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USER GUIDE

METRICI LINE COUNTER

CHAPTER 1 PRESENTATION

Line Counter (LC) is a dedicated tool developed by Metricí to manage detecting and counting different objects in a video stream that pass a virtual gate.

Metricí LC is meant to help fix and manage problems in security, trespassing, traffic, parking, retail.

As any Metricí software, this module is separated in two. On one hand, there is the **Metricí detection engines**, all set in the **Control Panel**, where general settings for the IP cameras are situated and on the other hand there is a **Web Interface** which can be managed on any device, with a user friendly interaction and control tools.

Metricí Web Interface will let you see, change, manage and watch all the cameras and parameters and all events in a location, generate groups, alarms, time tables, introduce new user or change other, change status etc.

Any number of cameras and locations can be managed from same interface with different administration rights for any user.

Metricí works under CentOS 7 operating system so first of all you need to install it on your machine.

CHAPTER 2

CENTOS 7 INSTALL

The procedure for installing Metrici is the same no matter what module and 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.

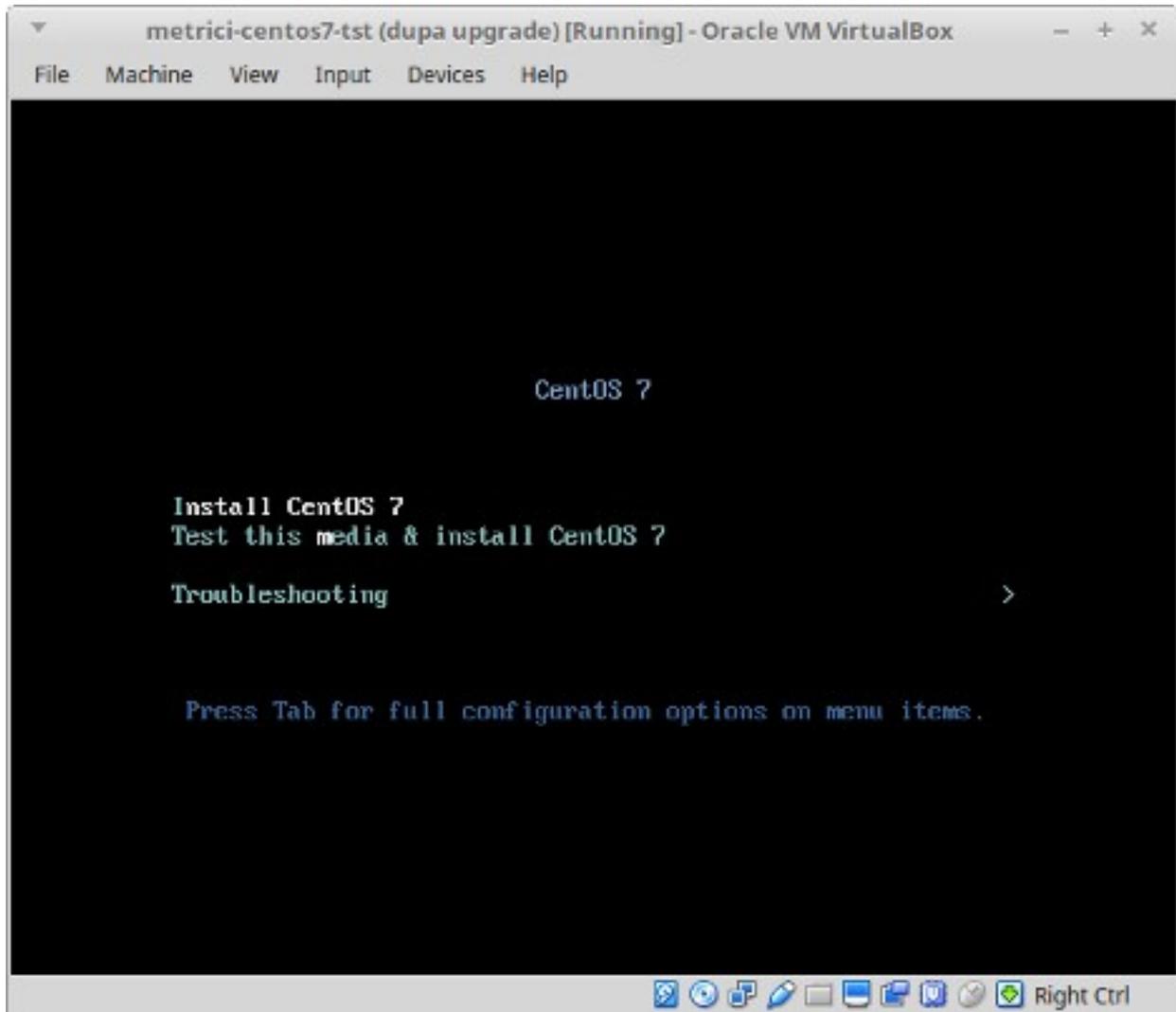
REMEMBER! For installing CentOS 7 and Metrici LC, it is mandatory to have internet access, but only during install. After that, the web access is no longer mandatory and Metrici can work offline. This is due to the fact that some packages for install are taken from international secured server sources.

Download the image for CentOS: you can find the operating system on Metrici site at http://support.metrici.ro/operating_systems/

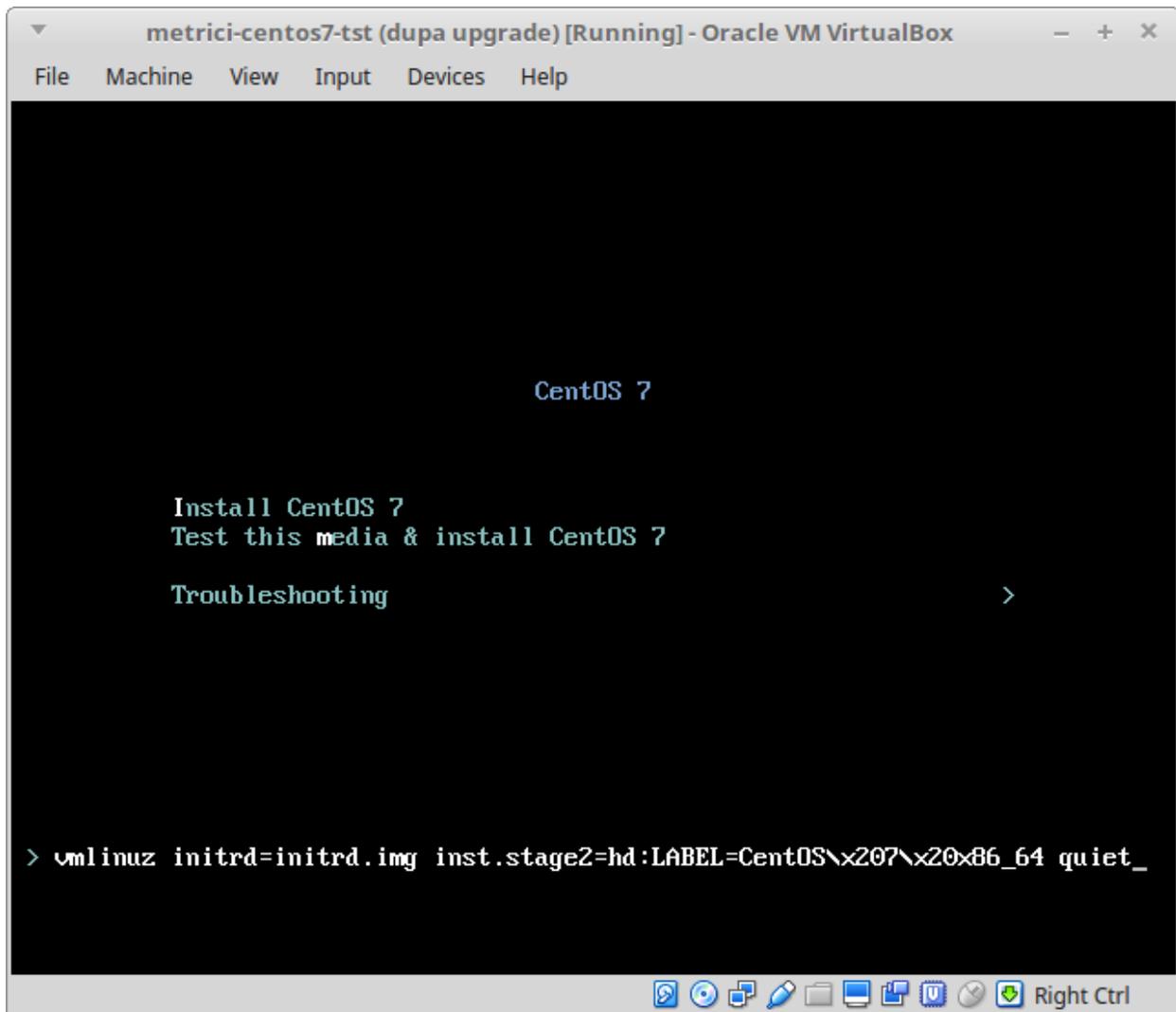
Download the Operating System and make a bootable stick or DVD.

REMEMBER! 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 USB stick.

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



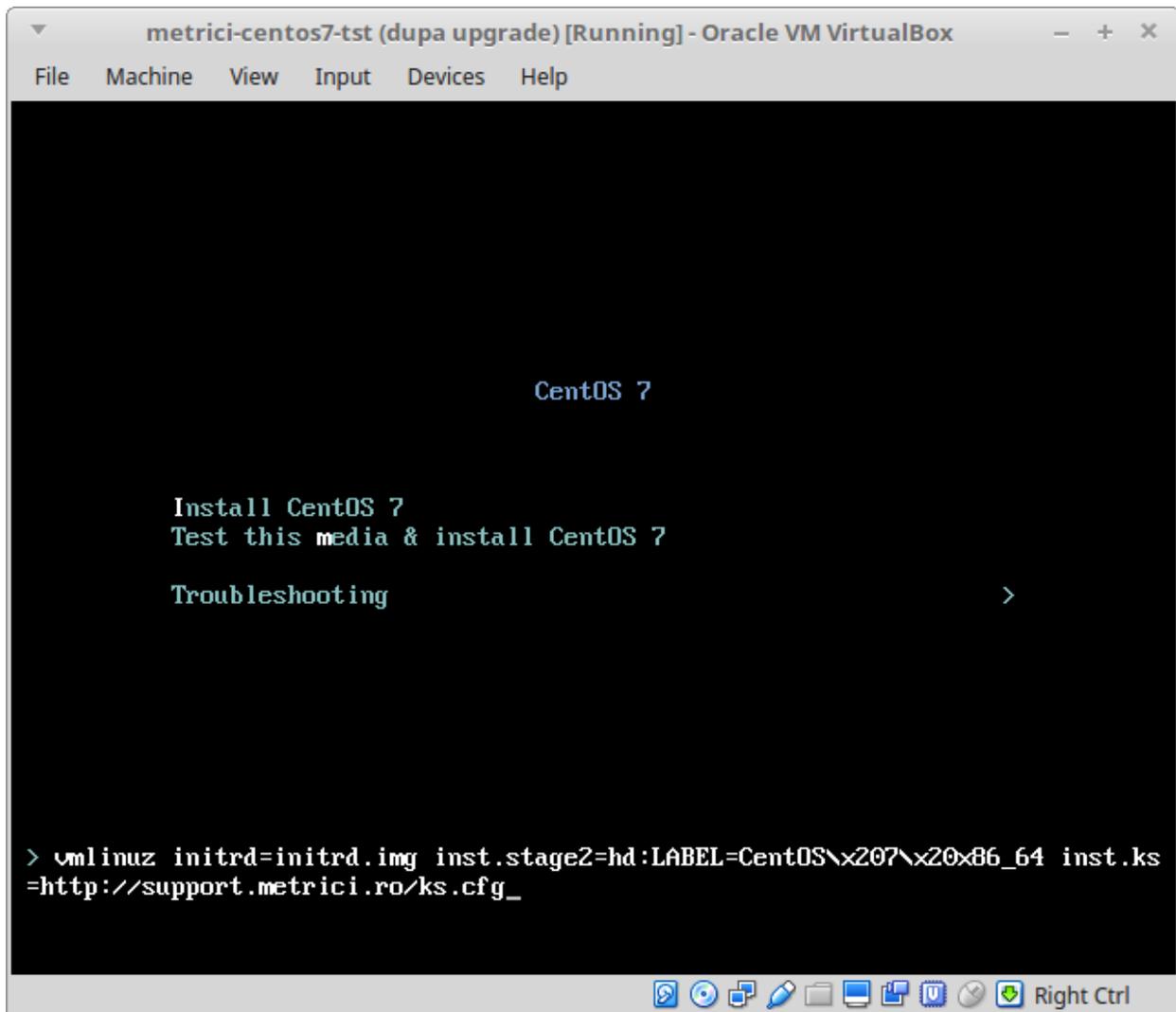
Press Tab key instead. You will notice some parameters on the bottom of the screen. See next image.



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

ATTENTION! If the storage is NVMe type, you will write instead

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.

