

Table of Contents

CHAPTER 1 PRESENTATION.....	2
CHAPTER 2 CENTOS 7 INSTALL.....	3
2.1 Kickstart CentOS installation.....	3
CHAPTER 3 First settings after the reboot.....	7
CHAPTER 4 DOWNLOAD AND INSTALL METRICI AC.....	8
CHAPTER 5 AREA COUNTER SETTINGS.....	11
5.1 AREA COUNTER- INITIATING.....	11
5.2 APPLICATION SETTINGS.....	12
5.3 USERS ADMINISTRATION.....	13
5.4 TIME TABLES.....	14
5.5 LOCATIONS & CAMERAS.....	14
5.6 LICENSES.....	17
5.7 LANGUAGES.....	17
5.8 BACKUP AND RESTORE.....	17
5.9 LOGS.....	18
CHAPTER 6 AREA COUNTER MODULE.....	18
6.1 DASHBOARD.....	18
6.2 COUNTING EVENTS.....	19
6.3 LIVE VIEW.....	21
6.4 REPORTS.....	21
6.5 ALARMS.....	23
6.6 SETTINGS.....	28
Locations and cameras.....	28
Groups.....	31
Location plan.....	33
CHAPTER 7 METRICI CONTROL PANEL SETTING AND USING.....	34
7.0 License activation.....	36
7.1 Engine working mode & External Trigger.....	38
7.2 Input Stream.....	41

7.3 Adding zones.....	42
7.4 Companion Stream.....	43
7.5 Live View.....	44
7.6 Reporting.....	45

USER GUIDE

METRICI AREA COUNTER

CHAPTER 1 PRESENTATION

Area Counter (AC) is a dedicated tool developed by Metricí to manage detecting and counting different objects in a video stream.

Metricí AC 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 engine**, 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.

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.

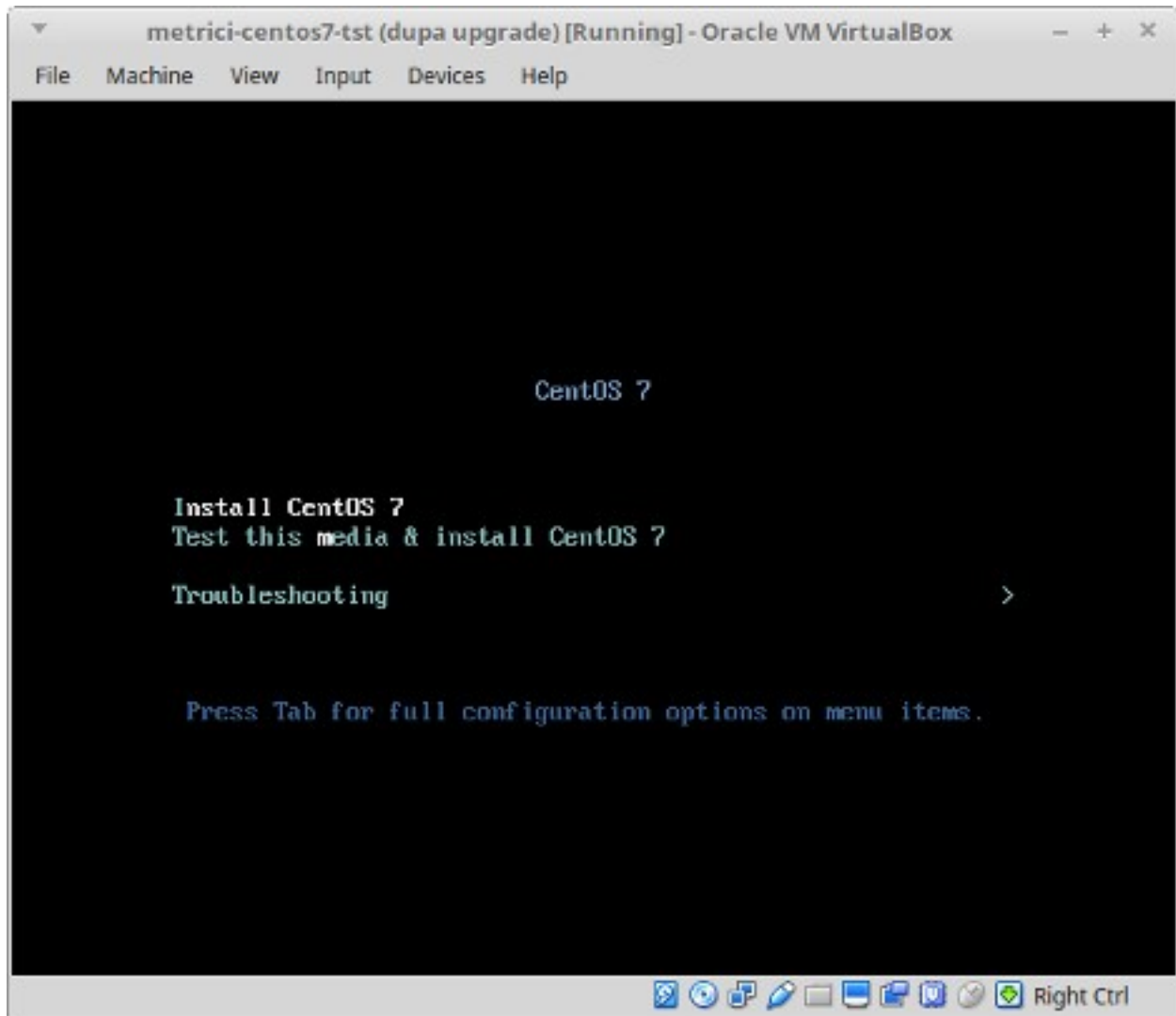
REMEMBER! For installing CentOS 7 and Metrici AC, it is mandatory to have internet access, but only during install. After that, the web access is no longer mandatory and Metrici can work offline. This is due to the fact that some packages for install are taken from server sources.

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

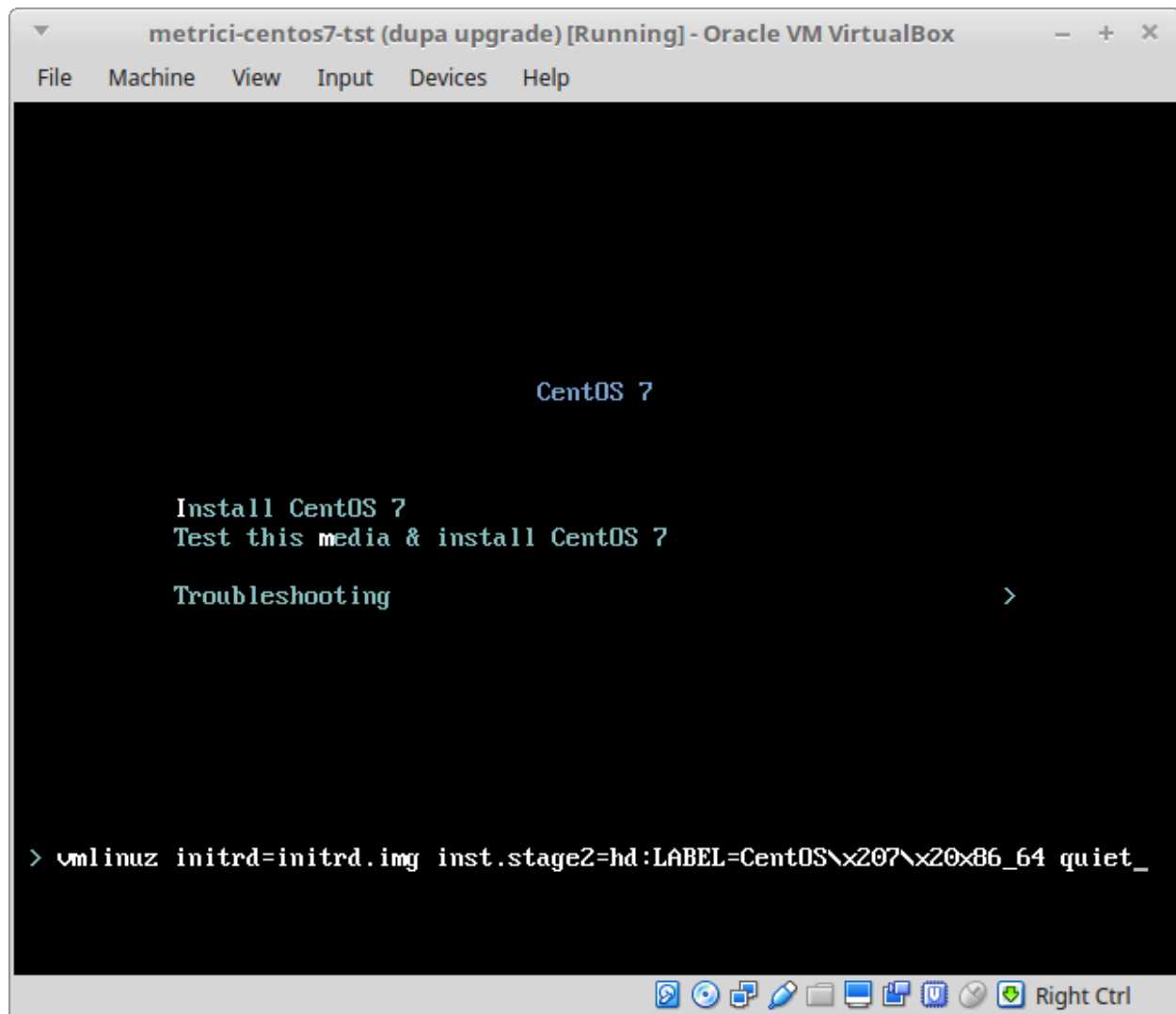
Download the Operating System and make a bootable stick or DVD.

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!**



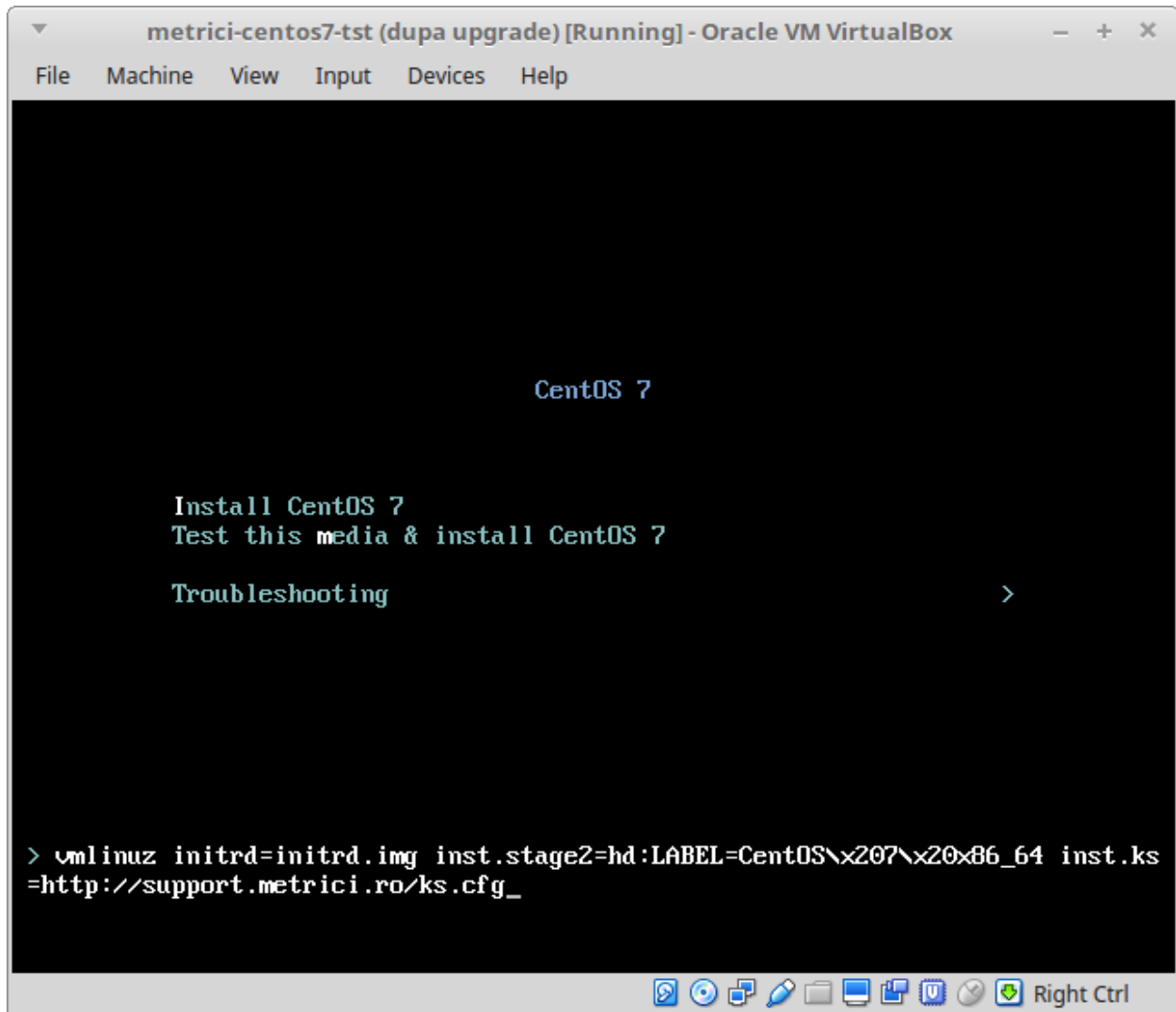
Press Tab instead. You will notice some parameters on the bottom of the screen. See next image.



