were detected entering a location, but haven't left yet. For each number plate there are displayed information about the location, the arrival time, current time, time spend inside in days and hours.



Parking events is a list with all the events registered in the selected location as in the next image

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encorate recognition	T LOCAT	TION DATE			A TROPUG				
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DILPR									
III OR Code	Plate Number	Information	Country	Coming Day	Curning Hour	Leaving Day	Lerving Hour	Time Inside	Value
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en cara incide	D 120 L07		RD	2018-02-26	95.58	2013-32-26	1216	Od 85:17:50	0
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() Settings	8 281 000		80	2019-02-25	87.06	Unknown	Unknown	Unknown	0
\$ Toll station for LPR	0.062510		RD	2019-02-25	17:17	Usknown	Unknown	Unknown	0
Weighing for LPR	10 242 Alt		RD	2019-02/26	87.29	Unknown	Unknown	Unknown	a

### CHAPTER 10 ADD-ON WEIGHING STATION MODULE

# **10.1 SETTINGS**

The weighing module is a complete autonomous way to do the weighing with no human intervention. The module allows access on the scale and off the scale based on a predefined list. Also emits alerts when the weighing difference is bigger than an established percentage.

Usually, this module is integrated with three sensors, barriers, a green light/traffic light and the weighing station itself.

In order to do the setting to this module, you must first introduce at least one camera dedicated for Weighing Station Module.

Go to Global Setting/Locations and Camera and make a location or choose an existing one and add one camera. Choose Camera Type as "License Plate Recognition - Weighing Station"



When you return to Weighing module you will notice in settings the cameras introduced as for this purpose.

Click on view button for each camera to edit the settings.

∰ Weighing → <sup>®</sup> Settings → View location Bucharest	✔ View Location Global Settings
Weighing Settings	(2) Edit weighing settings
Name:	Value:
Company Information	sadsad sdfdsfds fdsf
Difference which triggers an alert:	20%
Send weighing alert to e-mail address:	

In the next window, choose Edit Weighing Setting green button, on upper right (see picture above).

Company information is the data that are printed on a bill, in case this module is integrated with a cash register.

**Difference which triggers an alert** is the percent to which an email will be sent when the cargo has a weight difference of plus or minus.

Send weighing alert to email address is where the alarm is sent.

### **10.2 ADD EVENT**

In order to benefit of these you need to add events to your weighing calendar. Go to Events and click on ADD PLANNED EVENT

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#### METRICI LPR 3.0 v2.2 User Guide

In the next window (see picture below), you will fill in the plate number of the vehicle that will be weighed. You also add the dates for arrival and departure. It is not a problem if arrival hour and departure hour are not really well known, but the day is of most importance.

You also add how much weight the vehicle is suppose to load. When all these data are filled in, the plate number is introduced on a dedicated Action List for weighing.

Metrici will allow access on the scale when the vehicle is detected and opens the first barrier. Then it waits for the weighing to stabilize, records the weight which is filled in a color coded event list – this is the empty weight.

Usually a series of sensors connected to Metrici will indicate the driver how to position the vehicle and lights a green light when the position is right.

After that, Metrici will open the second barrier to allow the vehicle to leave the weighing station and enter the location.

At the departure, the vehicle is weighed again and Metrici calculates the cargo weight. If the difference is bigger than a predefined percentage, an alarm is initiated.

It is very important the vehicle to follow the steps, as if one is missed, the actions can not be completed

Weighing Event Details	
Plate Number:	
Planned Arrival:	2019-03-12 00:00:00
Planned Departure:	2019-03-12 23:59:59
Cargo Weight:	
Before Notifications:	
⊗ Cancel	✓ Save

On the Dashboard menu you can see a list of events for that day, for the week or for a certain period of time.

This is the automated work flow for Weighing module.



METRICI LPR 3.0 v2.2 User Guide

Keep in mind that a vehicle will be able to enter the location only on the date we set in planned events. If it arrives a day before or the next day, for example, the car will be ignored and the barrier will not open.

### CHAPTER 11 ADD-ON TOLL STATION MODULE FOR LPR

# **11.1 SETTING**

The toll station module is a dedicated interface for managing businesses that suppose to base on charging vehicles based on types, for example.

As for any other module you must first add at least one camera as License Plate Recognition - Toll Station type.

For this go to Global Settings/Locations and Camera choose a location or create one. Add to this location a camera for toll station.

Now go to Toll Station for LPR settings and you will see here the cameras you added and the locations.

Clck on View green button to edit your settings or click on location's name.



# **11.2 EDIT LOCATION**

Click on Edit toll station setting where you have two options - see picture below.

**Show open barrier** lets a user open a barrier from live view when active. Otherwise the button will not appear on screen.

\$ Toll Station > <sup>(2)</sup> Settings > View location Bucharest	Edit toll station settings for this location
Show open barrier:	Active
Show price differences:	Active
<b>⊘</b> Cancel	Edit toll station settings

# **11.3 CASH REGISTER**

In order to benefit of the full potential of Toll Station module, you need an installation with cash registers. As many cash registers as you want can be integrated with Metrici.

When adding a new cash register choose a name for it to better identify it in your list.

Default item name is the name of the "product" that will be printed on the bill.

Receipts expire after means that a payment allocated to a number is valid the time period you mention in this field. In that interval, a vehicle can pass and barriers open automatically

You will fill in THE MINUTES the receipts are valid so a 24 hour validation will mean 1440 minutes for example.

Name:	Gate 8
Default item name:	Toll Station Arad
Receipts Expire After:	240
⊗ Cancel	+ Add cash register to location

After all data are filled in, click on Add cash register to location.



# **11.4 TOLL STATION PRICES**

You may add as many prices as you want to your location. You can also choose to what time table this particular price it applies to.

\$ Toll Station > ③ Settings > View location Bucharest	Add new price
Name:	Moto
Price:	10
Time table:	Work time
Toll station price type:	One-time
⊗ Cancel	+ Add toll station price

If you have differentiated prices for different categories of vehicles and also according to timetables, you will create more prices for each category of vehicles and each time table. For example you can have a time table weekend and one week days. So every category vehicle will have two prices defined: one for weekends and one for the days of the week.



# **11.5 REPORTS**

**Amount each day** will let you see a graphic with the sums billed each day of a search interval.

**Amount each month** will generate a graphic with the sums billed each month of a search interval

**Receipts** will display a list with all the bills emitted during a time interval we select. The list will include for each bill: plate number, information (if any), Receipt day, Receipt hour, Receipt ID, Location, Cash Register, Payment Method and Value. See picture below.

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# **11.6 BILLING**

This menu acts in fact as a Car Flow/live view for Toll module. This includes a list of active receipts, meaning receipts that were printed and have not expired. After a receipt is no longer valid, it will disappear from this list.

When in billing, a user can emit receipts by click on a button. A user can also open a barrier from live view by click on the Open Barrier green button.

Metrici requires to write a motivation for opening the barrier from live view. This will be kept in database to be consulted later, along a snapshot from the live image.



# **11.7 DASHBOARD**

In this menu you will see a list of the activity for the day as a Total Receipts, Active and Validated

The active receipts are the ones that are already in use. Validated are the one that expired.