CHAPTER 3

First settings after the reboot

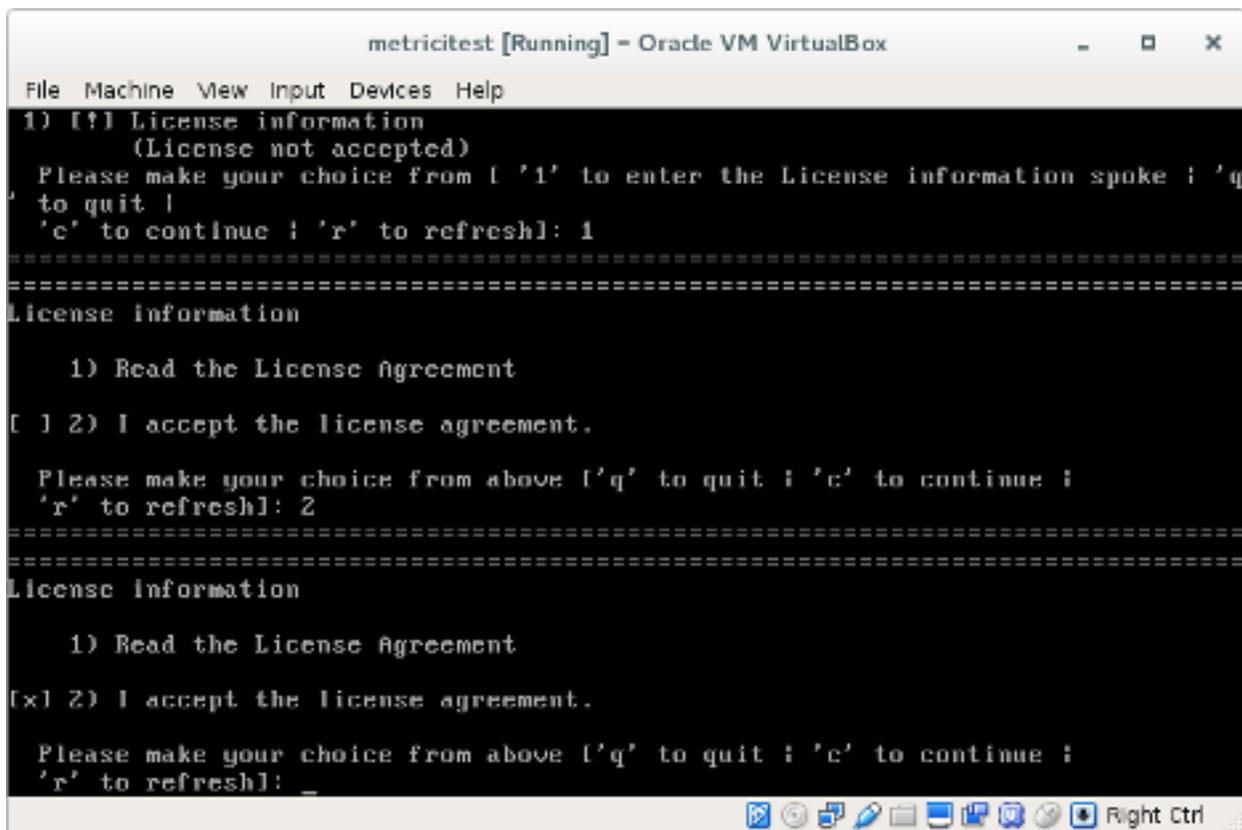
After the first boot, the system will ask for you to read the license agreement. You complete this task by choosing **LICENSE INFORMATION**.

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 View Input Devices Help
1) [!] License information
   (License not accepted)
   Please make your choice from [ '1' to enter the License information spoke ; 'q'
   to quit ;
   'c' to continue ; 'r' to refresh]: 1
=====
License information

   1) Read the License Agreement
[ ] 2) I accept the license agreement.

   Please make your choice from above [ 'q' to quit ; 'c' to continue ;
   'r' to refresh]:
=====
License information

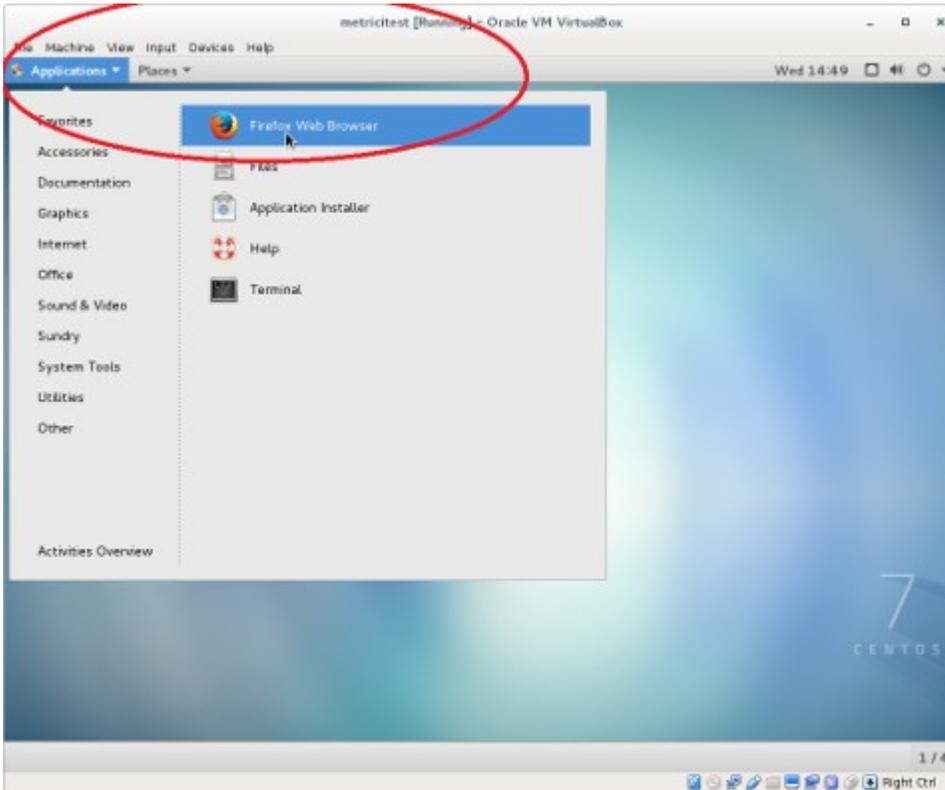
   1) Read the License Agreement
[x] 2) I accept the license agreement.