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

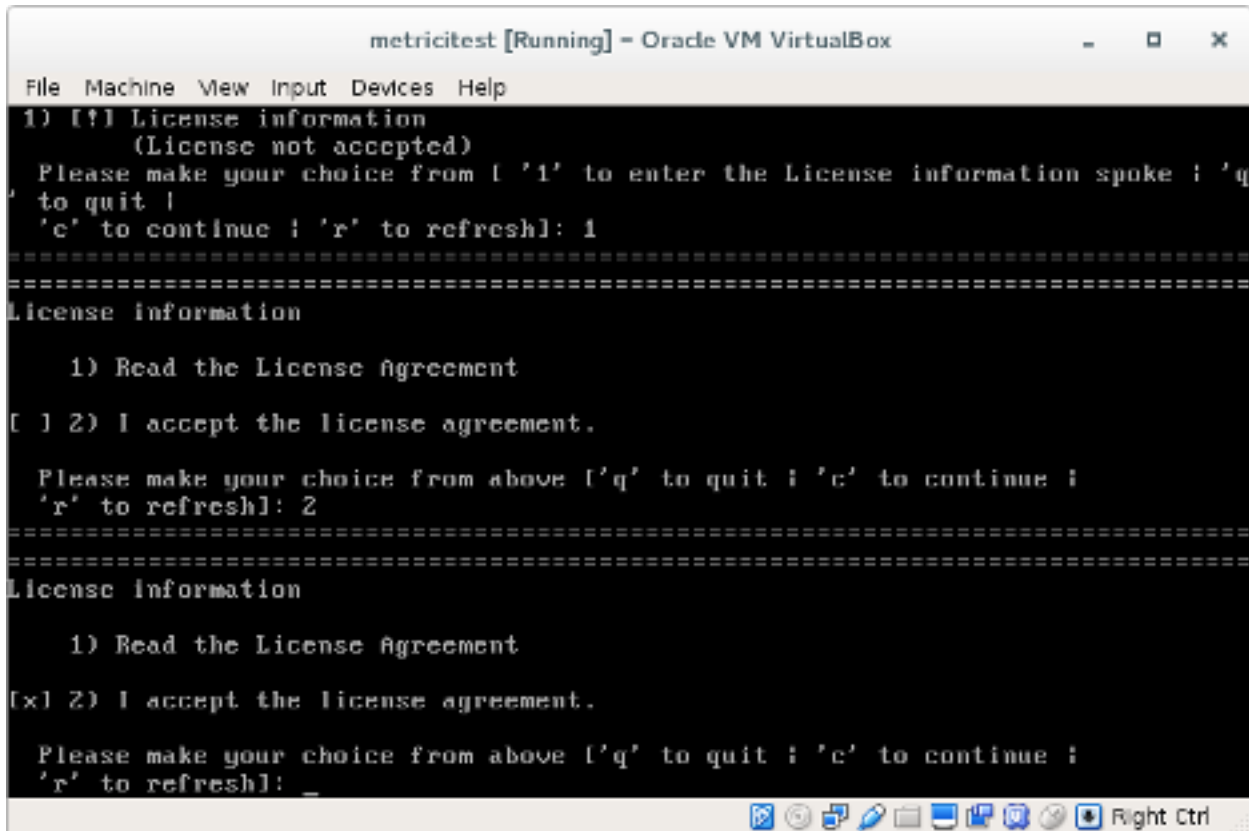
After the first boot, the system will ask for you to read the license agreement. You complete this task by choosing **LICENSE INFORMATION**.

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

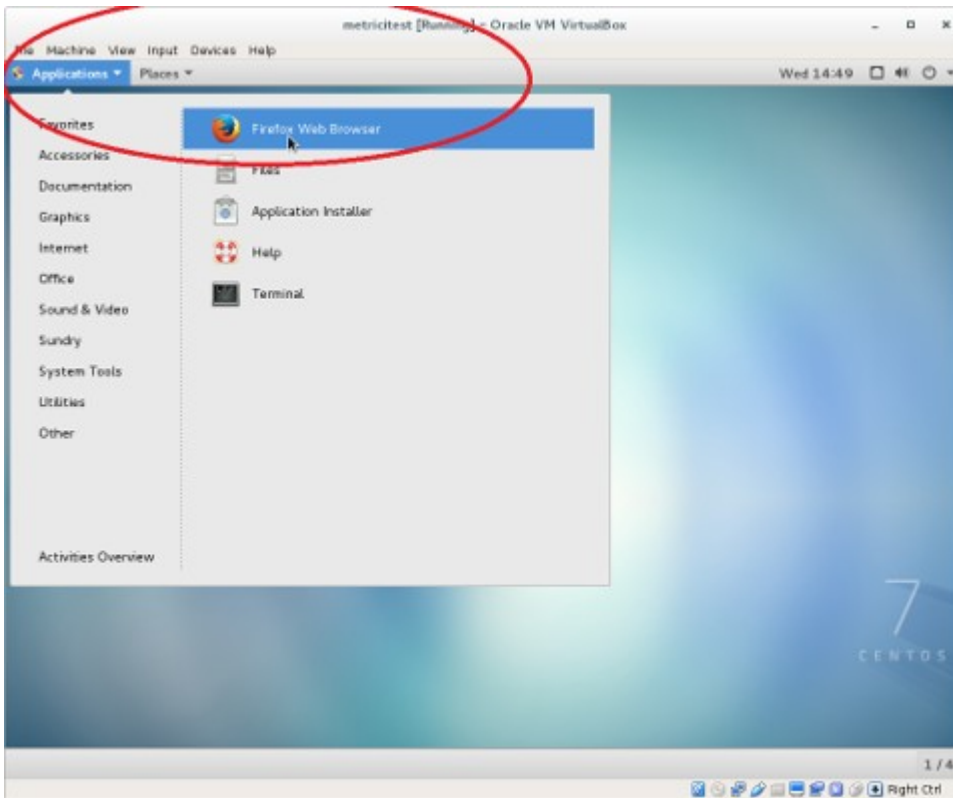
It is possible that during the reboot, the system to ask for license agreement in a written text as in image bellow. In this case the steps explained above will be ignored.



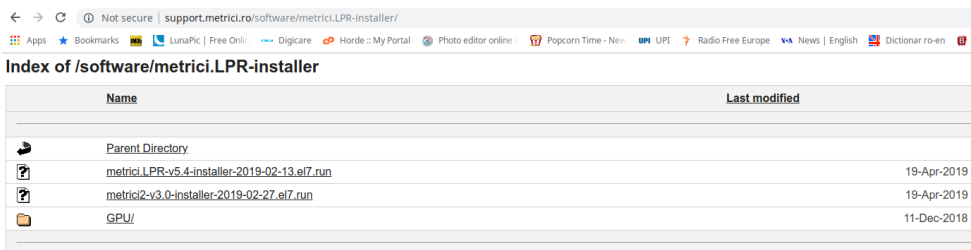
After the reboot, you can authenticate by using the user and password defined during installation. In case of kickstart installation that would be **metrici** and **metriciadmin**.

You navigate through the last settings, click Next.

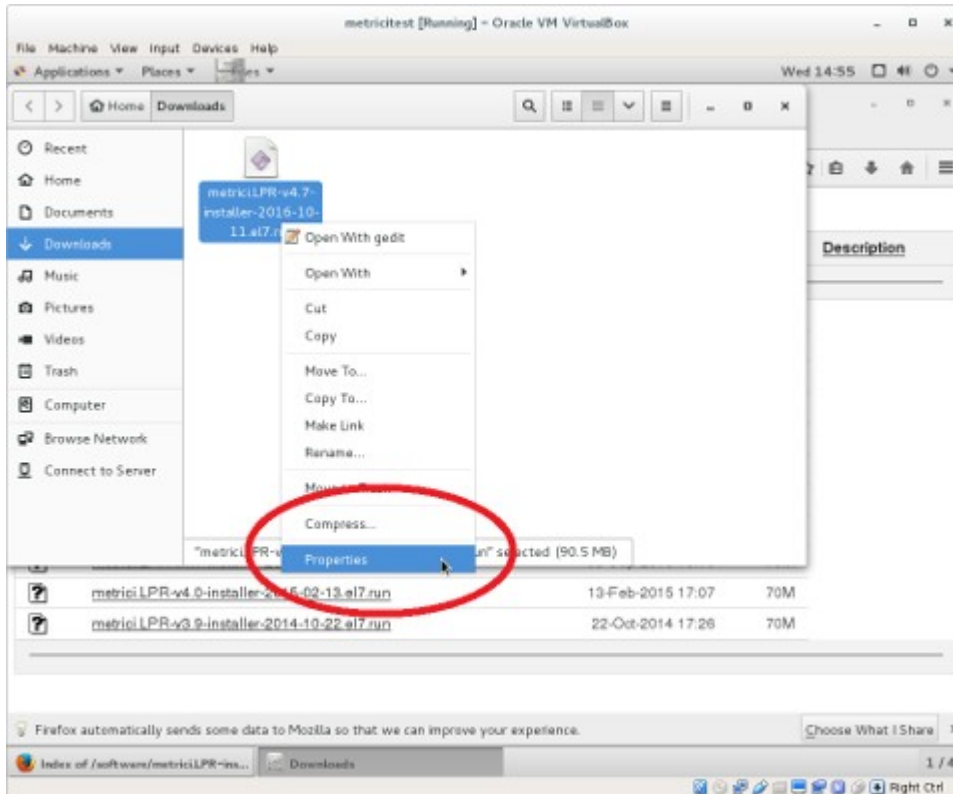
CHAPTER 4 DOWNLOAD AND INSTALL METRICI AC



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

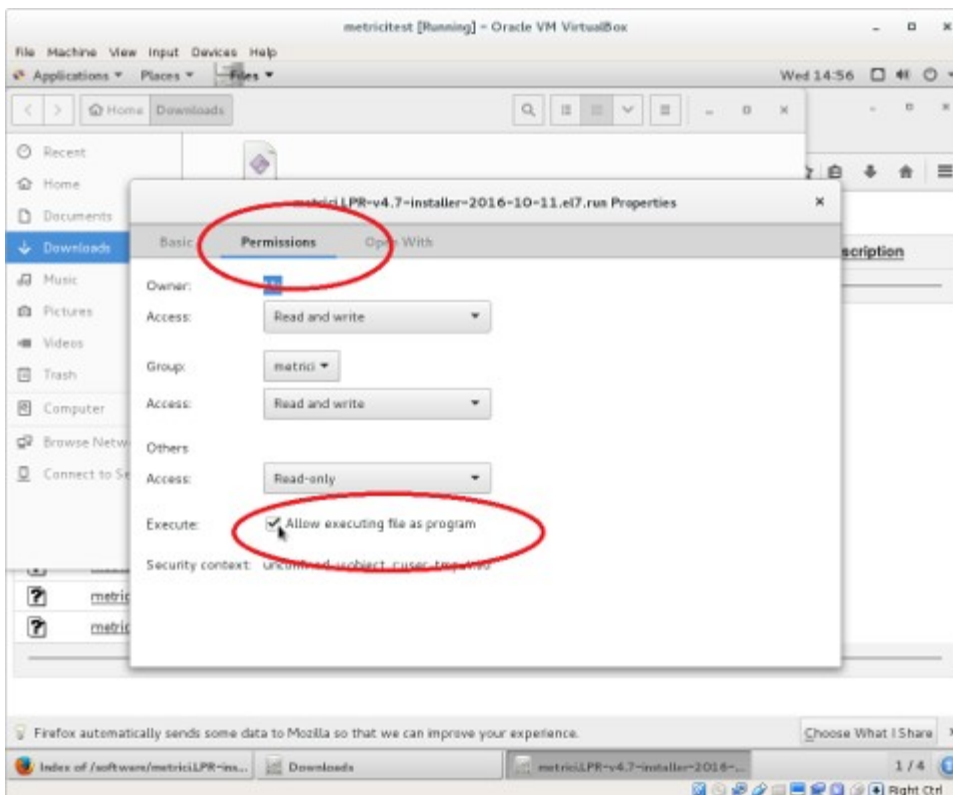


Access the address <http://support.metrici.ro/software/metrici-installer/>
Download [metrici2-v3.3-installer-2019-02-27.el7.run](#),
or the latest version of the software, with the suffix el7.run
Save it on disk

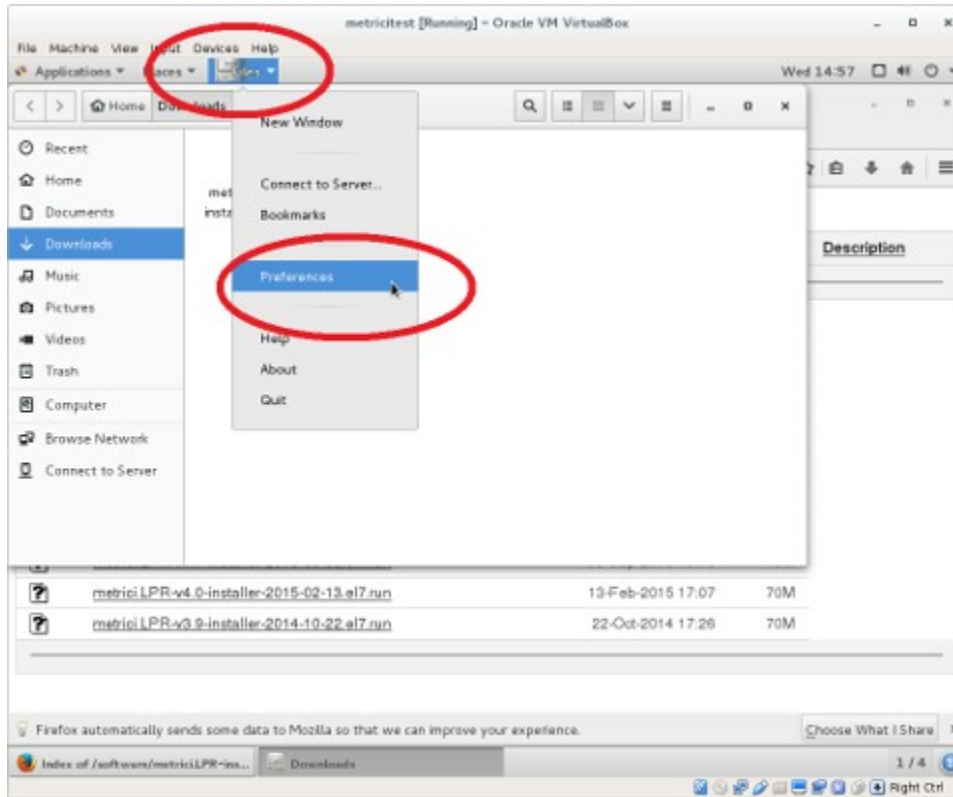


Open the folder where the file was saved (right click - Open Containing Folder).

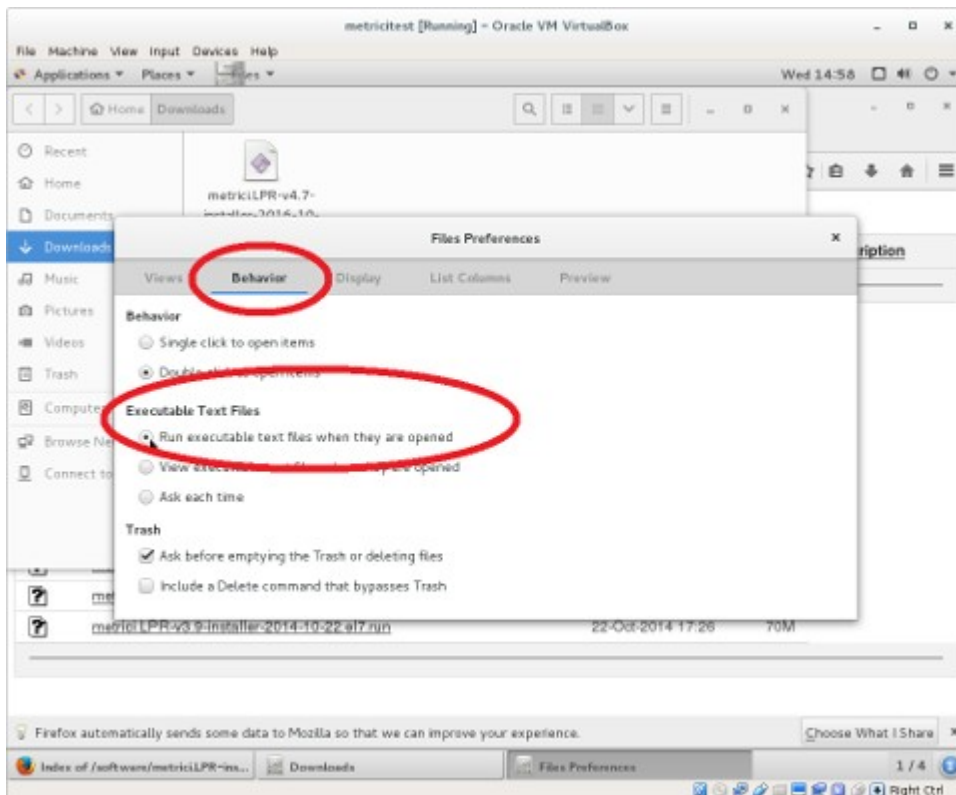
You need to change the administration rights for the file (right click on the file- **Properties** menu).



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 program as any**

CHAPTER 5 AREA COUNTER SETTINGS

5.1 AREA COUNTER- INITIATING

When login to Metrici, you will see a list of all Metrici 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 will be made with the credentials

User: metrici@metrici.ro

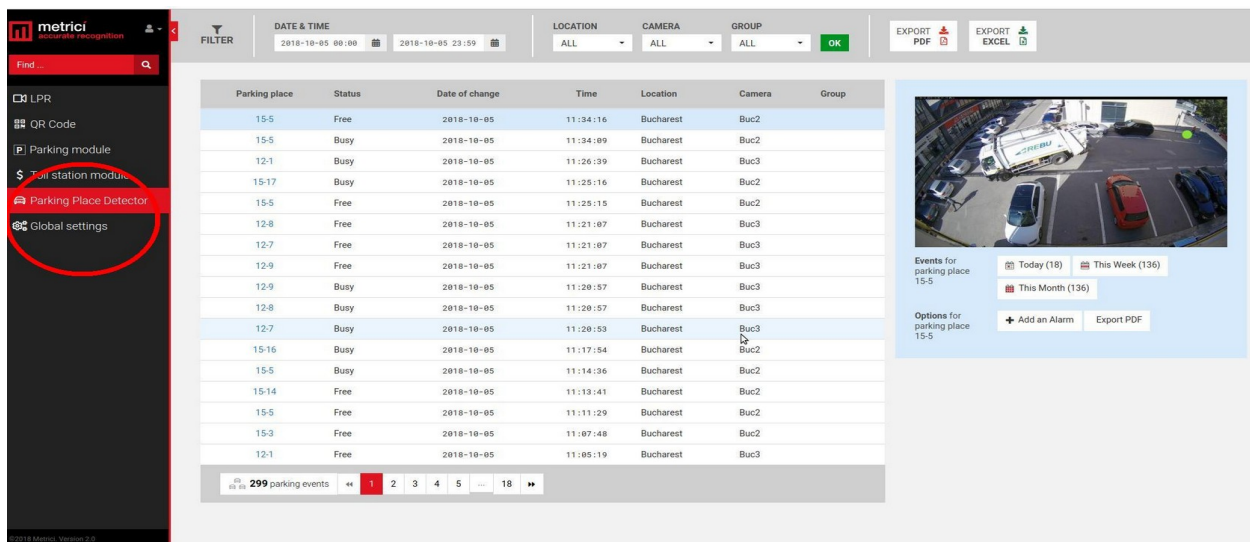
Password: metriciadmin

Metrici recommends changing this password after log in.

After that any number of users and passwords can be 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. For the Area Counter to be activated, you need to create a location and add to it at least one camera as AREA COUNTER TYPE!

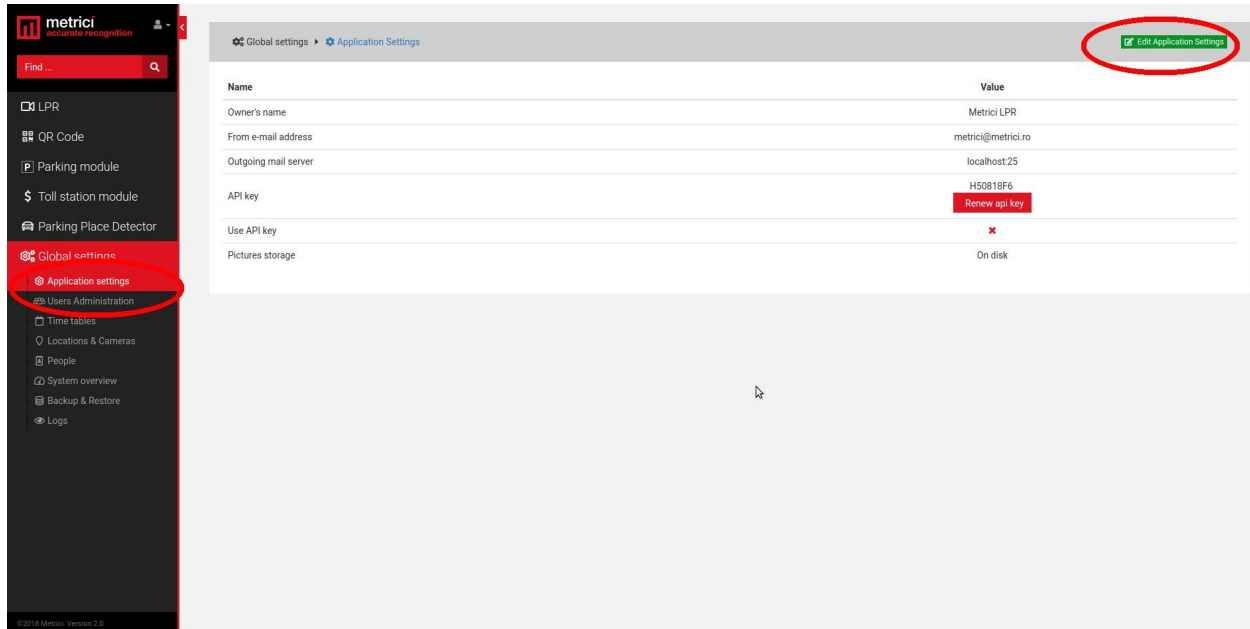


The screenshot displays the Metrici web application interface. On the left, a sidebar menu lists various modules, with 'Parking Place Detector' highlighted and circled in red. The main content area features a table of parking events with columns for Parking place, Status, Date of change, Time, Location, Camera, and Group. The table shows a list of events for the date 2018-10-05. Below the table, there is a pagination bar indicating 299 parking events. On the right side, there is a camera feed showing a parking lot with several cars. Below the camera feed, there are statistics for events for the parking place 15-5, including 'Today (18)', 'This Week (136)', and 'This Month (136)'. There are also options to 'Add an Alarm' and 'Export PDF'.

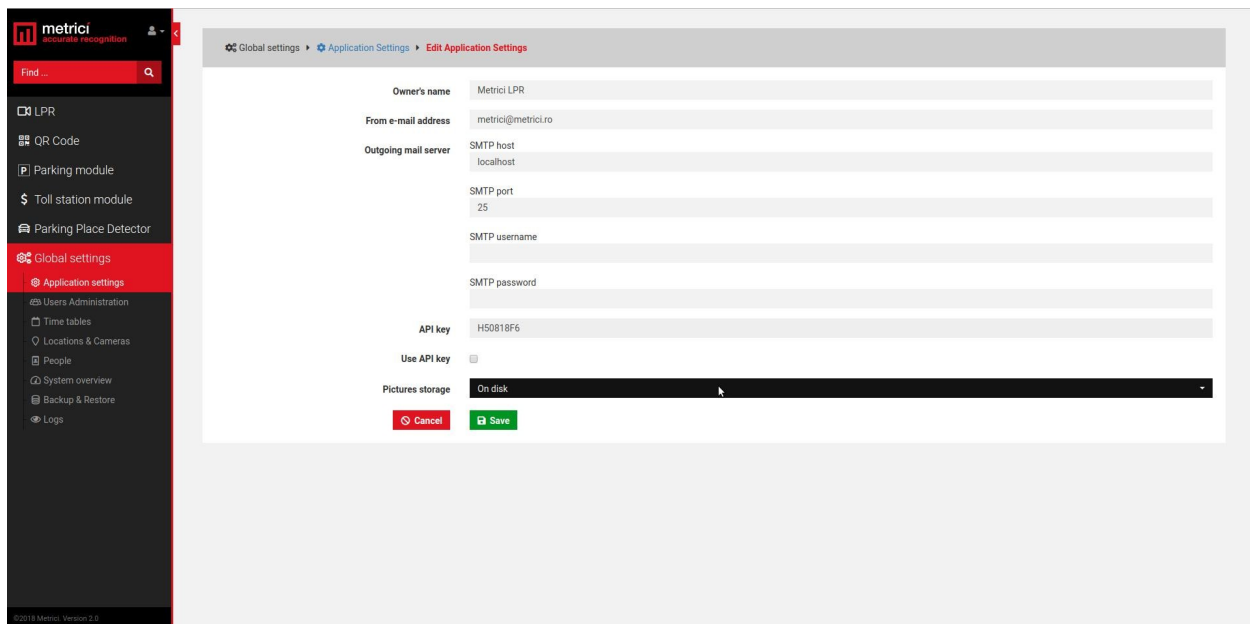
Parking place	Status	Date of change	Time	Location	Camera	Group
15-5	Free	2018-10-05	11:34:16	Bucharest	Buc2	
15-5	Busy	2018-10-05	11:34:09	Bucharest	Buc2	
12-1	Busy	2018-10-05	11:26:39	Bucharest	Buc3	
15-17	Busy	2018-10-05	11:25:16	Bucharest	Buc2	
15-5	Free	2018-10-05	11:25:15	Bucharest	Buc2	
12-8	Free	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	

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.