   Please make your choice from above [ 'q' to quit ; 'c' to continue ;
   'r' to refresh]: _
=====
Right Ctrl
```

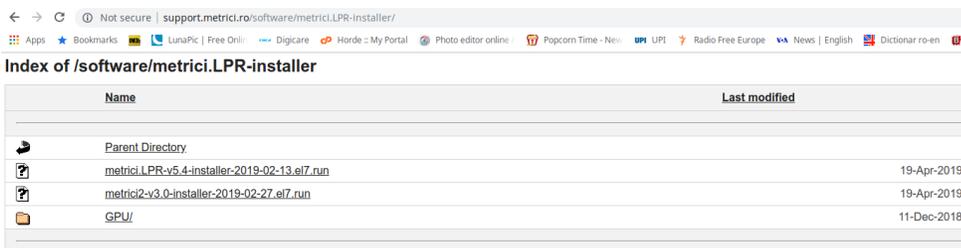
After the reboot, you can authenticate by using the user and password defined during installation. In case of kickstart installation that would be **metrici** and **metriciadmin**.

You navigate through the last settings, click Next.

CHAPTER 4 DOWNLOAD AND INSTALL METRICI LC



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



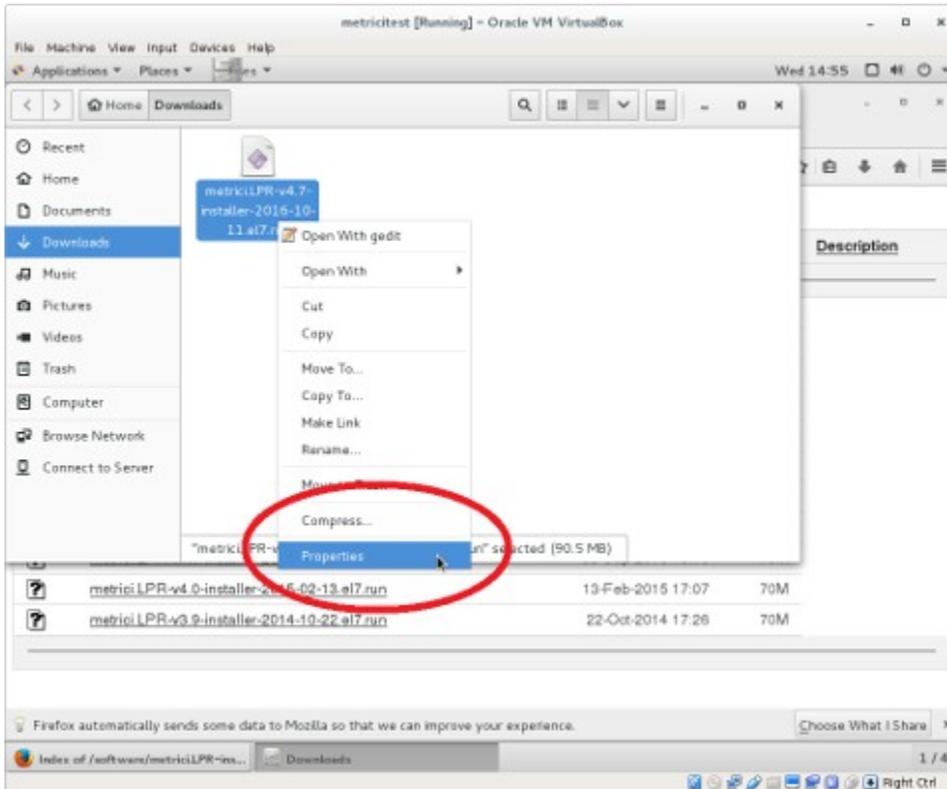
Access the address <http://support.metrici.ro/software/metrici-installer/>

Download metrici2-v3.6-installer-2021-10-07.el7.run, or the latest version of the software, with the suffix el7.run

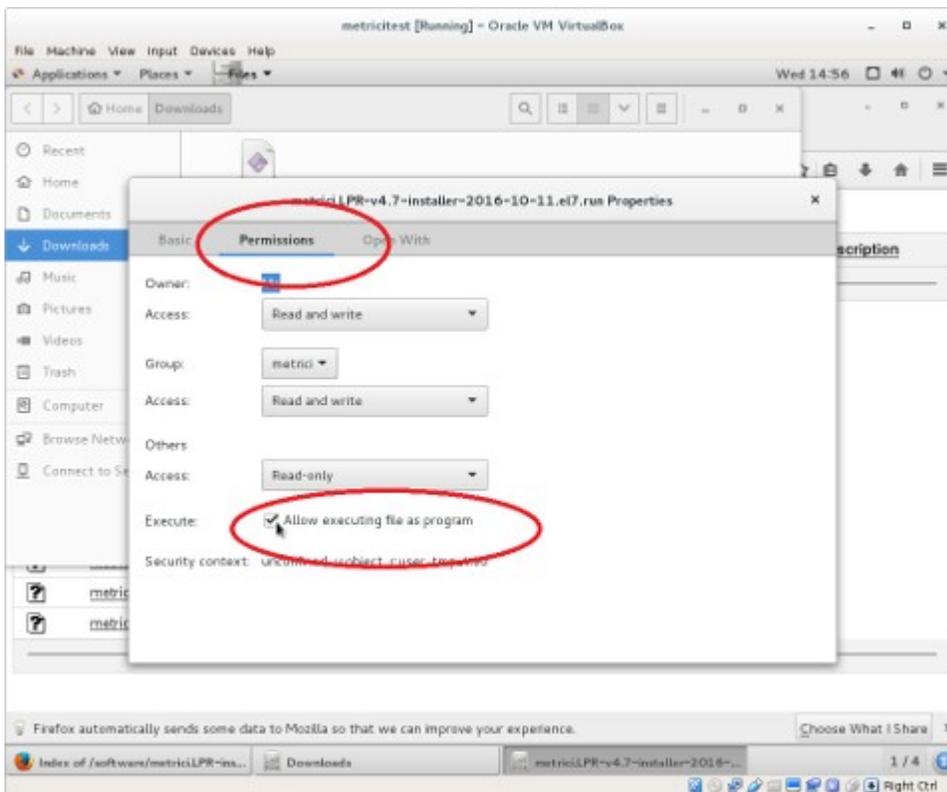
Save it locally on disk

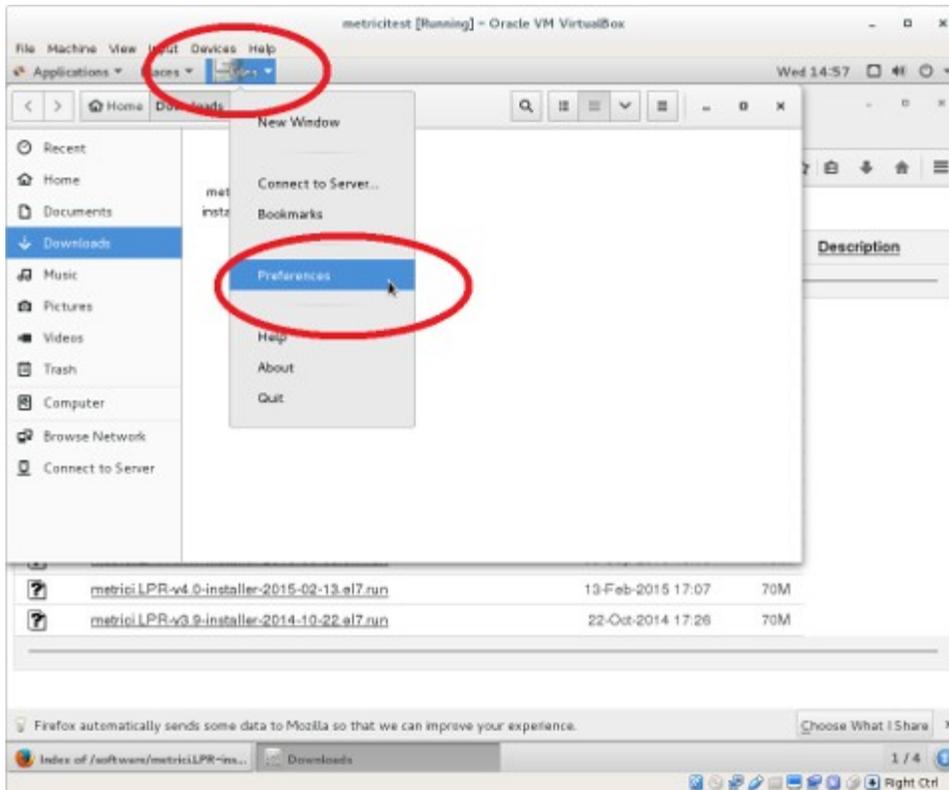
Open the folder where the file was saved (right click - Open Containing Folder).

You need to change the administration rights for the file (right click on the file-choose **Properties** menu).

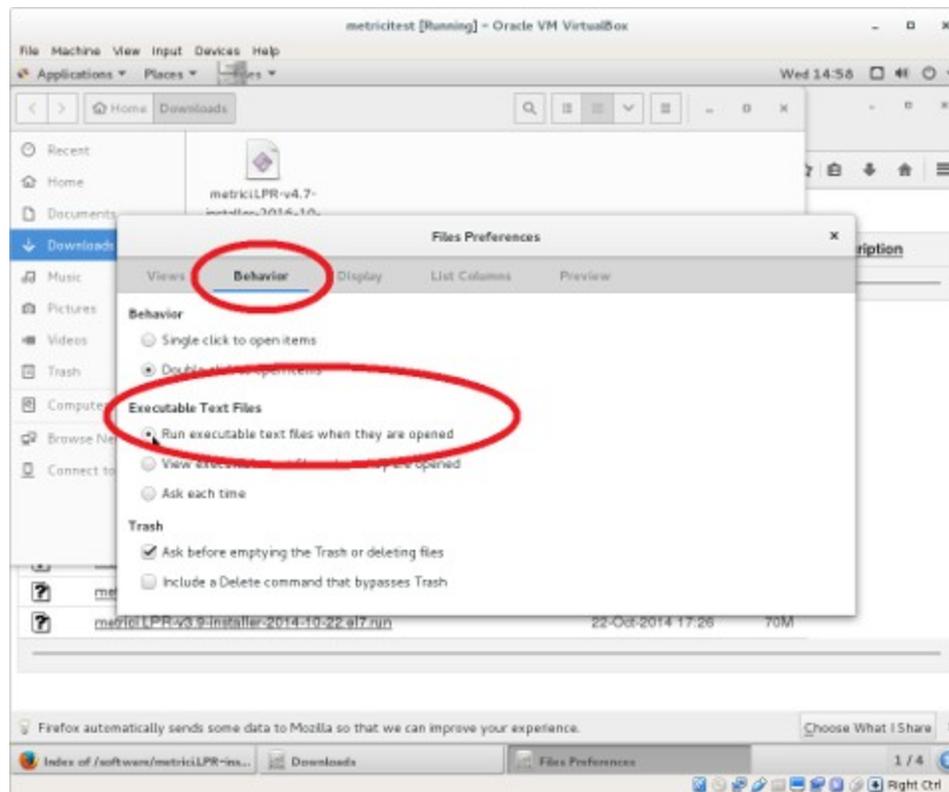


In the **Permissions** tab, check the option **Allow executing file as program**.





You access the menu **Files**, submenu **Preferences**, on the Operating system menu bar



In the **Behavior** tab, check the option **Run executable text files when they are opened**. Install Metrici software as any

CHAPTER 5 LINE COUNTER SETTINGS

5.1 LINE COUNTER- INITIATING

For a perfect setup, a user will have to do settings both in The Metricí Interface (where the data are sent and collected) as well as in Metricí Control Panel, where the detection is made. When login to Metricí, you will see a list of all Metricí Modules. You will only have access to the module you bought licenses for. The others will be blocked. After the install the first login in **localhost** or on a remote server, accessing the IP address, will be made with the credentials

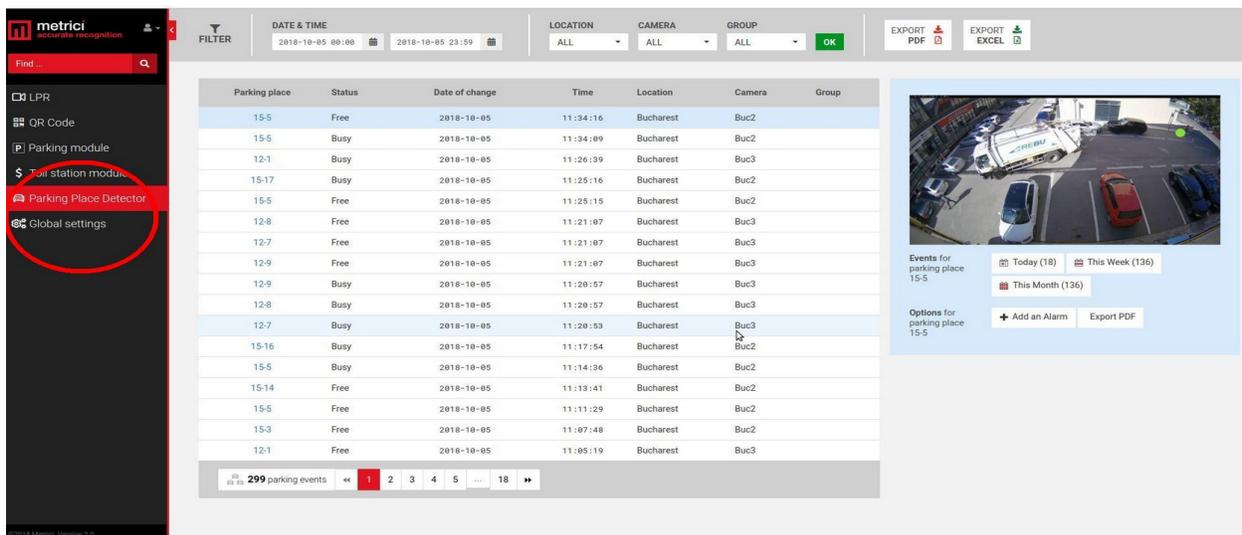
User: metrici@metrici.ro
Password: metriciadmin

Metricí recommends changing this password after log in.

After that any number of users and passwords can be created or modified. See Global Settings, Users Administration Chapter.

NOTE

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



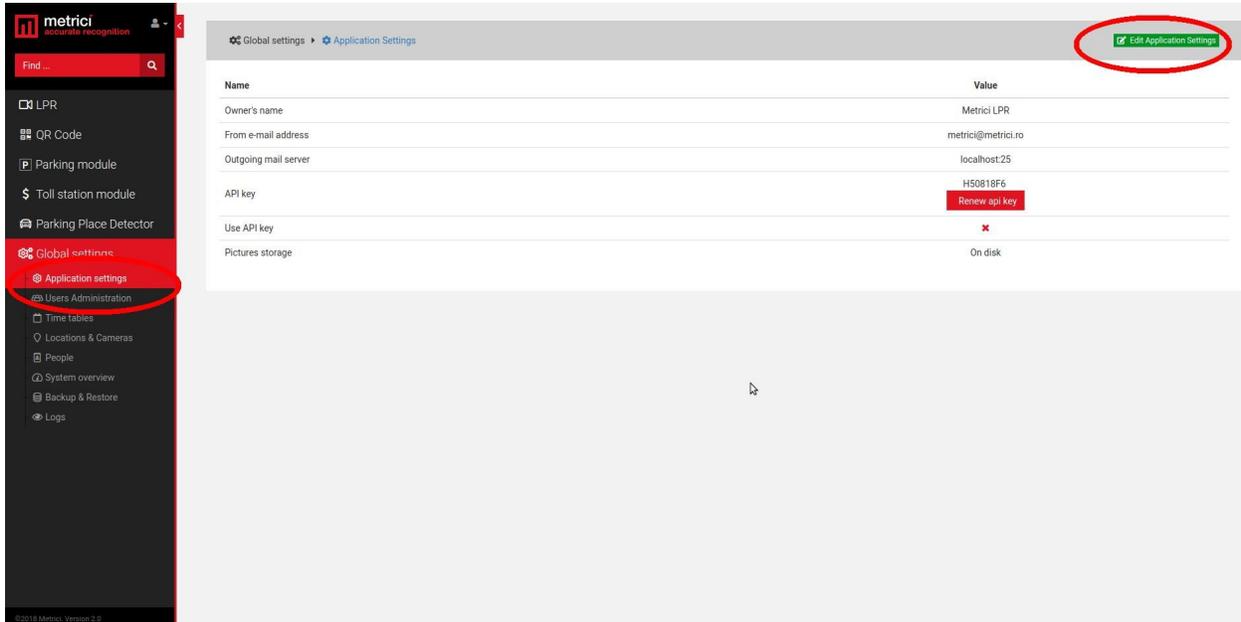
The screenshot displays the Metricí web interface. On the left, a sidebar menu is visible with 'Global settings' highlighted in red. The main area shows a table of parking events with columns for Parking place, Status, Date of change, Time, Location, Camera, and Group. The table contains 20 rows of data. Below the table, there is a pagination bar showing '299 parking events' and page numbers 1 through 18. On the right side, there is a video feed of a parking lot and a summary of events for the parking place 15-5, including counts for Today (18), This Week (136), and This Month (136). There are also buttons for 'Add an Alarm' and 'Export PDF'.

Parking place	Status	Date of change	Time	Location	Camera	Group
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	2018-10-05	11:26:39	Bucharest	Buc3	
15-17	Busy	2018-10-05	11:25:16	Bucharest	Buc2	
15-5	Free	2018-10-05	11:25:15	Bucharest	Buc2	
12-8	Free	2018-10-05	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	
12-1	Free	2018-10-05	11:05:19	Bucharest	Buc3	

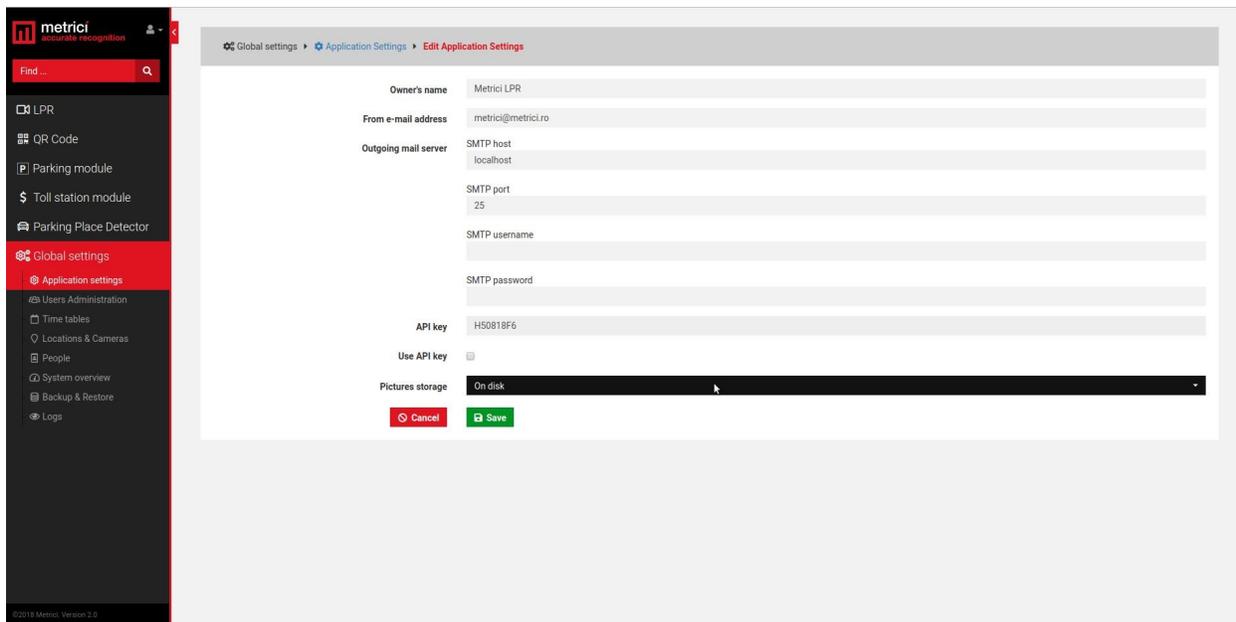
Fig.1

5.2 APPLICATION SETTINGS

In this menu you set the name of the owner. Also, you add the email address from which the alarms are sent, if any.



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



Owner's name is the name of the company or person who owns the Metricí 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, as some servers.

Outgoing mail server: localhost

SMTP host: set to 25

Metricí 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 for this one.

SMTP port

SMTP username

SMTP password

API Key is an auto generated one. You will need this in case of a third party 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. However, it may be made active again by another user with administration rights.

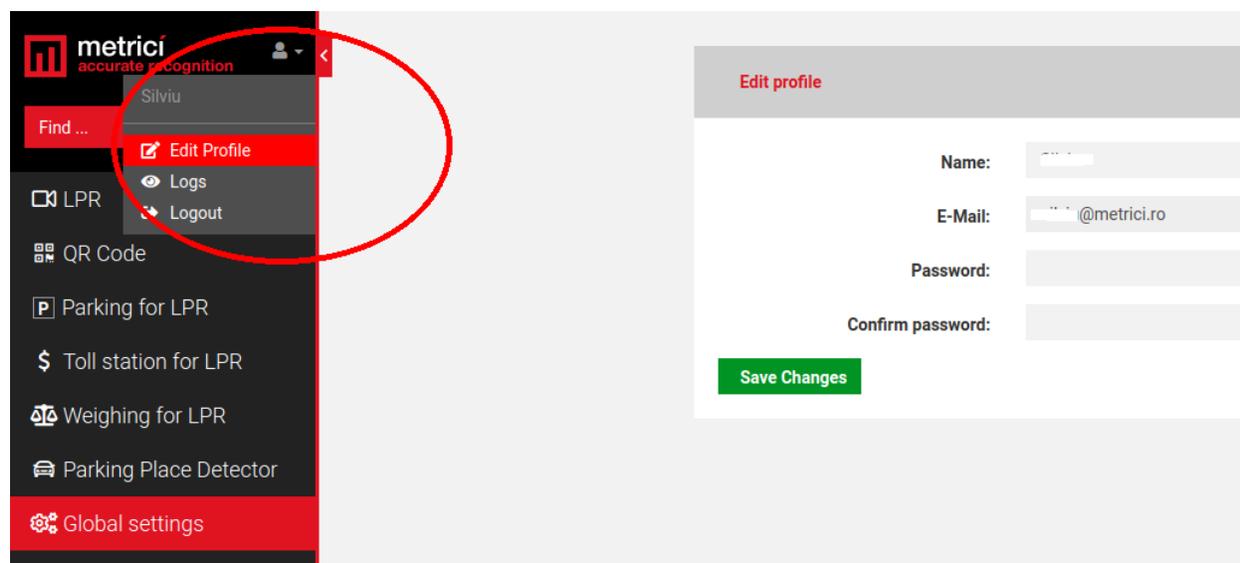
When a new user is added, choose a name for it, designate an email address, choose the language in which the menu is displayed, set a password and confirm it. These data will be used when login by that particular user.

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.

A user already created can change his passwords, after login, by click on the human symbol, upper left menu. Choose Edit profile and write a new password and confirm it.

An administrator of the system can also change the password for a different user in the same way.



5.4 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 settings, a user can choose to have alarms or actions made only when special conditions are met.

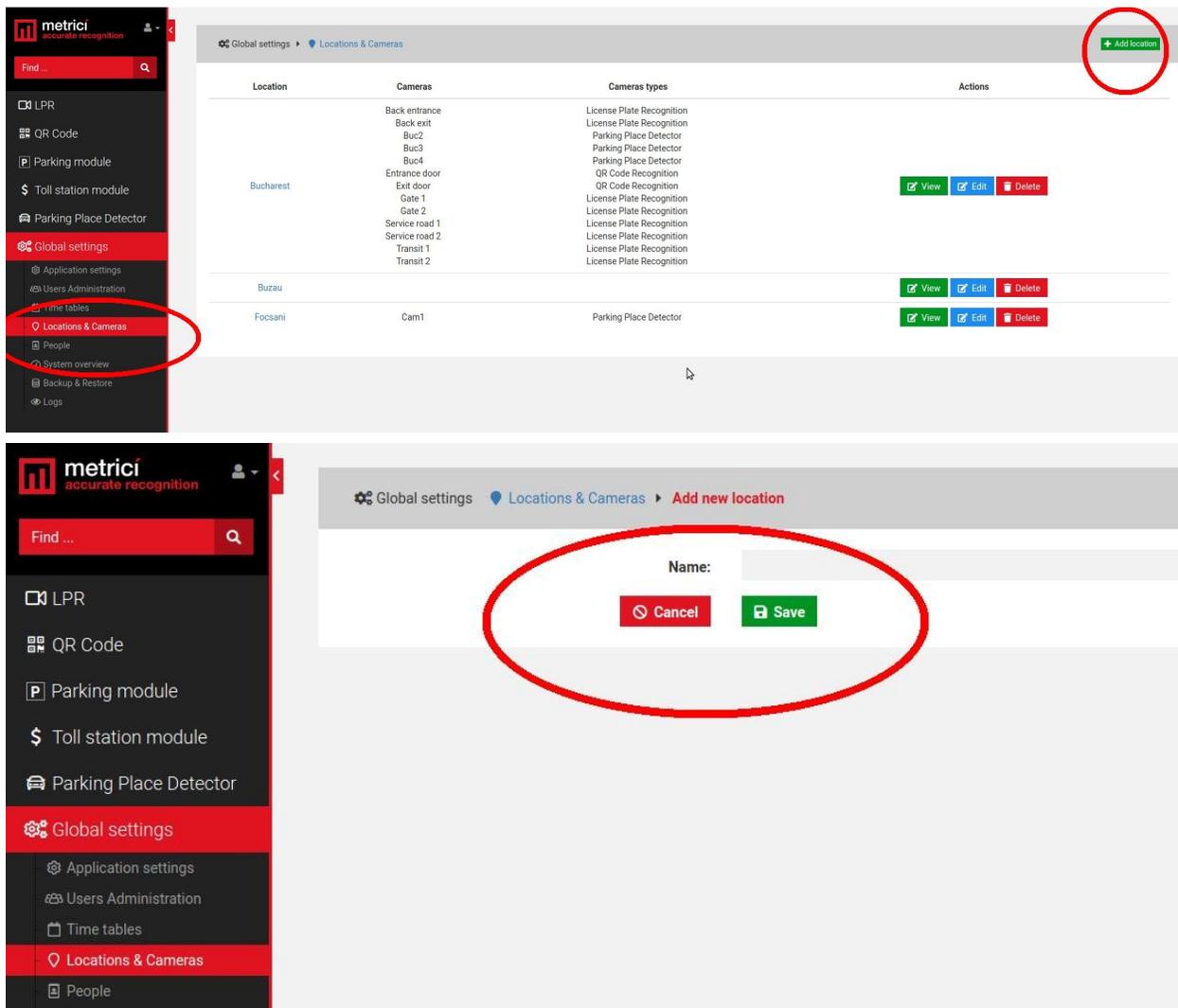
This setting is not applied for now at for Line Counter Module. For a better use and understanding of this feature, see the other modules guide settings.

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 LPR module and also for toll stations.

5.5 LOCATIONS & CAMERAS

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.



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 and company information.

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.

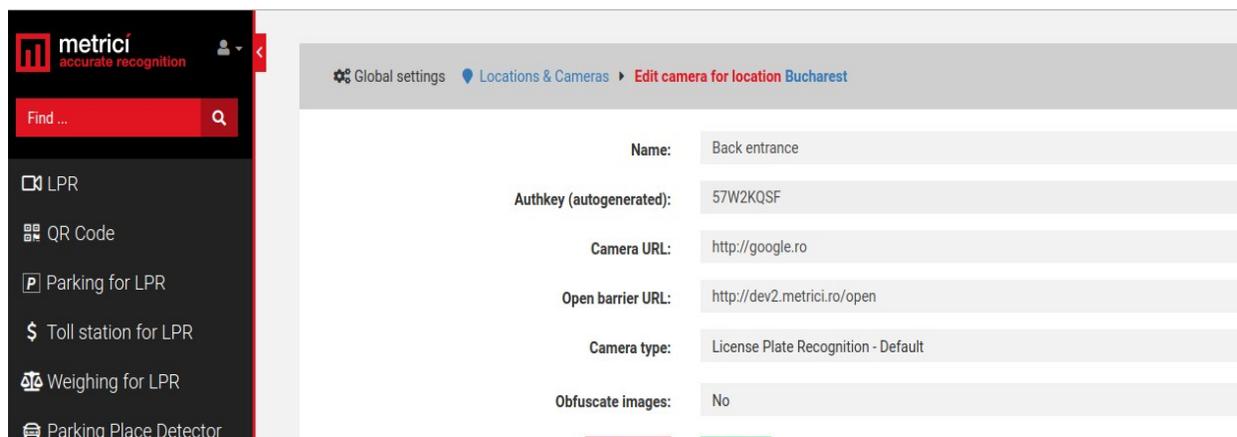
Name: Choose a name for this camera to easily identify it and locate it

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 events recorded in database.

Camera URL: Is the IP address of the camera

Open 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.

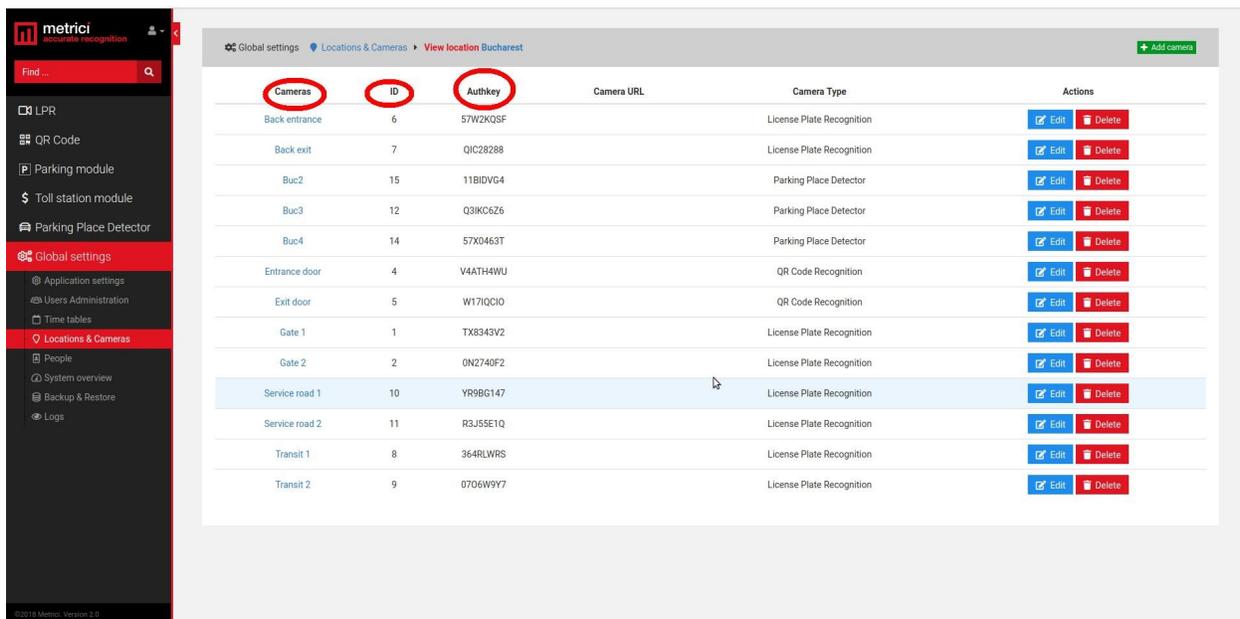
Camera Type is the application for which this camera is used for. Choose the appropriate one- license plate recognition, parking place detector, QR code recognition. Keep in mind that if you don't select the correct application, you won't see that camera and settings in your module menu. In our case, choose **Line Counter**. Also take notice that you have a field of Time zone hour difference. This is when the events are sent on a server located in a different time zone than the camera site location. Select the appropriate one.