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 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 the Interface anymore. However, it may be made active again by another user with administration rights.

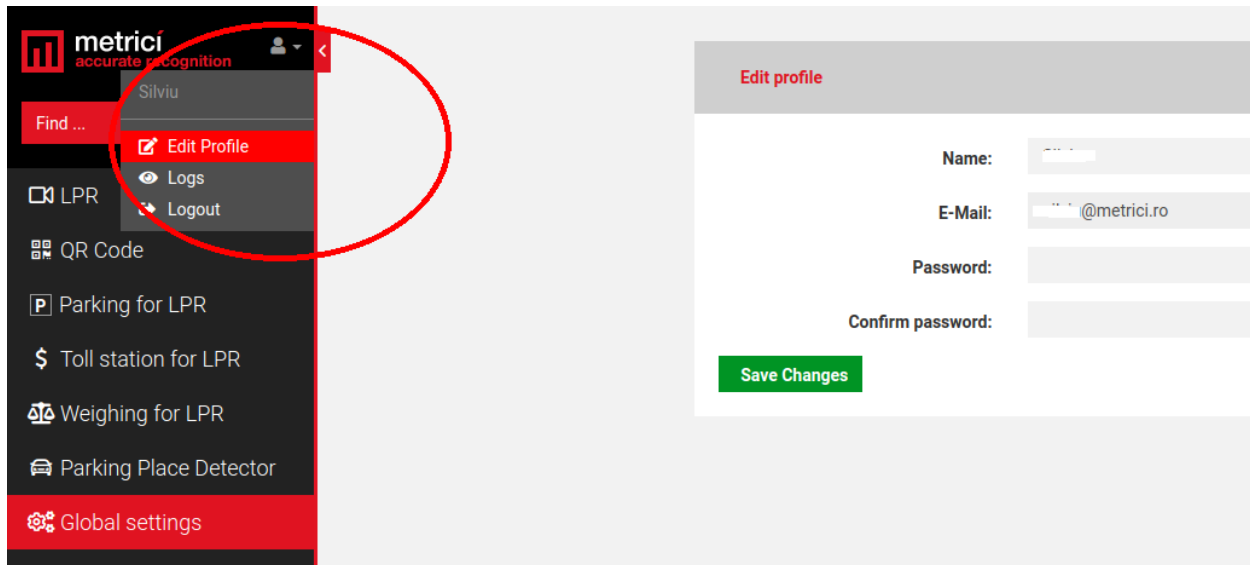
When a new user is added, choose a name for it, designate and email address, choose the language in which the menu is displayed, set a password and confirm it. These data will be used when login by that particular user.

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 Metricí 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 Area Counter Module. For a better use and understanding of this feature, see the other modules guide settings.

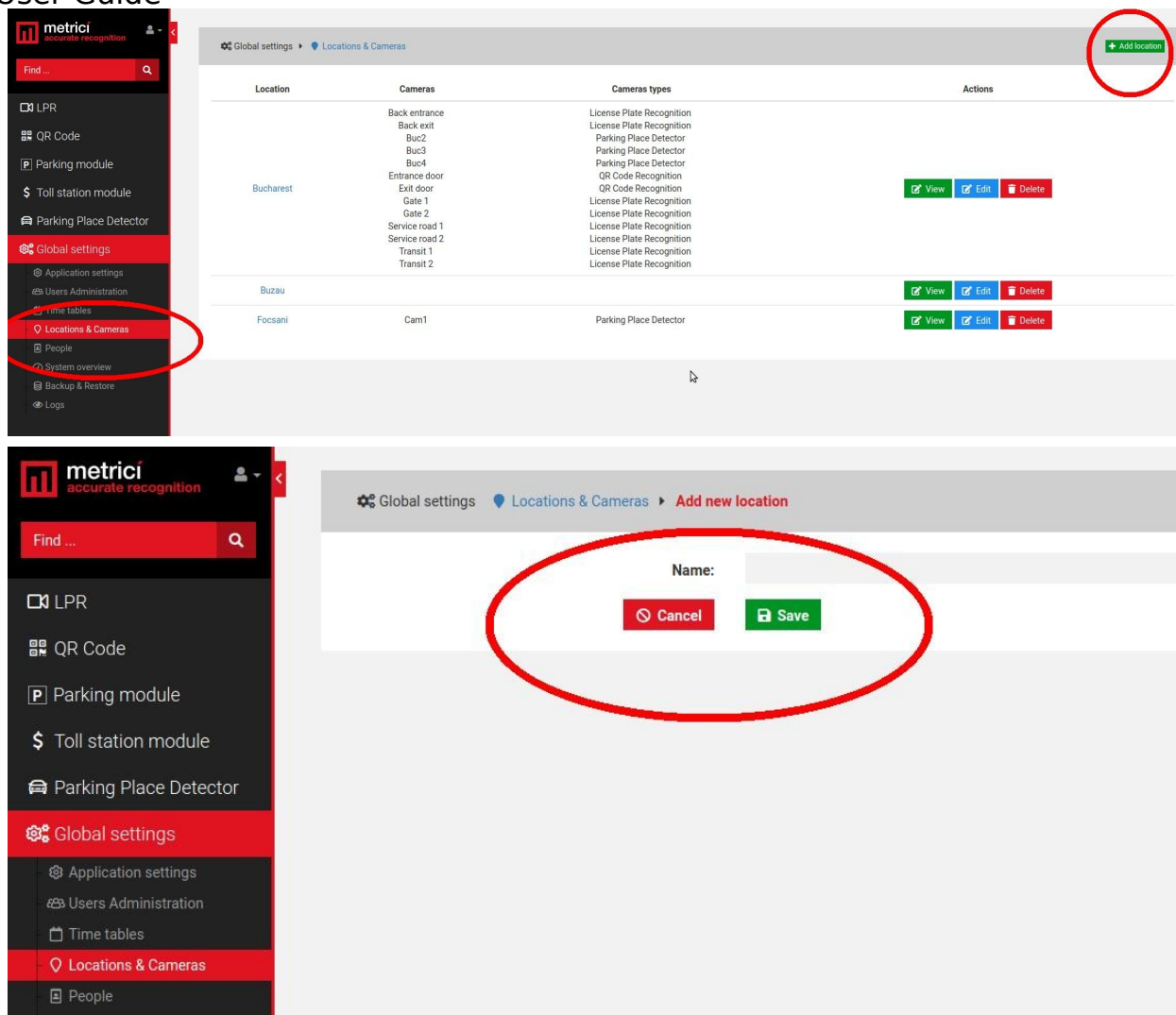
For example, a user can set to receive an alert email only when certain conditions are met.

Generally, the time table is used in Parking LPR module, 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.

METRICI Area Counter v1.0 User Guide



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.

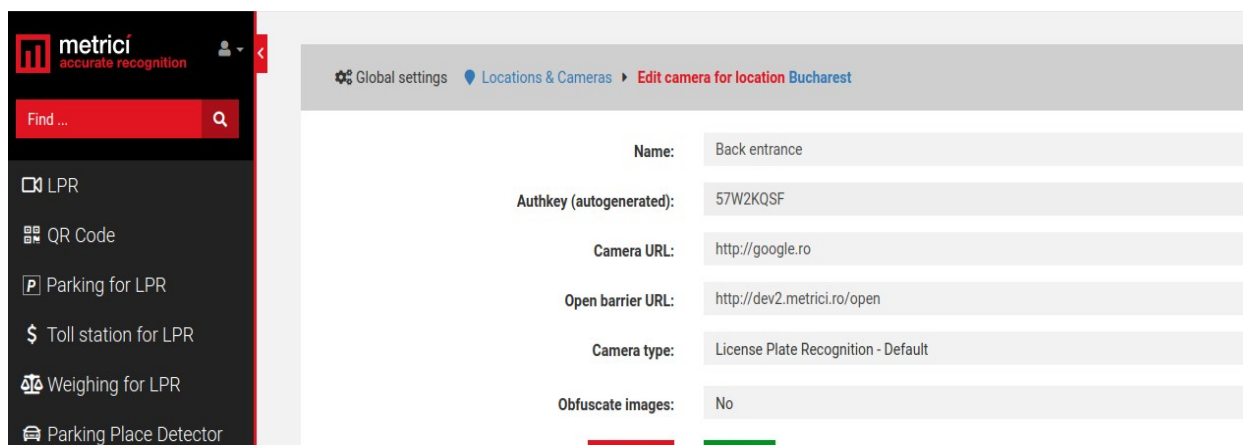
Name: Choose a name for this camera to easily identify it and locate it

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.

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.

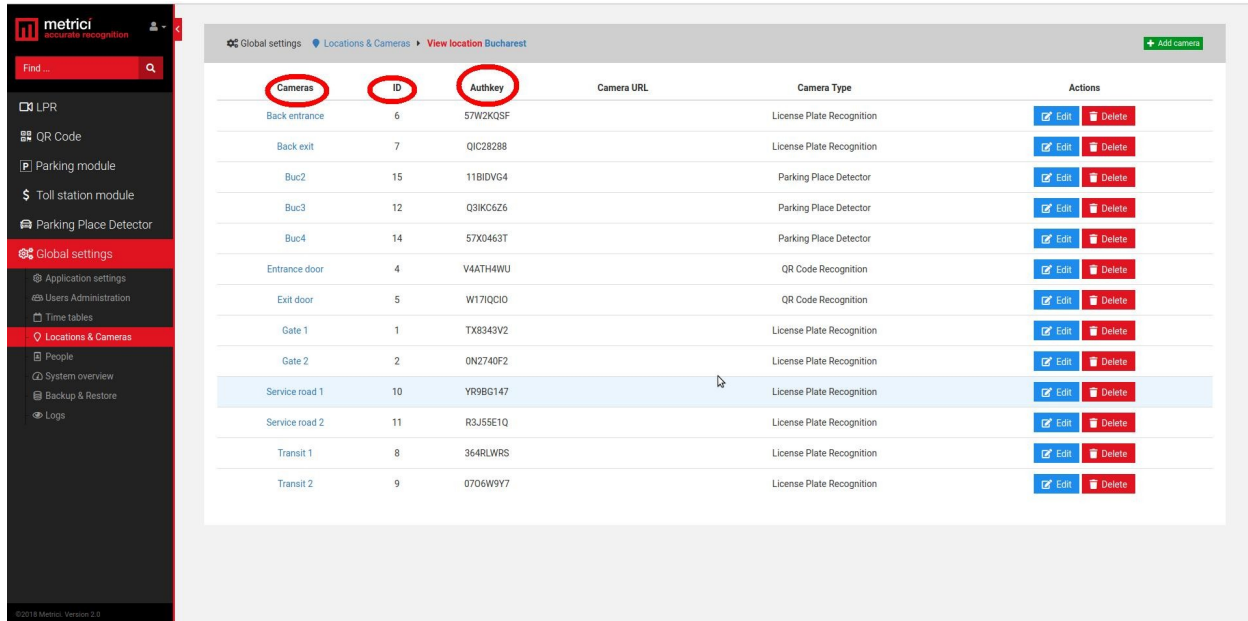
Camera Type is the application for which this camera is used for. Choose the appropriate one- license plate recognition, parking place detector, QR code recognition etc. Keep in mind that if you don't select the correct application, you won't see that camera and settings in your module.



Obfuscate images: Is the Metricí feature that enables you to be GDPR compliant. For each camera in a location you can choose to blur the event photo recorded by Metricí. 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 **Metricí Control Panel** where the detection engines are located, on the server which runs the Metricí software. This can be on the same machine or another one.

When the ID and the authkey of the cameras are added to the Metricí 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	11BIDVG4		Parking Place Detector	Edit Delete
Buc3	12	Q3IKC6Z6		Parking Place Detector	Edit Delete
Buc4	14	57X0463T		Parking Place Detector	Edit Delete
Entrance door	4	V4ATH4WU		QR Code Recognition	Edit Delete
Exit door	5	W17IQCI0		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	R3J55E1Q		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 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.

CHAPTER 6 AREA COUNTER MODULE

6.1 DASHBOARD

First of all what it is to remember about Metricí Area Counter is the fact is that an event is saved in database every time the number of objects defined by the user changes in the video stream (be it full image or a zone if one chooses so).

So, for example, if Metricí is set to detect people in a zone covered by the camera, every time the number of people in the zone changes from 0 to 1, or from 5 to 4, or from 10 to none etc, an event is saved in database with phot 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.

Next to it is another dropdown menu where you can choose what type of objects you want details about detection: people or vehicles.

On the left side you will notice a list with all the zones 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 Metricí** on the cameras.

Next there is a table with the fields

CAMERA TOTAL AVAILABLE COUNTER OCCUPANCY

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

Camera - is the name of the camera as it was set in Global Settings

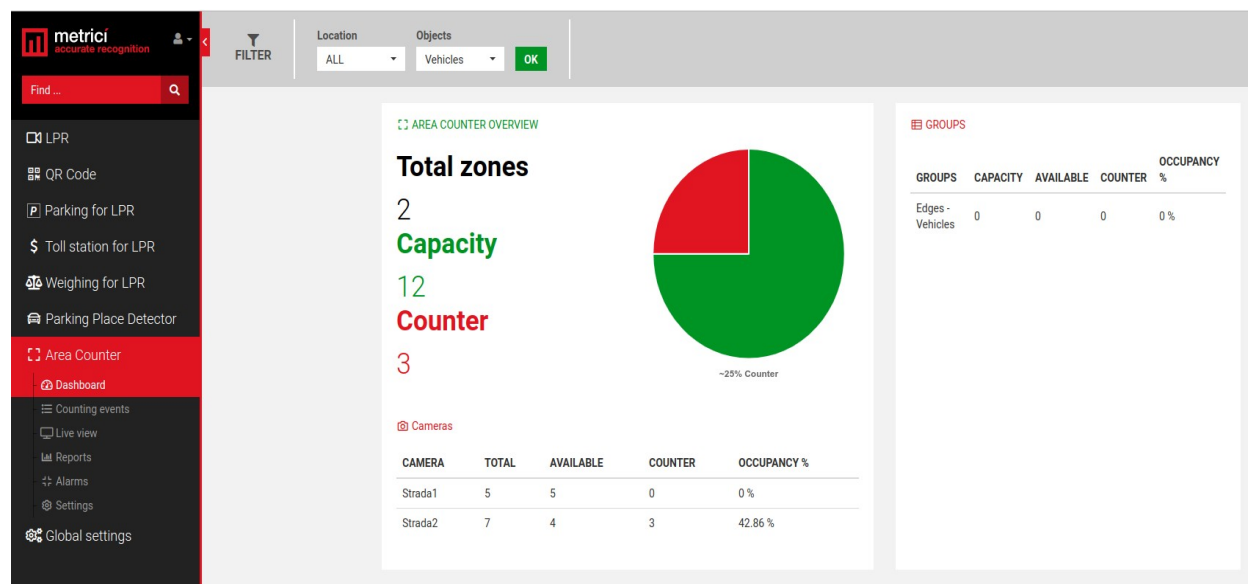
Total: Number of possible objects in the frame/zone for that camera

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.

On the right side of the page you see a menu for the groups in your location. Check next chapters.



6.2 COUNTING EVENTS

A list of all the changes intervened for any zone and 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 or the group you want to monitor, as well as the object.

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.


FILTER
DATE & TIME
2020-04-15 00:00
2020-04-15 23:59
LOCATION
CAMERA
GROUP
OBJECT
ALL
ALL
ALL
ALL
OK
EXPORT PDF
EXPORT EXCEL
EXPORT CSV

Each event has some info about it in the list. The counter (how many vehicles were in the zone after the event change), what kind of object Metrici counts and detects, date and time of change, the location in which the event occurred and the camera were the change took place, as in the photo below.

Zone	Counter	Objects	Date of change	Time	Location	Camera
36-1	0	Vehicles	2020-04-15	12:20:45	Birou	Strada1
36-1	1	Vehicles	2020-04-15	10:29:46	Birou	Strada1
36-1	2	Vehicles	2020-04-15	08:40:16	Birou	Strada1
36-1	3	Vehicles	2020-04-15	08:29:28	Birou	Strada1
36-1	2	Vehicles	2020-04-15	07:44:38	Birou	Strada1
36-1	3	Vehicles	2020-04-15	03:11:32	Birou	Strada1

On the right side of the screen, where the photo witness is situated, some additional info about the zone we click on and that event.

Location	Camera
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1
Birou	Strada1



Events for area counter 36-1

Today (37)
This Week (161)
This Month (1276)

Options for area counter 36-1

+ Add an Alarm
EXPORT PDF

In the example above, we see how the photo witness shows when a change occurred. Counter 36-1 represents the camera 36 and zone 1 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 a 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.

Add an alarm for that place, or export the event as PDF - see the alarms menu to see how to set it and what options are available. When create an alarm, remember to add conditions to it, so to work.

6.3 LIVE VIEW

As the name suggests, in this page you can set what cameras you want to watch live.

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 Area Counter Cameras and you, as a user, have **viewing rights** for this **menu and cameras**.

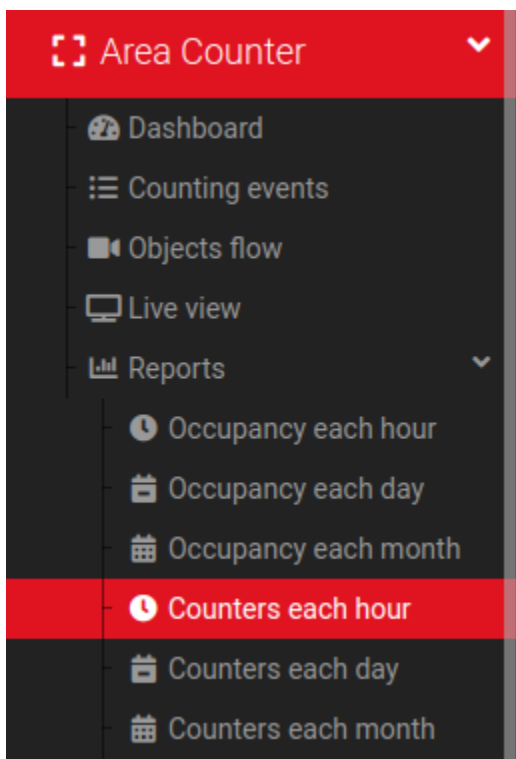
To add more cameras, choose the one you want from dropdown menu and click on ADD LIVE VIEW button, upper left.

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/ac/live_view.php. If the video will be sent and visualized to another address change localhost with another address or IP, for example http://metrici.ro/io/ac/live_view.php

6.4 REPORTS

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

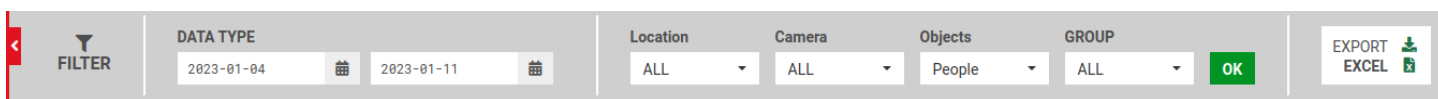


That will be occupancy each hour/each day/each month

Also Counters for each hour/ day/month

When you click one of them, the usual filters are displayed: a time interval, a location for which a report will be generated, the camera or cameras, the object and the group.

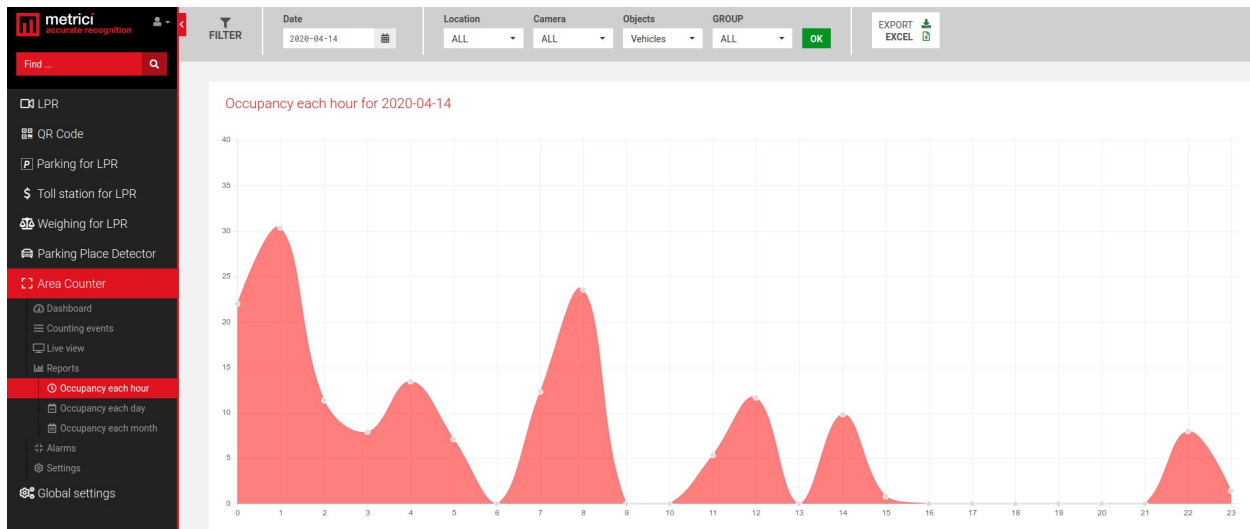
Occupancy is the percentage, where Counters is absolute numbers for each of the selected period. These are the filters you can select for the reports menu.



Tip: If you don't want a report from all the cameras in a location but only for a few of them, for example for section C, you can create a group for the cameras in that section and choose a report for that particular group. (See Settings/Groups chapter)

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.

Occupancy each hour will generate a report with the occupancy percentage of a location, a camera, an object, or a group for each hour of the selected time interval. This is how a 24 hour report shows like for a location:



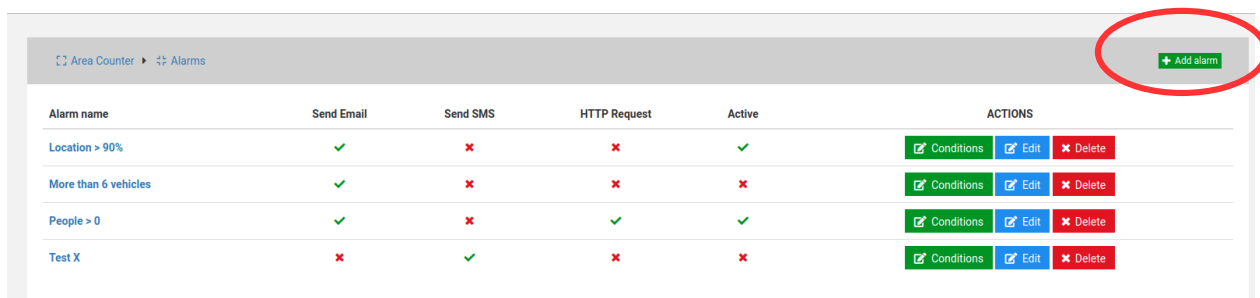
Occupancy each day will generate a report with the occupancy percentage for the current week, by default, or another time interval set in the filter.

Occupancy each month will generate a graphic with the comparative occupancy percentage for the selected input data. By default, the system will generate a report for the current year, from the beginning of the year to today. These data can be changed in the filter menu.

6.5 ALARMS

Each location or zone of a camera can have its own alarm for when one condition or more conditions are met.