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 blurred. 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 the in the next image. The ID and the authkey for each camera are **mandatory** to be added to the **Metrici Control Panel** where the detection engines are located, on the server which runs the Metrici software. This can be on the same machine or another one.

When the ID and the authkey of the cameras are added to the Metrici engines, 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. In fact it will detect the cars, but no data will be sent to database and web interface.



Cameras	ID	Authkey	Camera URL	Camera Type	Actions
Back entrance	6	57W2KQSF		License Plate Recognition	Edit Delete
Back exit	7	QIC28288		License Plate Recognition	Edit Delete
Buc2	15	118IDVG4		Parking Place Detector	Edit Delete
Buc3	12	Q3IKC6Z6		Parking Place Detector	Edit Delete
Buc4	14	57X0463T		Parking Place Detector	Edit Delete
Entrance door	4	V44TH4WU		QR Code Recognition	Edit Delete
Exit door	5	W17IQCIO		QR Code Recognition	Edit Delete
Gate 1	1	TX8343V2		License Plate Recognition	Edit Delete
Gate 2	2	0N2740F2		License Plate Recognition	Edit Delete
Service road 1	10	YR9BG147		License Plate Recognition	Edit Delete
Service road 2	11	R3J5SE1Q		License Plate Recognition	Edit Delete
Transit 1	8	364RLWRS		License Plate Recognition	Edit Delete
Transit 2	9	0706W9Y7		License Plate Recognition	Edit Delete

All cameras on the system can be later edited or deleted, as the user chooses. Its type can be changed or the URL etc.

5.6 LICENSES

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

5.7 LANGUAGES

In this menu you can change the menu language of the Interface.

5.8 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 rights, 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 list, but without the photos from the moment of detections.

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.

5.9 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.

5.10 Cron Jobs

This setting is not available for Line Counter.

CHAPTER 6 LINE COUNTER MODULE

6.1 DASHBOARD

First of all what it is to remember about Metrici Line Counter is the fact is that an event is saved in database every time a object defined by the user pass a virtual gate set in the Metrici detection engines video stream.

So, for example, if Metrici is set to detect people, every time a person passes, an event is saved in database with photo witness and another data.

In the **DASHBOARD** menu, you see all the details of a location or more, if you manage more than one. On the upper side dropdown menu, choose a location or all

locations for which you want to see an instant report of the activity. Click OK button after you choose the location to display info about that choice.

On the left side you will notice a list with all the lines created in the location you manage, total capacity and counter (number of objects in the window) in that particular moment. Number of objects refer only to the selection you made before. If you have selected to see reports about people you will see the **total of people detected by Metrici** on the cameras.

The dashboard is particularly of interest for location that have a finite number of objects that could be fit in: parking lots, marinas, stores etc and not so suitable for other type of applications, for example number of boxes shipped by a transportation company, or cars crossing an intersection, where the Reports menu could be more useful.

Next there is a table with the fields

OBJECT TYPE	CAPACITY	AVAILABLE	COUNTER	OCCUPANCY
-------------	----------	-----------	---------	-----------

This is a split dashboard where the information is displayed for each zone in the locations you choose.

Object type - is the type of object detected set in Control Panel

Capacity: Number of possible objects in the zone

Available: How many places are left available

Counter: How many objects are in that zone at that moment

Occupancy: Percentage of how busy that zone is.

6.2 EVENTS

A list of all the changes intervened for any camera in a location will be displayed in this menu. Several filters can be applied from the dedicated bar on top of the page- see next photo.

These settings refer to a time interval, the location or the locations you want to see info about the camera you want to monitor, as well as the objects.

Any result, or the results of a search (filter) can be exported as a PDF file, an XLS file or CSV one.

A PDF file will contain a list of the selected search with all the data about where, when and how the status number changed, along a still image of the moment the event occurred. If a companion camera is attached, the photo from this one will be saved too. An XLS file will include a list of data events, without the photo captures.

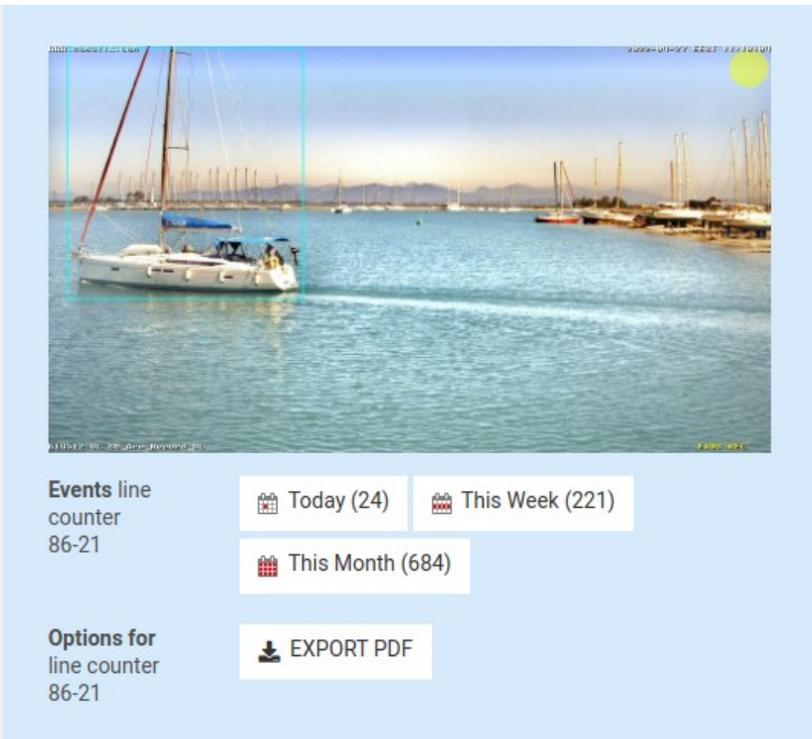


Each event has some info about it in the list. The direction of moving (coming or leaving), what gate passed, its type and subtype (for example it is a vehicle, but subtype can be bus or van etc), date and time of change, the location in which the event occurred and the camera where the change took place, as in the photo below.

Zone	Direction	Gate	Object Type	Object Subtype	Registered at	Location	Camera
Lefkas seaport	COMING	1	Boats	Sailboat	2022-04-27 11:10:08	D'Marin	Lefkas Entrance1
Zea seaport	COMING	1	Boats	Motor-yacht	2022-04-27 11:06:08	D'Marin	Zea entrance
Lefkas seaport	COMING	1	Boats	Sailboat	2022-04-27 11:05:48	D'Marin	Lefkas Entrance1
Lefkas seaport	LEAVING	1	Boats	Sailboat	2022-04-27 11:04:11	D'Marin	Lefkas Entrance1
Lefkas seaport	COMING	1	Boats	Sailboat	2022-04-27 11:04:09	D'Marin	Lefkas Entrance1
Gouvia Seaport	LEAVING	1	Boats	Sailboat	2022-04-27 11:04:06	D'Marin	Gouvia Entrance2
Lefkas seaport	LEAVING	1	Boats	Sailboat	2022-04-27 11:03:22	D'Marin	Lefkas Entrance1