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



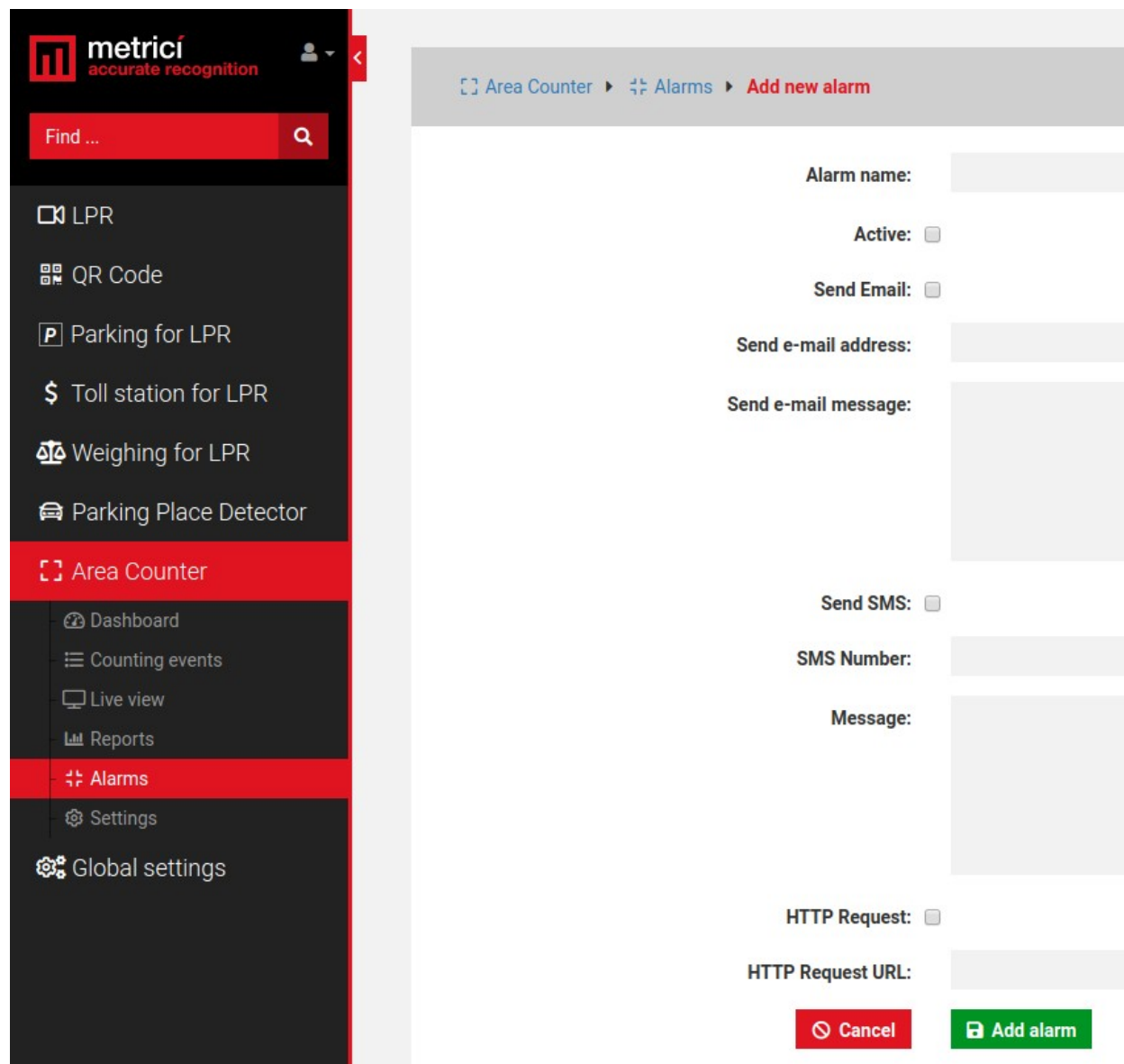
Alarm name	Send Email	Send SMS	HTTP Request	Active	ACTIONS
Location > 90%	✓	✗	✗	✓	Conditions Edit Delete
More than 6 vehicles	✓	✗	✗	✗	Conditions Edit Delete
People > 0	✓	✗	✓	✓	Conditions Edit Delete
Test X	✗	✓	✗	✗	Conditions Edit Delete

The alarm can be set to be active or not and can be of 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.



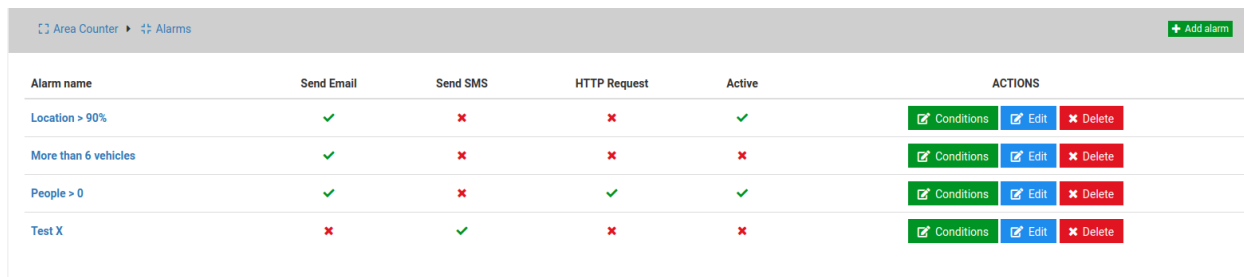
HTTP Requests refer to the fact the alarm can trigger an URL when set in this mode so it can activate a barrier or other external hardware system, or any other device on HTTP communication.

HTTP Requests URL - is the address Metrici accesses when this particular alarm will be activated.

For example you can have an alarm for when a zone is full. 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 and save them. In the next image you will see how an alarm shows like: in this case the alarm is set for when location “Birou” is 90% full.



IF	Condition	Actions
	Location = Birou	Edit Delete
AND	Occupancy > 90%	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 **Location, Group, or Zone**. For these items you will have next different conditions to be add.

So, for example, if an alarm item is set on Location the next condition will automatically be the occupancy percentage. You can set the value when the alarm is activated when a certain percentage of occupancy is reached.

When a group is selected, you will have to choose for what group/groups the alarm is active and also at what percentage or number, as the next condition.

Finally, when a place is selected as the first item, you will set next the status.

“=” 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

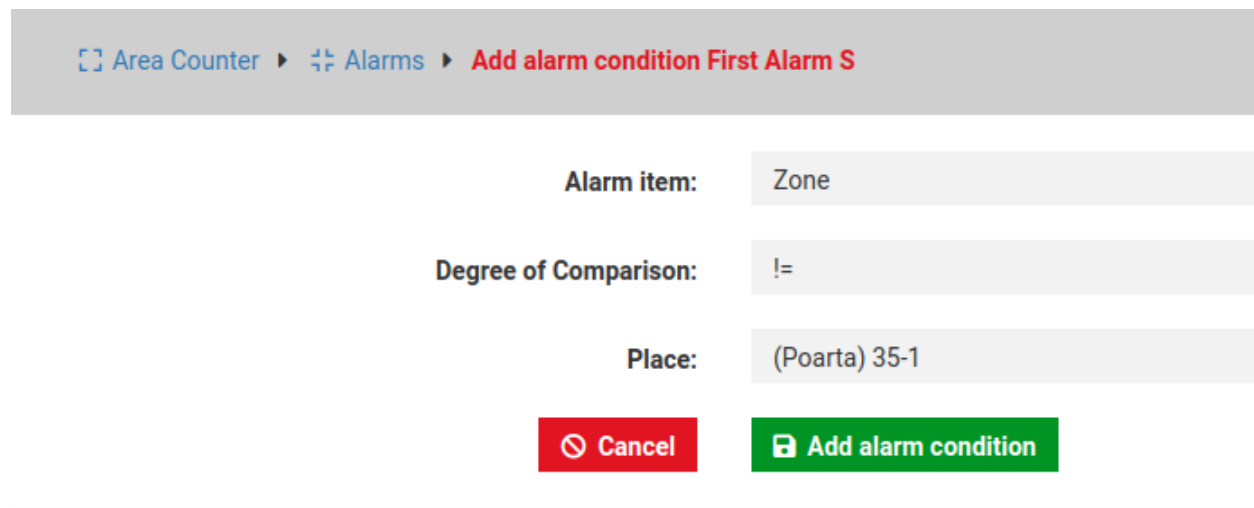
“>=” bigger or equal to a time unit, usually

For an alarm to be saved, finally you select a parameter to apply for.

If alarm item is set to **Location**, you choose a location at the last field and a degree of comparison.

If Alarm Item is **Group**, choose a degree of comparison and the group for which this rule is applied

If Alarm Item is **Zone** choose a degree of comparison -See photo below for example



So for example we want an alarm when a zone is occupied. We have to set three conditions

Zone=choose the place for which you want that alarm

Counter=More than

More than=1 minute

Or let's say you want an alarm for when the zone is almost full. We create the alarm "with a name you prefer" then we populate with conditions.

IF Location=your location for which you want an alarm

And Occupancy \geq 90%

6.6 SETTINGS

Locations and cameras

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

For any location you can edit the cameras that were allocated to it in Global Settings.

For each camera you have to introduce a maximum capacity of objects that can fit it and register it. For example how many vehicles can fit in a zone, or how many people.

The capacity is essential for the the system to properly calculate reports and generate statistics. If the information here is not accurate so the reports will be. The same for register, if not registered yo will not see events in database.

Choose a location from your list and click on its name.

From the list of cameras in your location, choose one for which you want to register the capacity.

Remember! For the zones to appear in this menu, you will first need to set cameras, edit them and add zones in Metricí Control Panel for the detection engines. Also, at least one detection has to be made and sent to Interface for the zone to be visible. See next chapter to properly set the Control Panel for each engine and begin communication between detection engines and Interface.

Area Counter ▶ Locations & Cameras ▶ Edit camera Poarta from location Birou

Registered area counter zones **Check All**

1

Capacity:

 Cancel

 Save

In case a zone becomes unavailable due to reconfiguration, working underway or any other motive, this can be unregistered, so not to be taken into account when making calculations about the occupancy percentage.

Communication with display

If you want to display info about available spaces in your parking on a LED display, go to Area Counter/ Locations and Camera menu. From the list of your locations, click on **blue EDIT button**

Area Counter ▶ Locations & Cameras ▶ Edit Location Birou

Display Text: `#YCapacitate=#CAPACITY3
#RContor=#COUNTER3
#GDisponibil=#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

URL: `http://IP_OF_THIS_SERVER/io/ac/location_display.php?id=11`

 Cancel

 Save

In the Display text field you can use some codes to that instructs the Metrici LED display what to show.

Codes that you can use for your display are shown below:

Codes that you can use for your display are are shown below:

`#YCapacitate=#CAPACITY3`

METRICI Area Counter v1.0 User Guide

#RContor=#COUNTER3

#GDisponibil=#AVAILABLE3

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 represents the text to be written so #RContor will display the word "Contor" written in color Red.

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

URL: http://IP_OF_THIS_SERVER/io/ac/location_display.php?id=11

that is automatically generate in this Metrici Interface.

#GFREE ACCESS will display the text FREE ACCESS in color green.

The codes after the = sign represents the Metrici database field from where information is taken and displayed.

So #CAPACITY3 will take information about capacity of location and display it on using maximum 3 characters.

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 Metrici Display, they will not fit in and the information will scroll.

METRICI Area Counter v1.0 User Guide

#AVAILABLE3 will display how many more objects can fit in that location taking account how many were set in Capacity and registered and how many are already detected in the location.

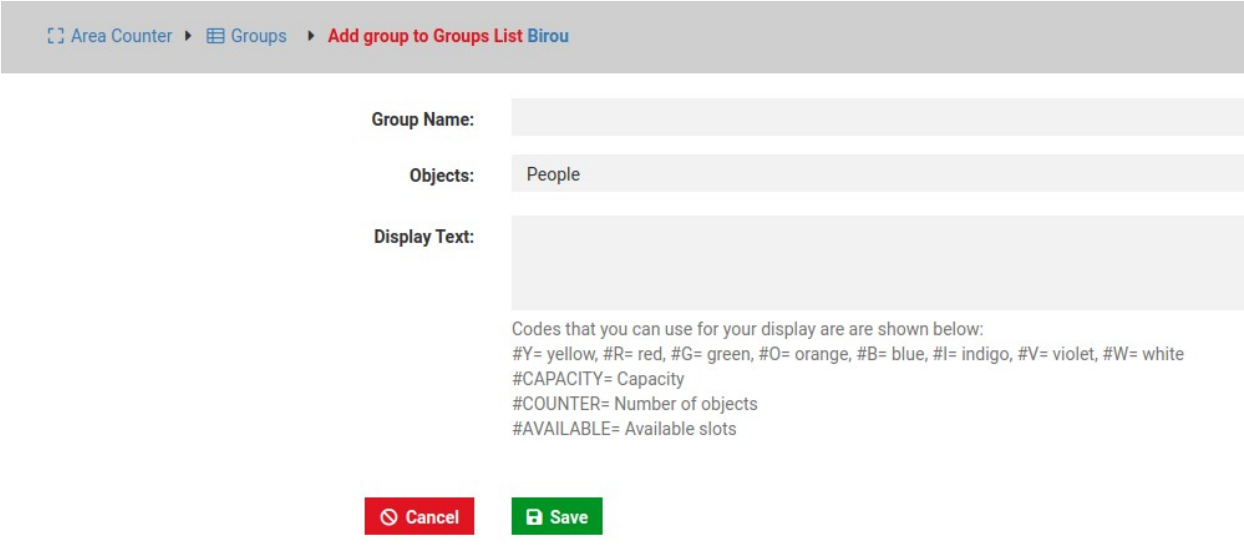
For a better understanding see also Metrici LED Display user and integration guides.