Didim seaport	LEAVING	1	Boats	Motor-yacht	2022-04-27 11:02:16	D'Marin	Didim entrance 2
Didim seaport	COMING	1	Boats	Inflatable	2022-04-27 11:00:16	D'Marin	Didim entrance
Zea seaport	LEAVING	1	Boats	Inflatable	2022-04-27 10:56:58	D'Marin	Zea entrance
Gouvia Seaport	COMING	1	Boats	Inflatable	2022-04-27 10:56:52	D'Marin	Gouvia Entrance2
Zea seaport	COMING	1	Boats	Dinghy	2022-04-27 10:55:21	D'Marin	Zea entrance

On the right side of the screen, where the photo witness is situated, some additional info about that particular gate.

Location	Camera
D`Marin	Lefkas Entrance1
D`Marin	Zea entrance
D`Marin	Lefkas Entrance1
D`Marin	Lefkas Entrance1
D`Marin	Lefkas Entrance1
D`Marin	Gouvia Entrance2
D`Marin	Lefkas Entrance1
D`Marin	Didim entrance 2
D`Marin	Didim entrance
D`Marin	Zea entrance
D`Marin	Gouvia Entrance2
D`Marin	Zea entrance



In the example above, we see how the photo witness shows when the change occurred. Counter 86-21 represents the camera 86 and gate 21 for that camera.

One can see every event change for a particular zone for today, this week, or this month. Also can add alarm and export as PDF

The buttons are interactive and can be clicked and the list on the left will change to the filter selected here: E.g. events for that particular zone for a day/week or month- you will see a list with the events chosen.

6.3 EVENTS FLOW

In this menu, you can see the events as they occur, for a location or all. As a virtual gate is passed, the event is displayed in this menu. A zone is a group of cameras that were grouped together.

6.4 LIVE VIEW

As the name suggests, in this page you can set what cameras you want to watch live at 1 fps/ camera

You can add or delete cameras as you want from this menu, as long as they are introduced in **Global Settings, Location and Cameras** and set as Line Counter cameras and you, as a user, have **viewing rights** for this **menu and cameras**.

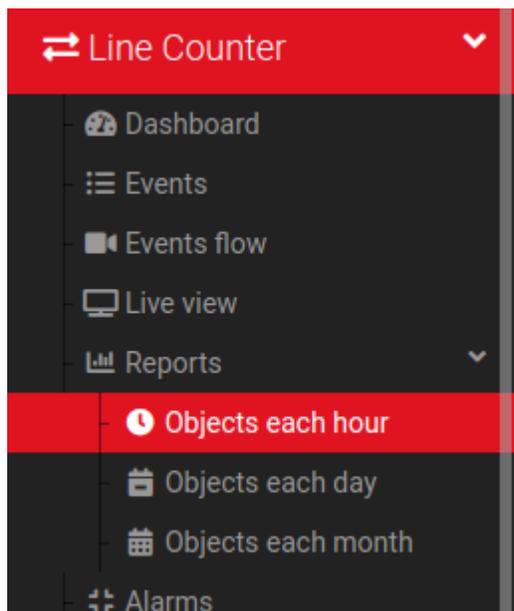
To add more cameras, choose the one you want from dropdown menu and click on ADD LIVE VIEW button, upper left.

On a live view image click on the monitor diagram to maximize the view (full screen) or on X to close it. When you minimize an image that was made full screen, you will return to the view of all cameras set in live view.

By default the live view field is automatically field in by Metricí in **Control Panel** with an URL such as http://localhost/io/lc/live_view.php. If the video will be sent and visualized to another address change localhost with another address or IP, for example http://metricí.ro/io/lc/live_view.php

6.4 REPORTS

In the reports section, a user can choose from three different scenarios to deliver a report.



That will be objects each hour/each day/each month

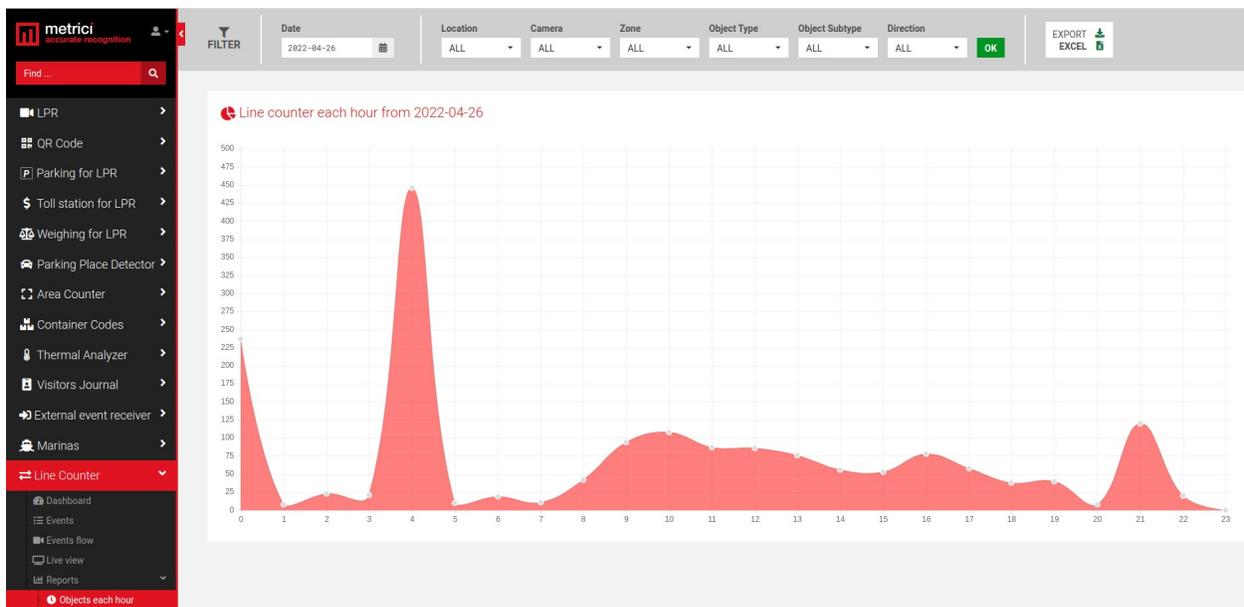
When you click one of them, the usual filters are displayed: a date, a location for which a report will be generated, the camera or cameras, zone, type and subtype, direction.



These are the filters you can select for the reports menu.

Note: Depending on the size of the database and the report you want to generate, the display can take a while, for the calculation to be made.

Objects each hour will generate a report with the number of objects for each hour of the selected time interval. This is how a 24 hour report shows like for all locations:



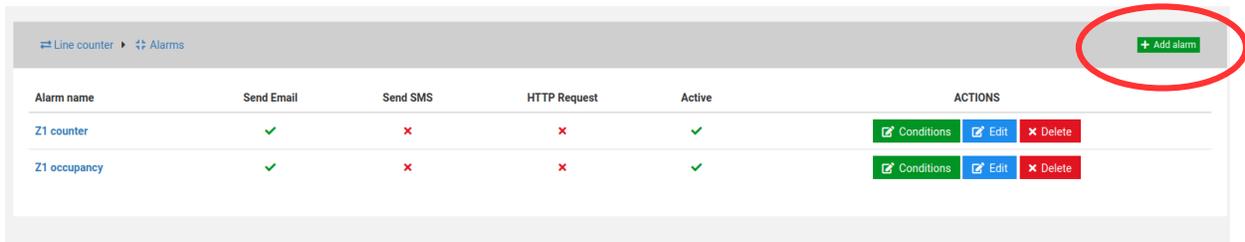
Objects each day will generate a report with the number of objects for the current week, by default, or another time interval set in the filter.

Objects each month will generate a graphic with the number for the selected input data.

6.5 ALARMS

Each location or zone of can have its own alarms for when one condition or more are met.

To add an alarm, when in this menu, click on upper right green button ADD ALARM. See next picture.

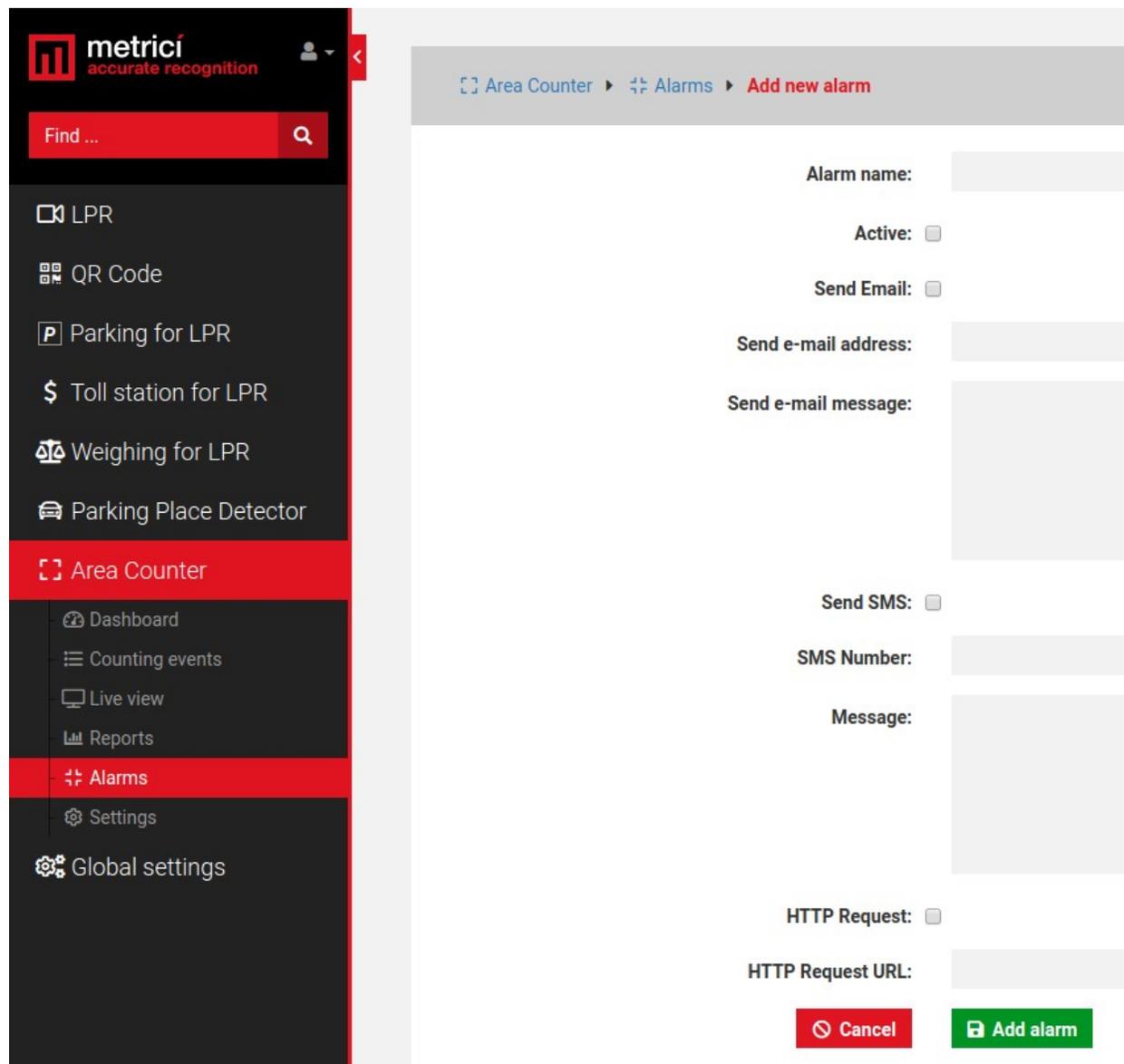


The alarm can be set to be active or not and you can choose one or all of the three types: an **email alert**, a **SMS message** on a phone number if a GSM module is attached to the server, or a **HTTP request**.

E-mail address field will be filled with the address to which the mail will be sent. Also you can personalize the message that will be delivered.

The SMS option:. Click on Send SMS box, add in the phone number to which the message will be sent and write the message that will be delivered.

More phone numbers can receive a SMS alert, but these numbers will have their own alarm set. No multiple phone numbers can be set in one alarm.



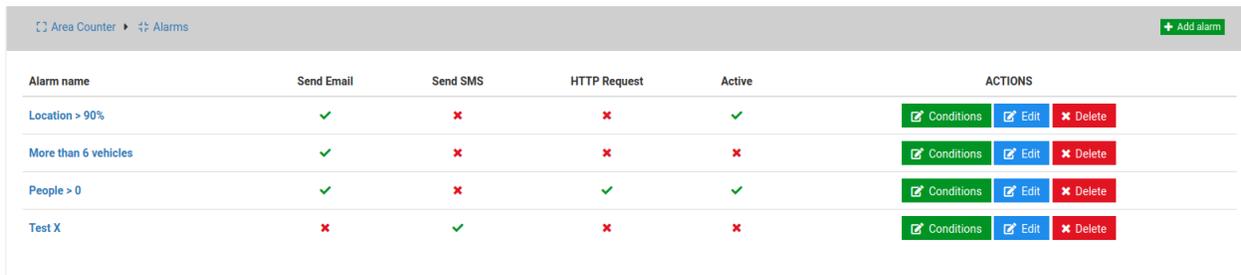
HTTP Requests refer to the fact the alarm can trigger an URL when set in this mode so it can activate a barrier or other external hardware system, a traffic light, an audio signal etc.

HTTP Requests URL - is the address Metrici accesses for this particular alarm.

For example you can have an alarm for when a certain number is reached. Case in which, this will access a traffic light and switch it to red, denying access.

After an alarm was created (has a name) and a type (SMS, email), you will create the conditions in which this alarm is active. Conditions are the specific parameters

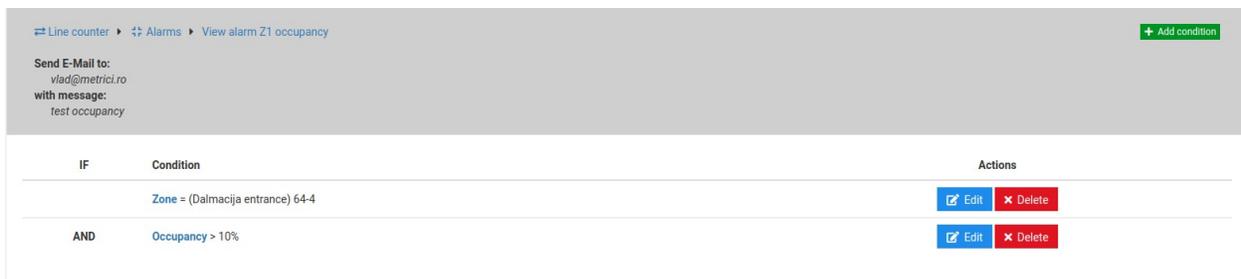
that have to be met for the alarm to activate: send email, send SMS, activate a hardware etc.



Alarm name	Send Email	Send SMS	HTTP Request	Active	ACTIONS
Location > 90%	✓	✗	✗	✓	Conditions Edit Delete
More than 6 vehicles	✓	✗	✗	✗	Conditions Edit Delete
People > 0	✓	✗	✓	✓	Conditions Edit Delete
Test X	✗	✓	✗	✗	Conditions Edit Delete

Click on **Conditions** green button to introduce new conditions for that alarm. The **Edit** button will let you change its name, whether is active or not etc.

Introduce as many conditions as you want for each alarm to work and save them. In the next image you will see how a set alarm shows like.



Send E-Mail to:
vlad@metrici.ro
with message:
test occupancy

IF	Condition	Actions
	Zone = (Dalmacija entrance) 64-4	Edit Delete
AND	Occupancy > 10%	Edit Delete

Keep in mind that you have a **degree of comparison** for each **condition**.

First condition for an alarm to be set is the establishment of an alarm item: this can take the form of a **Zone for any location**. For these items you will have next different conditions to be add.

“=” 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 an alarm to be saved, finally you select a parameter to apply for.

6.6 SETTINGS

You can set here how many days to keep your events recorded on database, you can see how many are registered right now and how much disk space they use.



Name	Value
Delete events after [days]	60
Events counter	834486 events on database
Disk space	Total: 562.57 GB, used: 483.5 GB, free: 79.07 GB

Locations and cameras

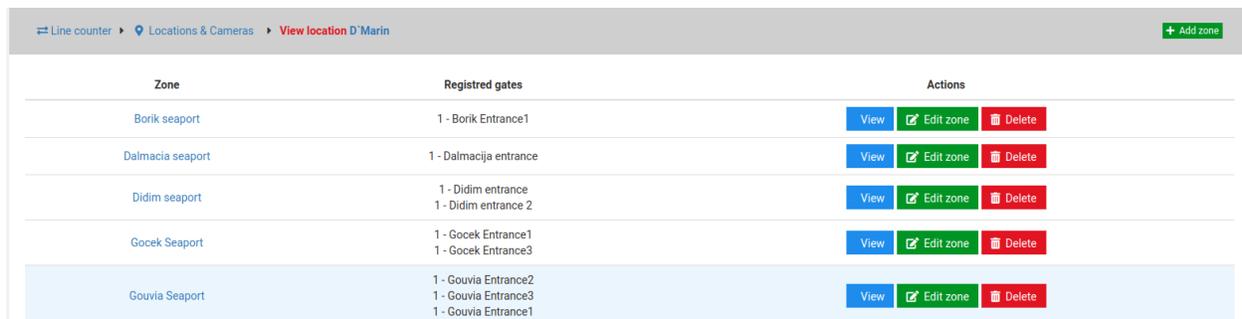
Only locations introduced in Global Settings will appear in this menu. For a location to be displayed in Line Counter menu, this has to have at least **one camera assigned**.

On the bottom of the page, you can see all locations created in Global Settings menu.

Click on the name of a location. In the new menu you can **create zones** for each location. For example a location can be an entire mall. Then, a zone will be first floor, another one will be underground and so on, or an entry etc.

Then, each zone will have designated its own cameras which will explain further.

So first of all create a zone, even if you only need one. Choose a name.



Zone	Registered gates	Actions
Borik seaport	1 - Borik Entrance1	View Edit zone Delete
Dalmacija seaport	1 - Dalmacija entrance	View Edit zone Delete
Didim seaport	1 - Didim entrance 1 - Didim entrance 2	View Edit zone Delete
Gocek Seaport	1 - Gocek Entrance1 1 - Gocek Entrance3	View Edit zone Delete
Gouvia Seaport	1 - Gouvia Entrance2 1 - Gouvia Entrance3 1 - Gouvia Entrance1	View Edit zone Delete

From the drop-down menu **Object Type** choose what kind of object will be counting: people, vehicles, boats etc...



After a zone is created, click on the **View** blue button. In the new page, choose what cameras/ or numbering gates from the list are associated with that zone. Press **Save** when finished.

Remember that a detection engine must begin to send the data to the interface so to populate the list with counting gates that you will find it here. So first of all, you will need to make the settings in the Control Panel and detection engines. Do not forget about the ID and authkey generated in the Interface when a camera was introduced in Global Settings menu, Locations and Cameras. These two fill in the detection engines menu in the Control panel will ensure the communication from the engines to the Interface and the data feeding. See next chapter to see the settings for the Control Panel.

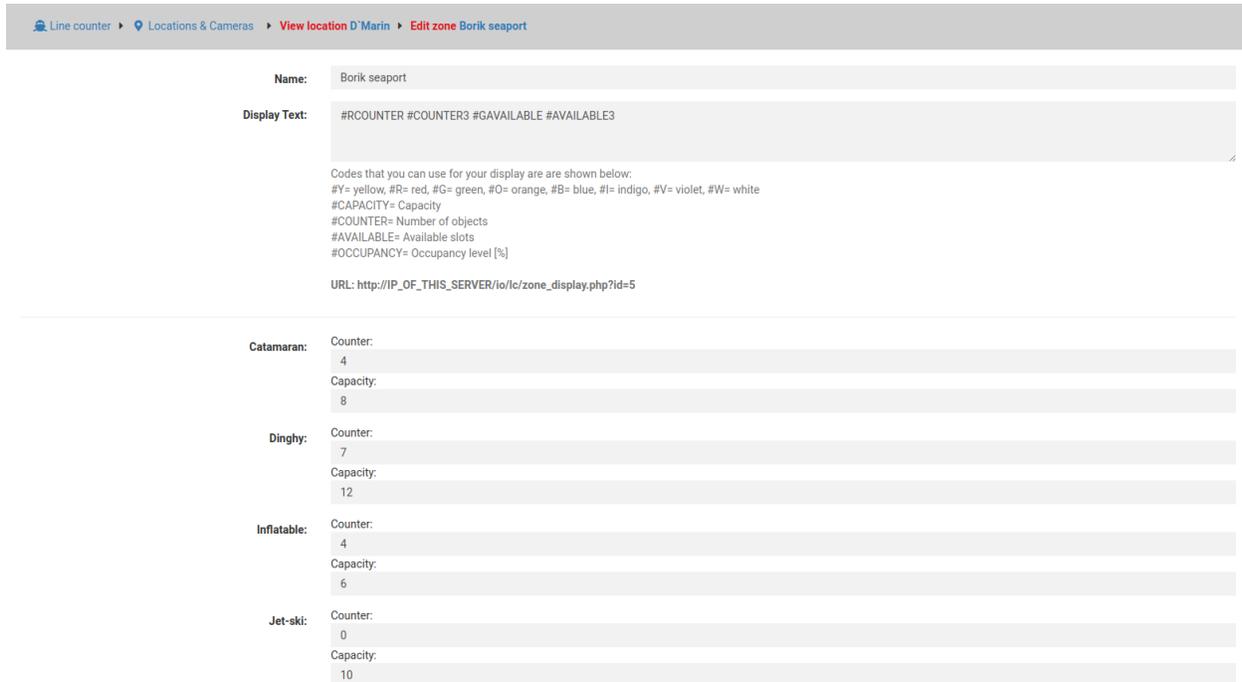
Also remember that if you ever delete a counting gate from a detection engine, you should also unregister it from this list in the Interface.

The next image is an example of a list of counting gates for a location. For each zone you create, register the ones that are associated with that particular zone.



Action	Gate	Camera
<input type="checkbox"/>	1	Didim entrance
<input type="checkbox"/>	1	Turgutreis entrance
<input type="checkbox"/>	1	Zea entrance
<input type="checkbox"/>	1	Turgutreis entrance2
<input type="checkbox"/>	1	Dalmacija entrance
<input checked="" type="checkbox"/>	1	Borik Entrance1
<input type="checkbox"/>	1	Mandalina Gate B
<input type="checkbox"/>	1	Mandalina Gate A
<input type="checkbox"/>	1	Lefkas entrance3
<input type="checkbox"/>	1	Didim entrance 2
<input type="checkbox"/>	1	Mandalina Gate H

The green **EDIT ZONE** button lets you set the communication parameters with the Metrici LED Display, if any and also set some parameters of capacity for that particular zone depending on what type of object you chose to be counted.



The screenshot shows the 'Edit zone' configuration page for 'Borik seaport'. The breadcrumb trail is: Line counter > Locations & Cameras > View location D' Marin > Edit zone Borik seaport. The configuration fields are:

- Name:** Borik seaport
- Display Text:** #RCOUNTER #COUNTER3 #GAVAILABLE #AVAILABLE3
- Codes that you can use for your display are shown below:**
 - #Y= yellow, #R= red, #G= green, #O= orange, #B= blue, #I= indigo, #V= violet, #W= white
 - #CAPACITY= Capacity
 - #COUNTER= Number of objects
 - #AVAILABLE= Available slots
 - #OCCUPANCY= Occupancy level [%]
- URL:** http://IP_OF_THIS_SERVER/io/lc/zone_display.php?id=5

Below the configuration, there are four object types with their respective Counter and Capacity values:

Object Type	Counter	Capacity
Catamaran	4	8
Dinghy	7	12
Inflatable	4	6
Jet-ski	0	10

Counter is a number of objects which are at any given time inside the zone. Is the difference between entries and exits. When creating a zone or anytime after that, you can manually change the number of objects that are inside. For example, when creating the zone, you can set here a value and tell the system that the counting should begin with a certain number of objects that already are inside the zone and not to start from zero.

Capacity is total of objects that could fit in a zone. You set it and you will know the occupancy percentage or you could set alarms when capacity is approaching 100%, for example.

These parameters are useful in applications where a maximum capacity could be fit in a zone or location: for example a parking lot, a store or a marina.

This means that they are not useful in other applications such as counting vehicles on a street, or people on the sidewalk, or objects on a production line and will be left at value 0 for capacity.

Communication with display

If you want to display info about your zones you can set it here.

Codes are explained in the page as:

#Y= yellow, #R= red, #G= green, #O= orange, #B= blue, #I= indigo, #V= violet, #W= white
#CAPACITY= Capacity
#COUNTER= Number of objects
#AVAILABLE= Available slots
#OCCUPANCY= Occupancy level [%]

URL: http://IP_OF_THIS_SERVER/io/lc/zone_display.php?id=5