Groups

A group is a format of multiple zones that correspond to a specific characterization, set by the administrator.

Groups can also be created for some information to be delivered to a display integrated with Metrici.

First of all click on a location where you want to create a group then on Add group green button upper right. Choose a name, what objects are included and the text to be displayed.



Area Counter > Groups > Add group to Groups List Birou

Group Name:

Objects:

Display Text:

Codes that you can use for your display are 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

Codes that you can use for your display are 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

A group can include as many zones from any number of cameras.

METRICI Area Counter v1.0 User Guide

Not necessarily all zones from a camera must be introduced in a newly created group. You can choose only one zone from a camera or more. For example, you can choose to create a group in a parking lot for parking places designated to people with disabilities. Or you can choose to create a group for the VIP places, or for a tenant.

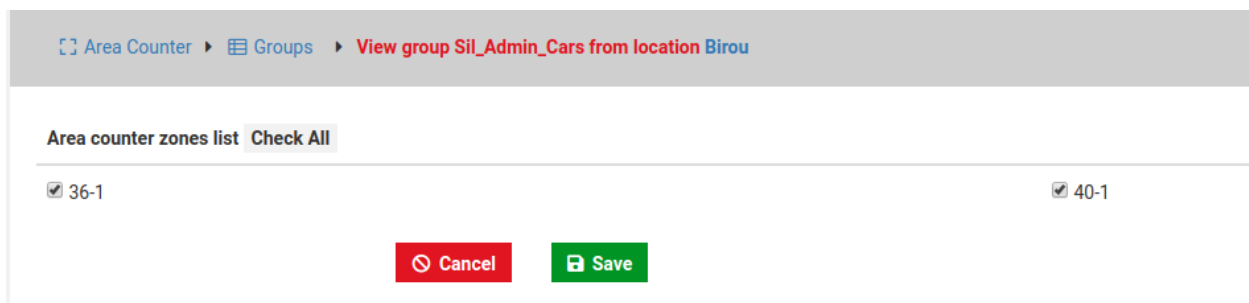
These can be spread on different levels and different cameras. This will not affect the possibility to group them and have a central management.

Click on a location's name to view or add a group for that location. Click on Add Group green button upper right of the window.

Choose a name for that group and write down the codes for communication with Metrici LED display (if you are using it.) If not, omit that. Click Save

After a group was created go to the list of groups and click on a group name or **View** green button.

From the zones available on that location, click on the ones that you want to add to that group.



The group can be edited by clicking its name or View button. You can add or delete zones to a group at any time.

From the list of zones available in a location, from all cameras, choose the ones that suit the characteristics of the group.

The events registered by a group can be exported from “ Events” menu, selecting the group name from filters menu.

The filters also include cameras, location, date and time.

Location plan

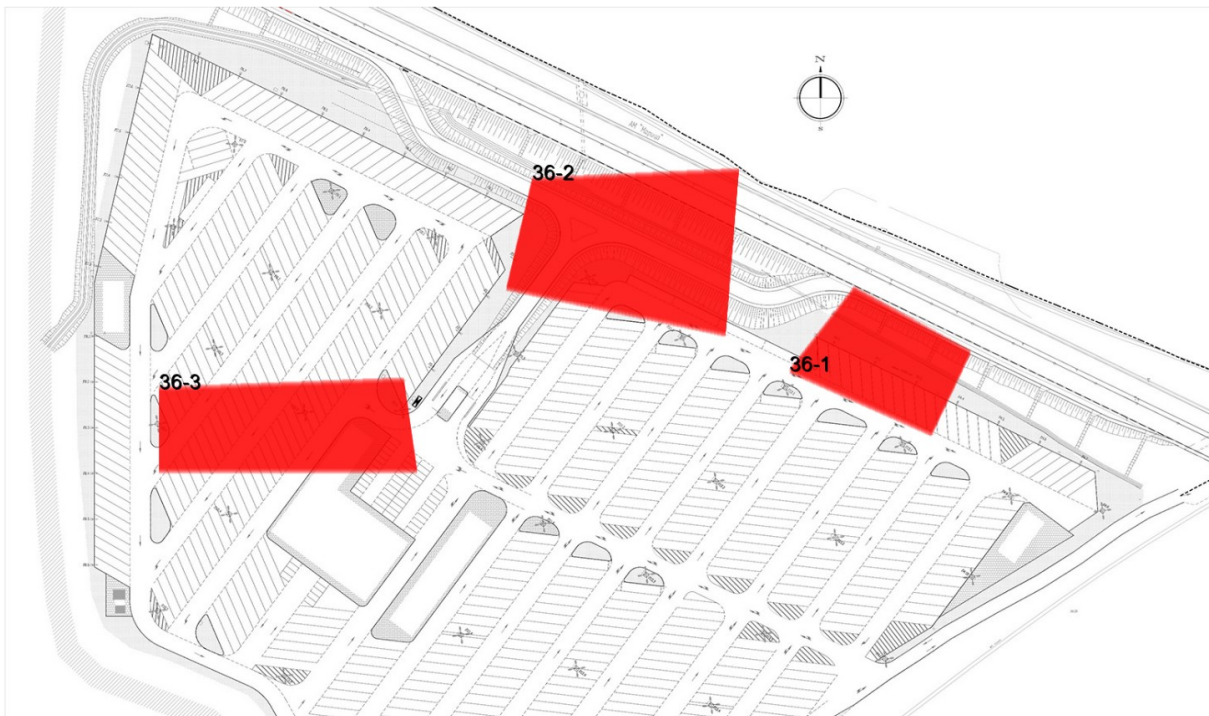
For a more easy management, a plan/ map of a location can be uploaded in Metrici Interface. This allows an instant overview of a location with all the data from location. To set it you will have to upload a plan in the interface. In order to do that, you will go to **Area Counter/ Settings/ Locations and camera** menu. From all locations on list, click on Edit button for the one you want a map to upload./ At the new page that it will be open, on **Emplacement Schematic menu**, choose the file you want to upload, select it and then click Save button.

The file must be in .png or .jpeg format.

After this first step, you will have to manually draw the areas in the location, operation similar to the one executed in Control Panel, but this time done in Interface.

Attention: The zone must be registered before for each camera in location, as described at the beginning of this chapter.

For zone to be drawn on map, go back to the menu **Area Counter/ Settings/Locations and Cameras**. From all cameras in location you will have to select one by one and draw virtually on the map which area each one covers. So click on the name of the camera/ On the menu it opens choose Edit plan button select an area registered before and manually draw the perimeter for that zone on the map. Place points on the map and click Save. In the next image you see how zones are displayed on a map.



Repeat the operation for the others cameras in location. When you will access Dashboard menu in Area Counter you will see an instant view of the location with all data from detections of each camera.

CHAPTER 7

METRICI CONTROL PANEL SETTING AND USING

Metrici Control Panel application is in fact a unit for processing detection applications and data gathered by video cameras, as explained in the first pages of this guide.

The data processed in this application will be send for recording and reporting towards the **Metrici Interface**, where they can be easily accessed in a friendly format. The detection applications 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 about to explain in this chapter.

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

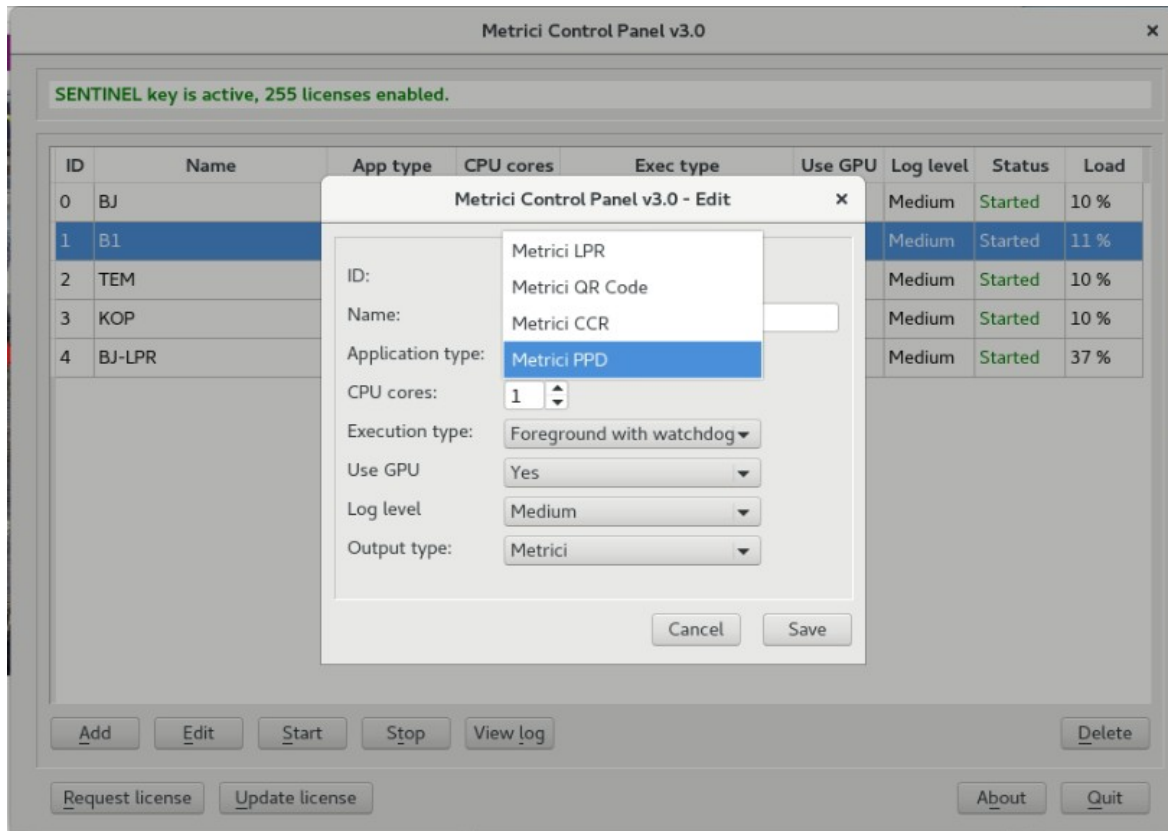
There are several **Metrici engines** (applications) that you can choose from- LPR, PPD, QR Code, Container Code Recognition, Area Counter.

METRICI Area Counter v1.0

User Guide

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.

Area Counter relies heavily on GPU so the more powerfull 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 Metricí. 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: Metricí LPR, Metricí QR Code, Metricí CCR, Metricí PPD, Metricí Area Counter. Set the CPU cores and the execution type. Metricí recommends for installing and first setting using 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 **Metricí 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 Area Counter, Metrici recommends using a Graphics Processing Unit - GPU so Enable GPU.

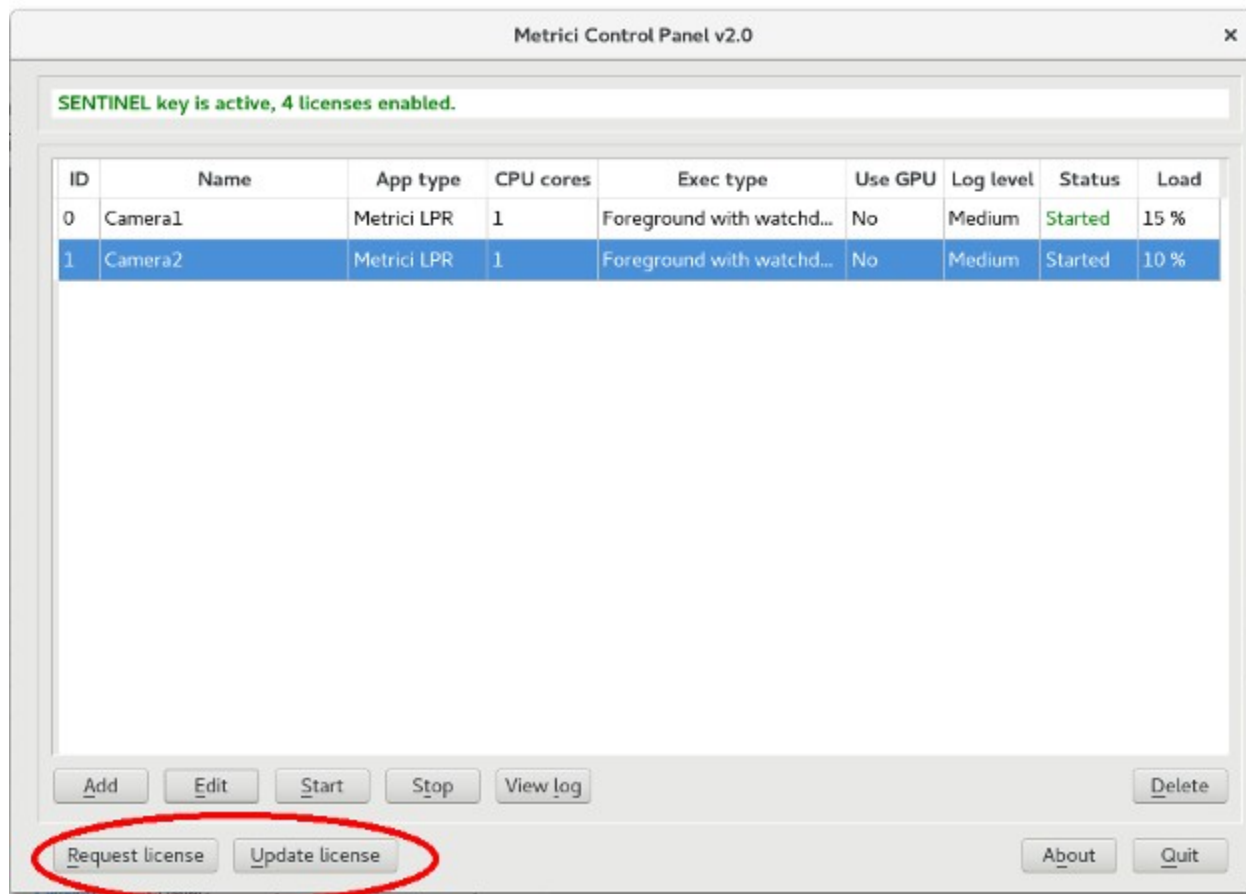
Log level- Metrici keeps track of all its activity, the communication with cameras, Interface or external systems. When a malfunction occurs you can check these logs to view what happened, so is better to have log level on Medium, at least.