The first letter after the hashtag represents the color in which the information is shown

#Y= yellow

#R= red

#G= green

#O= orange

#B= blue

#I= indigo

#V= violet

#W= white

The word after the color code represents the text to be written so #Capacity will display the word Capacity written in color indicated.

On your Metricí LED display, in the specially designed interface for this hardware, you will fill an URL such as

URL: http://IP_OF_THIS_SERVER/io/lc/zone_display.php?id=5

that is automatically generate in this Metricí Interface.

So #CAPACITY3 will take information about capacity of location and displayed on maximum 3 characters, as the number after the code indicates how many digits to be used.

REMEMBER that it is mandatory to specify the colour - without one of the codes of color, nothing will be displayed.

Instead of 3 we can have any number of characters from 1-9. But remember that if you set to display a bigger number of characters comparing to the dimension of the Metricí Display, they will not fit in and the information will scroll.

For a better understanding see also Metricí LED Display user and integration guides.

CHAPTER 7

METRICI CONTROL PANEL SETTING AND USING

Metricí Control Panel application is in fact a unit for processing the detection engines and data gathered by Metricí when analyzing the videostreams.

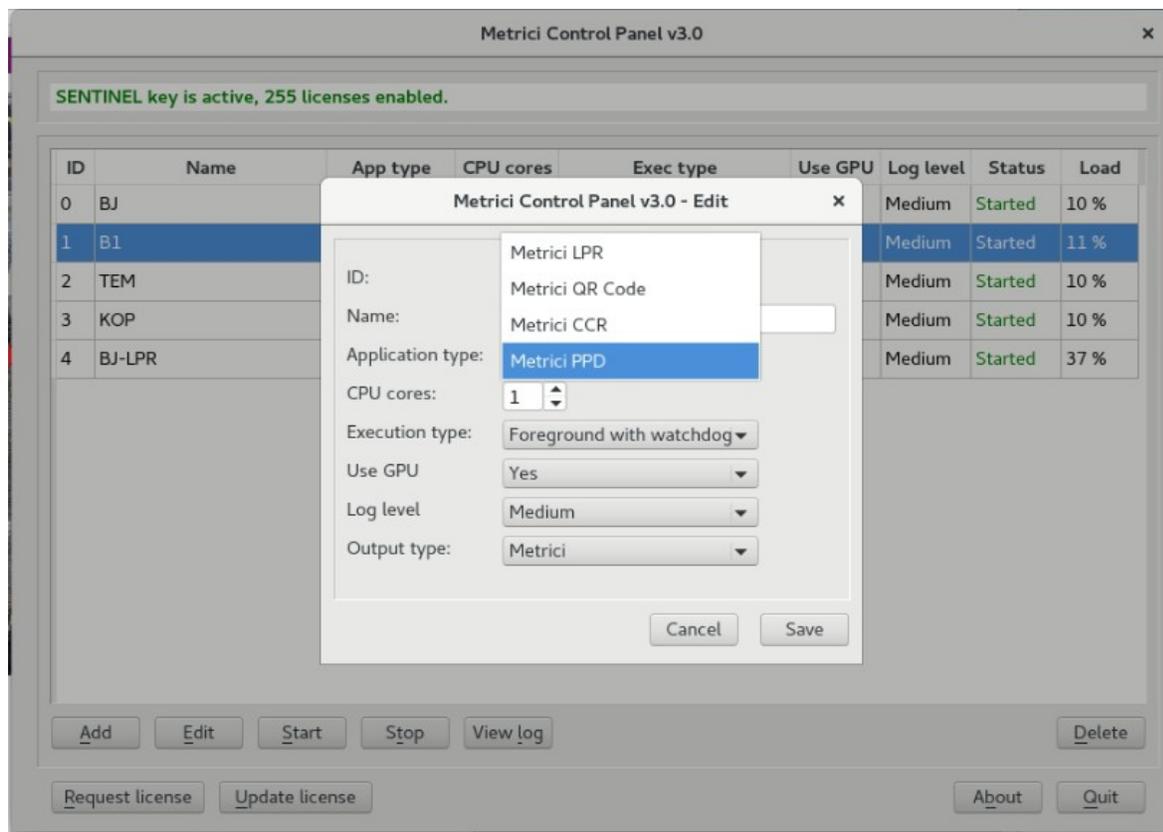
The data processed in this application will be send for recording and reporting towards the **Metricí Interface**, where they can be easily accessed in a friendly format. **Metricí Control Panel** makes sure that the engines are not jamming and are working as they are meant to do. Also, this is where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

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

There are several **Metricí detection engines** (applications) that you can choose from- LPR, PPD, QR Code, Container Code Recognition, Area Counter, Line Counter, Thermal Analyzer.

You can add a new detection application by using the **Add** button. When adding a new application (engine/camera), you set the CPU and the number of **processing cores** for each camera. The more processing power for each camera, the better the detection, and the application will operate more frames in real time.

Line Counter relies heavily on GPU so the more powerful it is, the better and faster the application works. Also, you can add more engines on the same server.



When first adding a camera in Control Panel, an ID will automatically be assigned to it by Metrici. You can also choose a name for it to better identify it later on.

You must then choose what for what application type this camera is used for: Metrici LPR, Metrici QR Code, Metrici CCR, Metrici PPD, Metrici Area Counter, Metrici Line Counter etc. Set the CPU cores and the execution type. For installing and first setting use **Execution Type Foreground with Watchdog**.

At a later date, this working mode can be changed and we recommend doing it to Background with Watchdog as it needs less resources. The four possible settings for the detection software 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**.

GPU - As for Line Counter, Metrici recommends using a Graphics Processing Unit - GPU so Enable GPU.

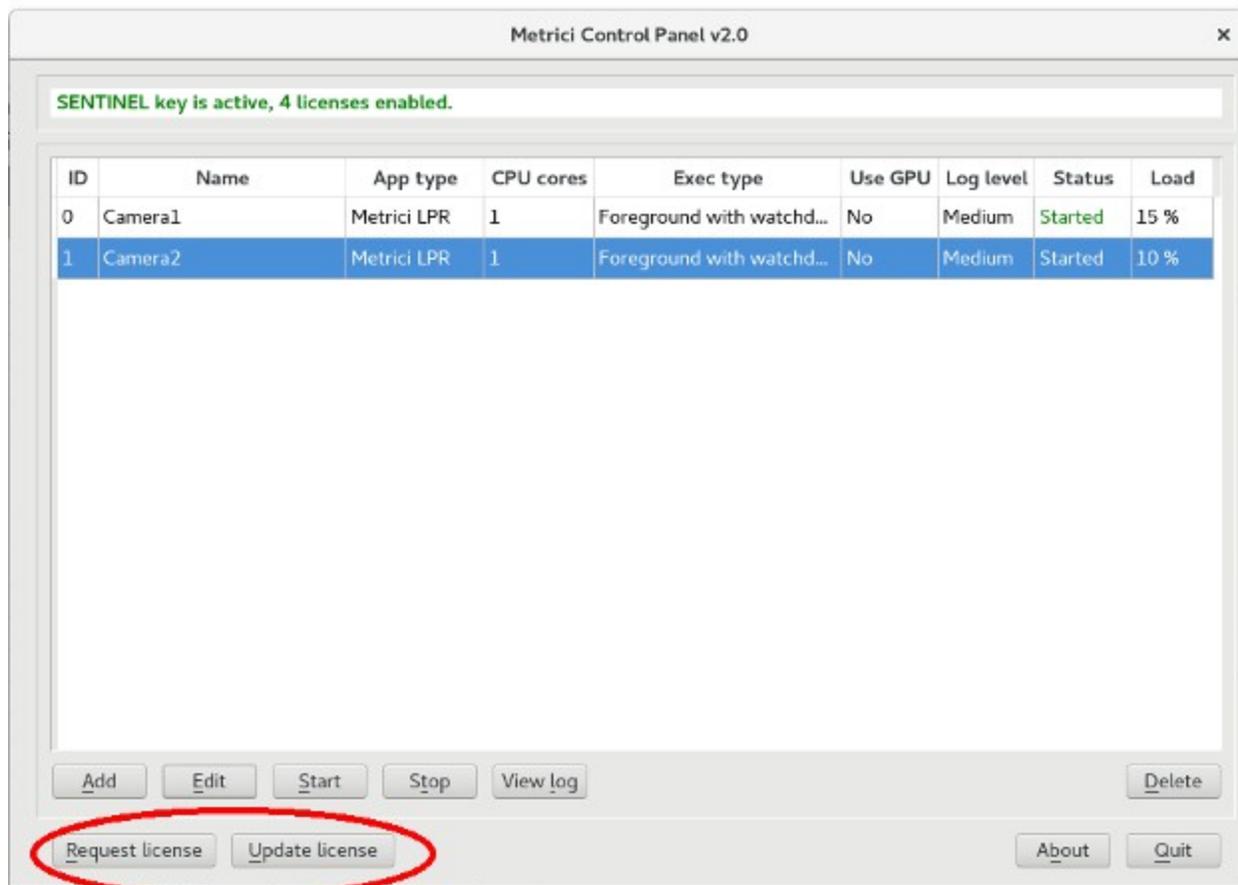
Log level- Metrici keeps track of all its activity, the communication with cameras, Interface or external systems. When a malfunction occurs you can check these logs to view what happened, so is better to have log level on Medium, at least.

REMEMBER! In case that more cameras will be connected to Control Panel, the settings in this chapter will be applied for each one of them, except license activation, which is made individually for the PC/server unit.

7.0 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 licenses. In **Metrici Control Panel**, click on **Request license**. In the new window fill in the product key that is written on the license certificate received from Metrici. Press OK

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



Go to <http://support.metrici.ro/activate/> . 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 Metrici

Hello, you can download activation file at:

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

Product code: 7866869_df93mo398-4k12e9i-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.

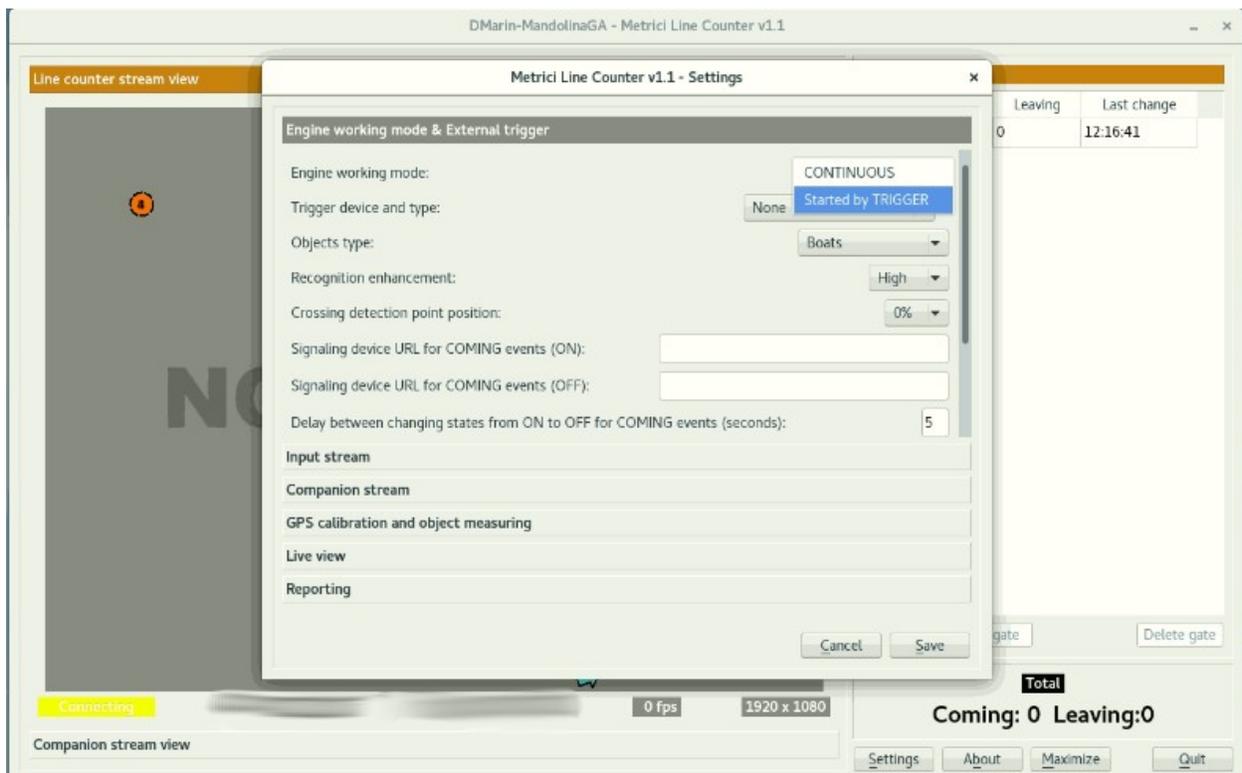
IMPORTANT: The procedure is to be followed for each server with Metrici. If you have, let's say, 10 servers with Metrici, you will follow this license activation procedure for each one of them.

7.1 Engine working mode & External Trigger

After you add the camera and set it to foreground with watchdog, press the **Settings** button to begin initializing it.

Engine Working Mode

In this menu, you set how the detection works and you have two options **Continuous** (Metrici is always looking for objects to detect and if they are crossing a zone or at trigger- meaning Metrici receives “a command” to start the detection.



Trigger Device and type

The trigger situation for Line Counter is useful in cases of situations with installations with sensors, inductive loops.

Keep in mind that when setting the detection with trigger you can also choose how many seconds the engine are trying to detect the objects.

Choose who sends the trigger and on what port- Barix or Metricí Virtual Trigger. Barix is a LAN Controller with a special developed Metricí firmware which is very versatile and used in so many applications- see the Barix Integration manual for more details.

If you choose Barix you wil also select on what port the device is connected.

Objects Type

From the dropdown list choose what kind of objects you want Metricí to detect: people, vehicles, boats etc. This can be later changed if you wish so.

Recognition Enhancement

Also in this setting you can choose **Recognition Enhancement**.

What this will do is increase the accuracy of detection from Low to Ultra. The higher the precision, the more processing power is needed but the precision is much better. A normal setting would be just enough in most cases.

The smaller the objects are in the video stream, the greater the accuracy must be so you will choose “high” or even “ultra”.

Crossing detection point crossing is a special setting in which you tell the system when exactly to calculate that an object crossed a gate. Imagine that anytime Metricí detects an object draws a rectangle around it. This setting here tells the system which part of the rectangle must be taken into account when calculating that crossed a gate. 0% means top bottom part, 50% is in the middle, when 100% is top bottom. You can see here how Metricí draws the rectangle.

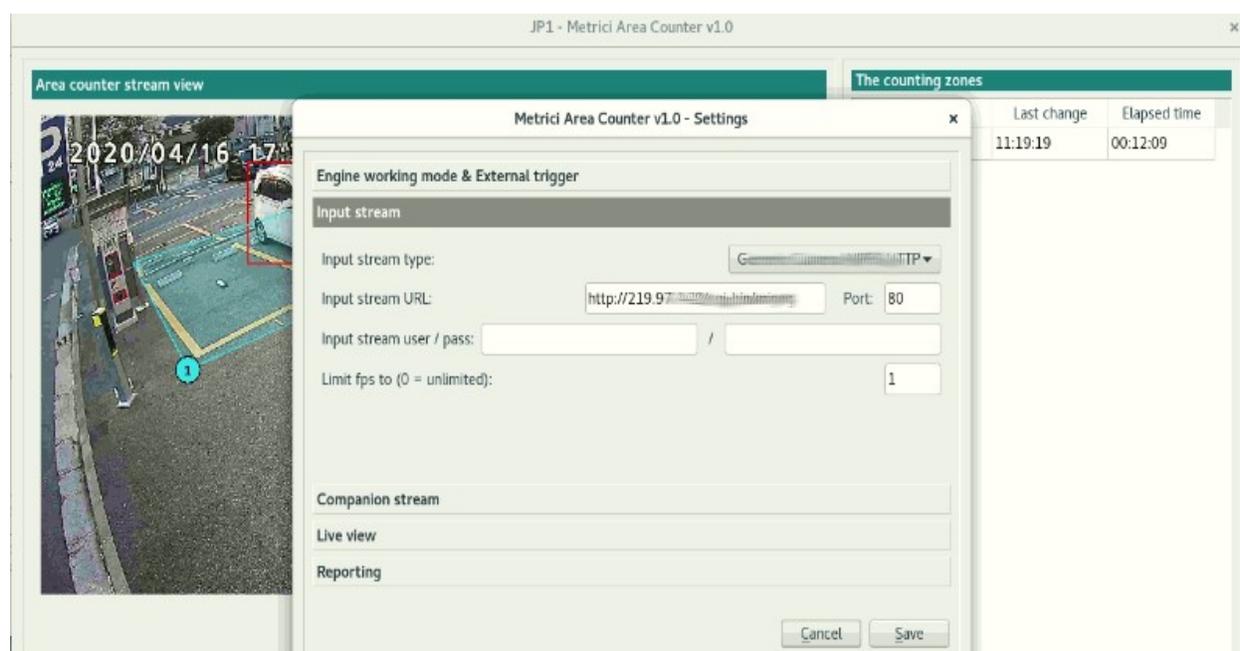


Signaling device URL for coming events (ON) is an address which Metrici can trigger any time an object crosses a gate. This can be hardware: LED display, traffic light, audio, light, barrier etc or can be a third party system.

Signaling device URL for coming events (OFF) is to interrupt the signal in the time interval set at **Delay between changing states**

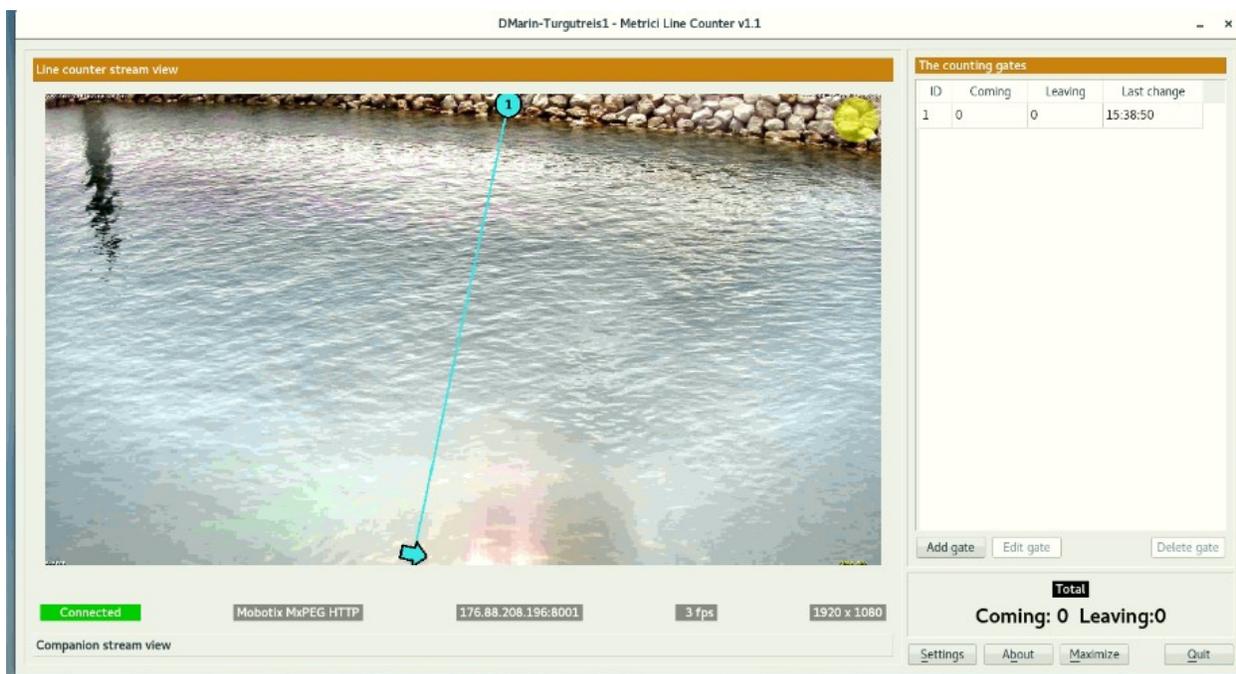
A Metrici virtual trigger is a copyright patent of Metrici when one detection engine is sending signals to activate other Metrici engine and so on. This is useful in applications where a cross checking is used but not only on that case. For example a LPR detection triggers a QR code recognition which triggers a Line Counter Recognition. The first rule is that the events must have each one a rule established in database and the detection to be triggered because there is a unique verification key for every detection which connects to the next in the chain.

7.2 Input Stream



Section **Input stream** will be filled with connectivity data of the IP 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 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 you use a model of camera that isn't on Metrici list, just choose "Generic Camera".

7.3 Add gate



For counting to be done, click on the Add gate button on the Control Panel. Move the newly created gate to the position you want, by dragging its ends and positioning the coming position arrow in the proper position. Remember that objects moving in the direction of the arrow will be counted as coming. Objects moving in the opposite direction will be counted as leaving. Save after positioning. Any number of counting gates can be positioned on a single camera view. Be aware that for an object to be counted, Metricí has to see in multiple frames before crossing the gate, so a counting line shouldn't be placed at the edge of the view.

7.4 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 PPD/LPR/QR CODE/CCR events. 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. Generally used in LPR, CCR and QR code, but not limited to these.

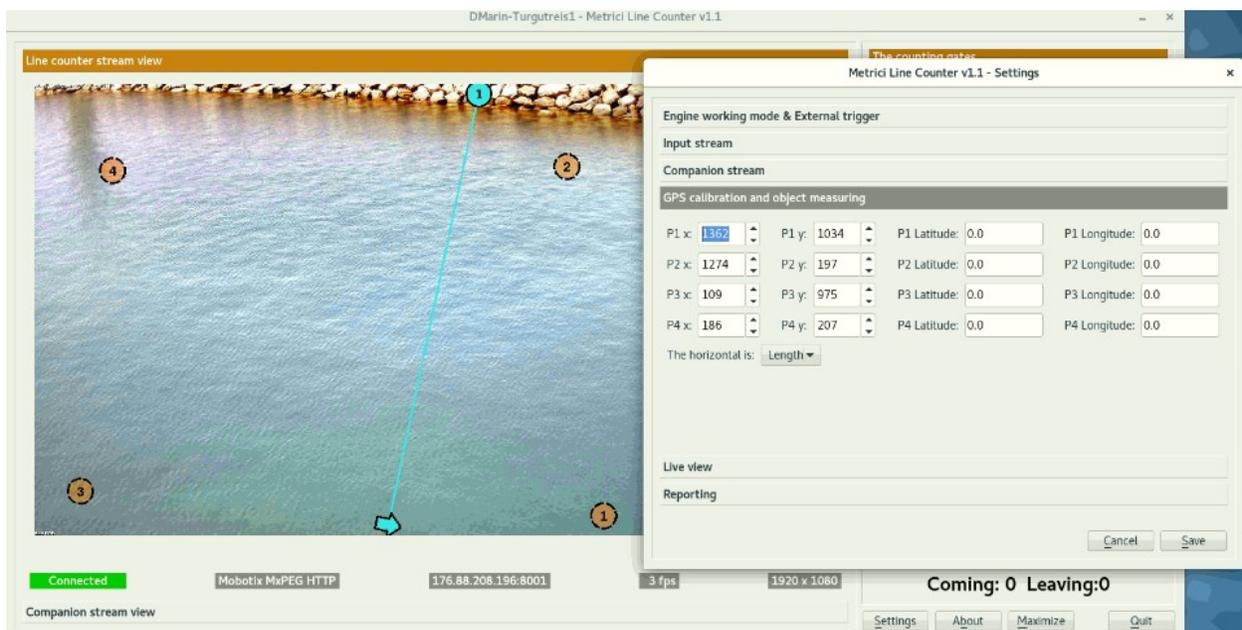
Companion Stream Type: Choose the model of the second camera. In case this model is not on the list, choose Generic camera and the video stream it uses.

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.

7.5 GPS Calibration and objects measuring

This setting is a special development by Metrici which allows measuring the objects that are crossing a gate. For this you need to imagine a rectangle which covers the area seen by the camera. You go next on site and measure the GPS coordinates on the four corners.



For each point you will need the latitude and longitude measured on site. The x and y coordinates are the places where those particular points are on the image you see on screen. After this calibration, Metrici will measure how big an object is. Remember that the more accurate you place the dots on screen to the real life measurement, the better the calculations.

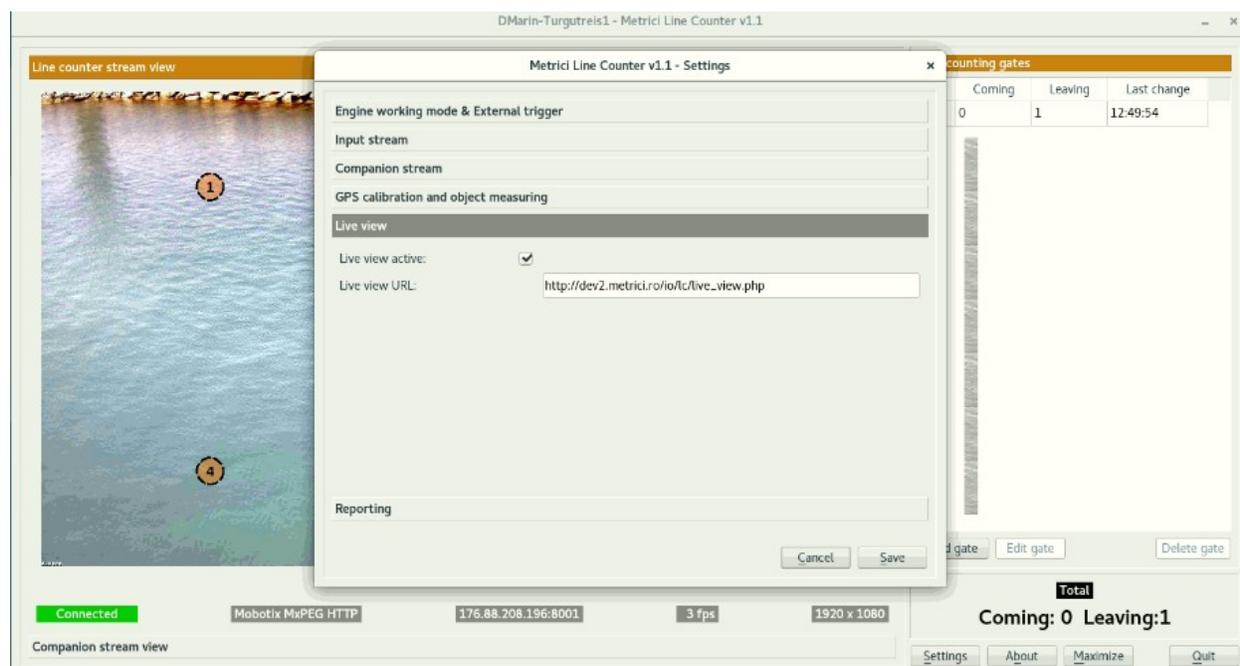
7.6 Live view

Live View tab, when checked active, will send the images to a server, or on localhost.

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 display in Metricí Interface

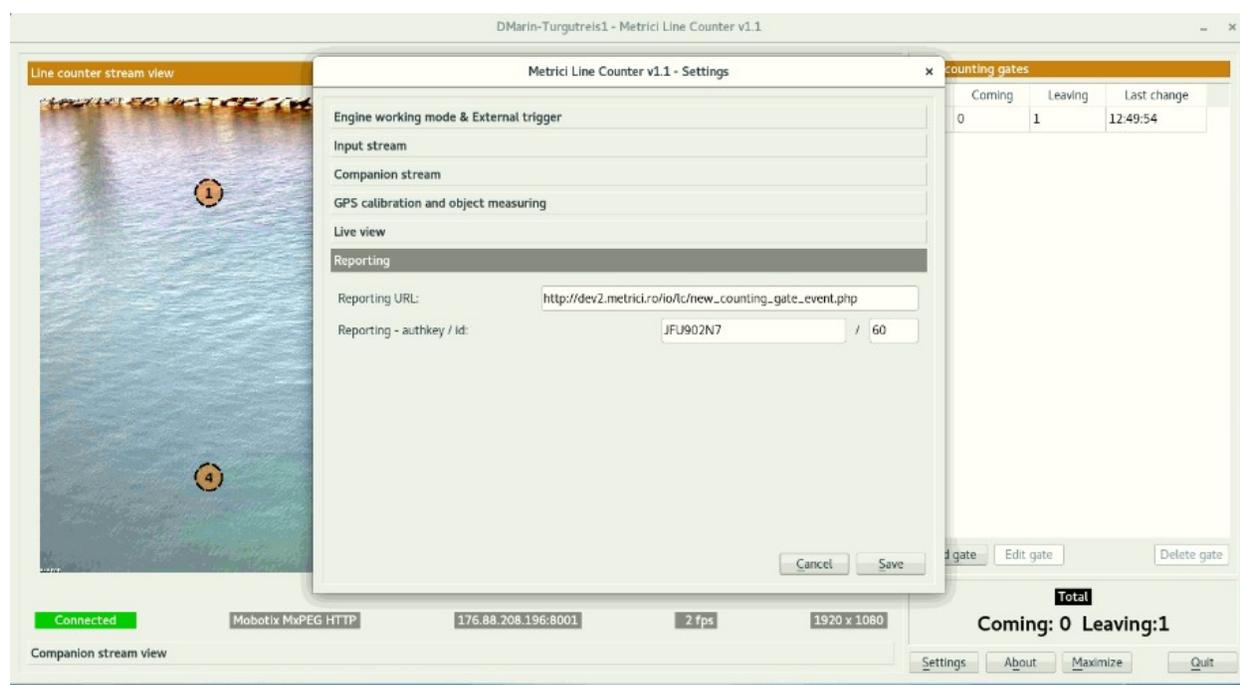
On Live View URL, you will fill in the address where the stream can be watched. If it is on same machine the address will have a form such as

http://localhost/io/lc/live_view.php which is automatically filled in by Metricí.



If the access is web based you will write an address such as http://IP_ADDRESS/io/lc/live_view.php and result a formula like http://192.1.1.1/io/lc/live_view.php or also http://metricí.ro/io/lc/live_view.php

7.7 Reporting



In the menu **Reporting** you will fill in the communication data for where Metricí sends the detections about line counter. In order to activate the communications between the engines and the interface, you will also fill in the authkey and the ID generated by **Metricí Interface** when the camera was introduced in the **Locations and Camera** menu, which is the only way to integrate the communication between the detection unit and analysis centre. If you will not fill these data, you will not have access to Live View and you will not receive events, 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 **Metricí Interface** on **Global Settings menu, Locations&Cameras** and choose a location to view all the cameras in . As in the next image. **Each camera has a unique ID and authkey which will be used in the engine in Control Panel.**

If the reporting is on same machine, the Reporting URL will take a form such as **http://localhost/io/lc/new_counting_gate_event.php**. This is how Metricí builds the database, the statistics and reports and creates the lists in Events.

If the database is not on the same server and the reporting is done towards another URL you will fill in an address such as

http://IP_ADRESS/io/lc/new_counting_gate_event.php and will result a formula such as http://192.1.1.1/io/lc/new_counting_gate_event.php or

http://dev2.metrici.ro/io/lc/new_counting_gate_event.php

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 Web Interface**, when a connection at internet /network is set.