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_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.

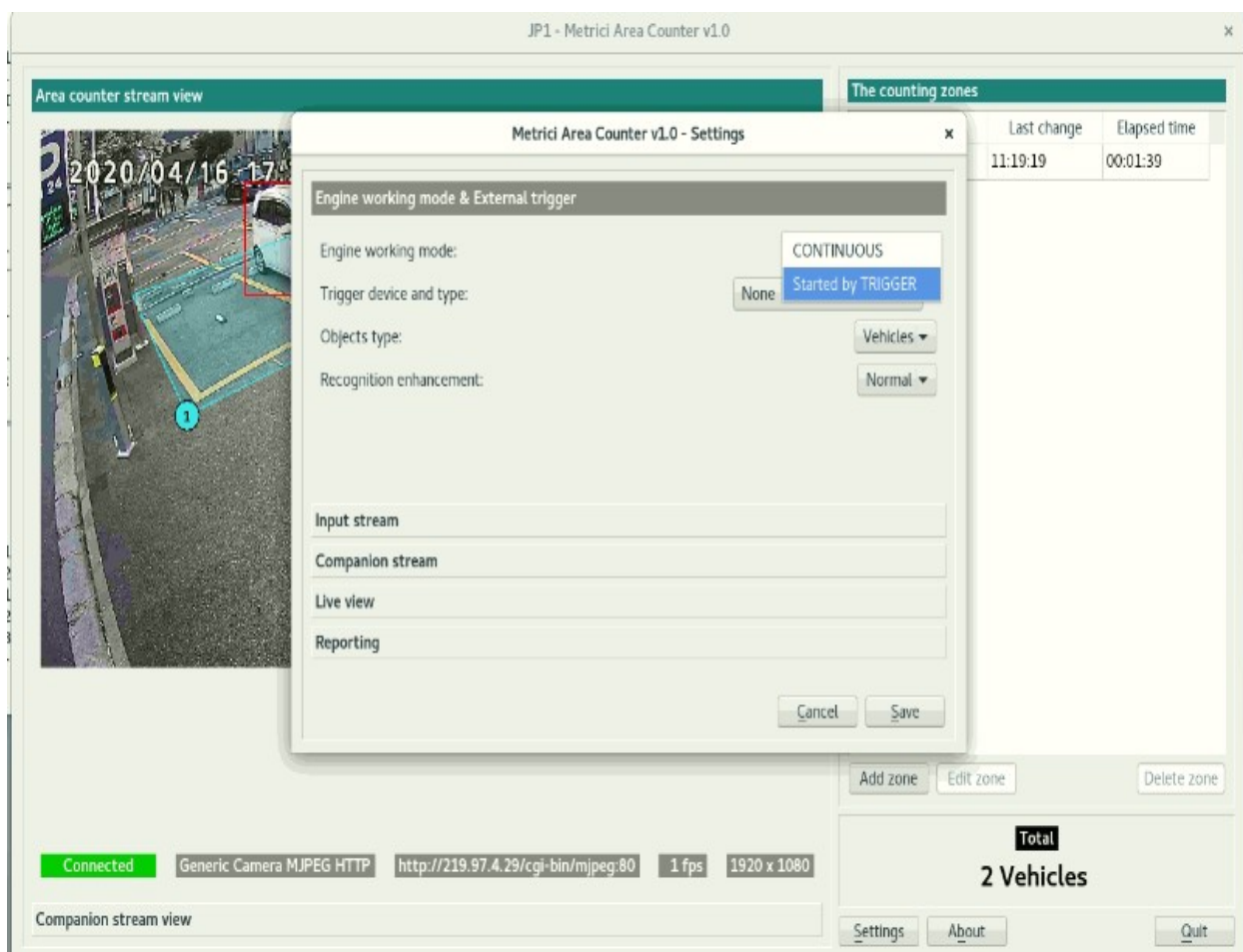
IMPORTANT: The procedure is to be followed for each server with Metricí. If you have, let's say, 10 servers with Metricí, you will follow this license activation procedure for each one of them.

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 (Metricí is always looking for objects to detect and if they are placed in a zone or at trigger- meaning Metricí receives “a command” to start the detection.



The screenshot displays the 'Metricí Area Counter v1.0 - Settings' dialog box. The 'Engine working mode & External trigger' section is active, showing the following options:

- Engine working mode: CONTINUOUS
- Trigger device and type: Started by TRIGGER
- Objects type: Vehicles
- Recognition enhancement: Normal

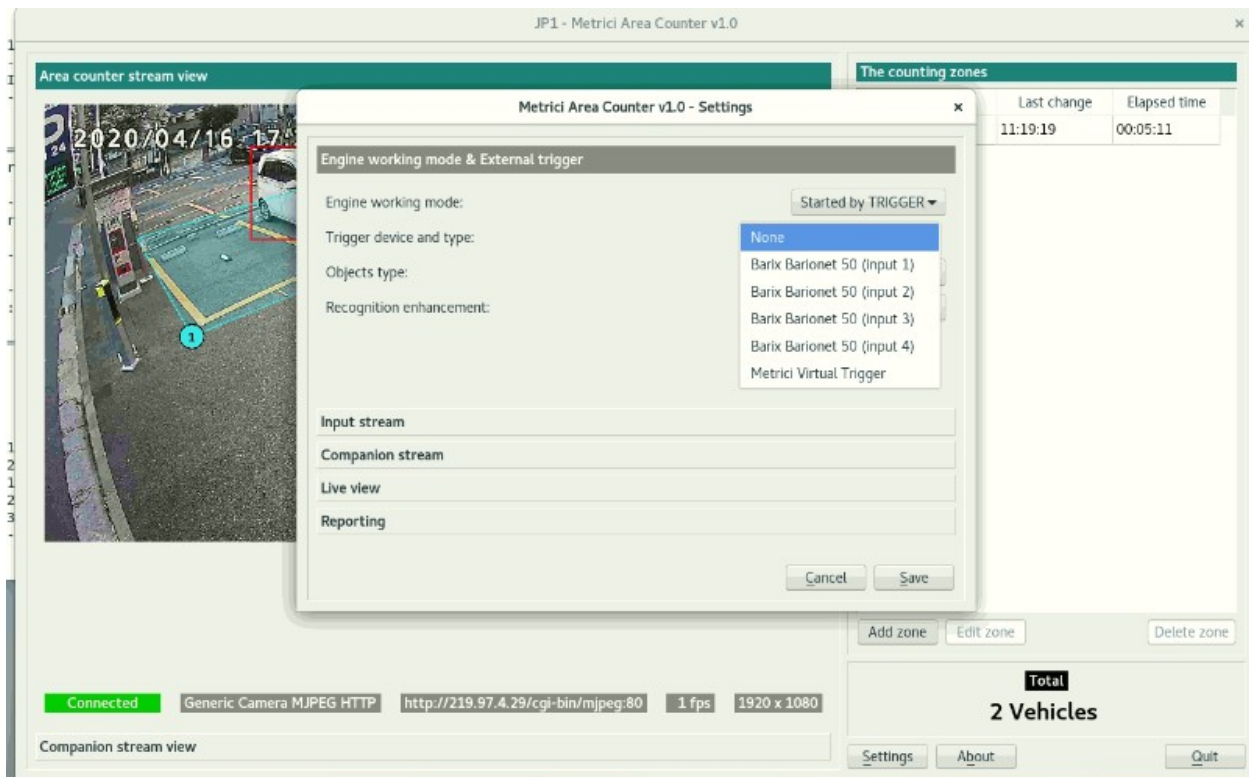
The background interface shows a live camera stream of a parking lot with a red bounding box around a car. The status bar at the bottom indicates 'Connected', 'Generic Camera MJPEG HTTP', 'http://219.97.4.29/cgi-bin/mjpeg:80', '1 fps', and '1920 x 1080'. A 'Total' counter shows '2 Vehicles'.

Trigger Device and type

The trigger situation for Area 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 Metrici Virtual Trigger. Barix is a LAN Controller with a special developed Metrici firmware which is very versatile and used in so many applications- see the Barix Integration manual for more details.



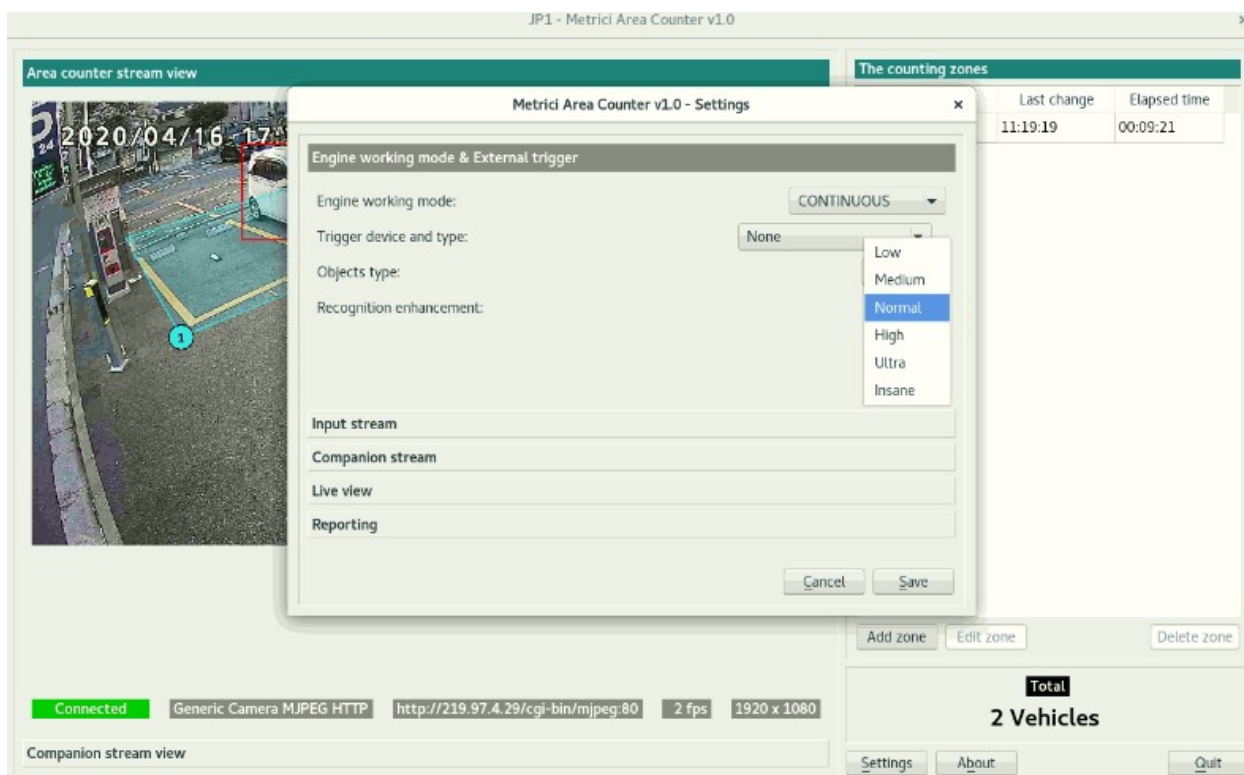
If you choose Barix you will also select on what port the device is connected.

Objects Type

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

Recognition Enhancement

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

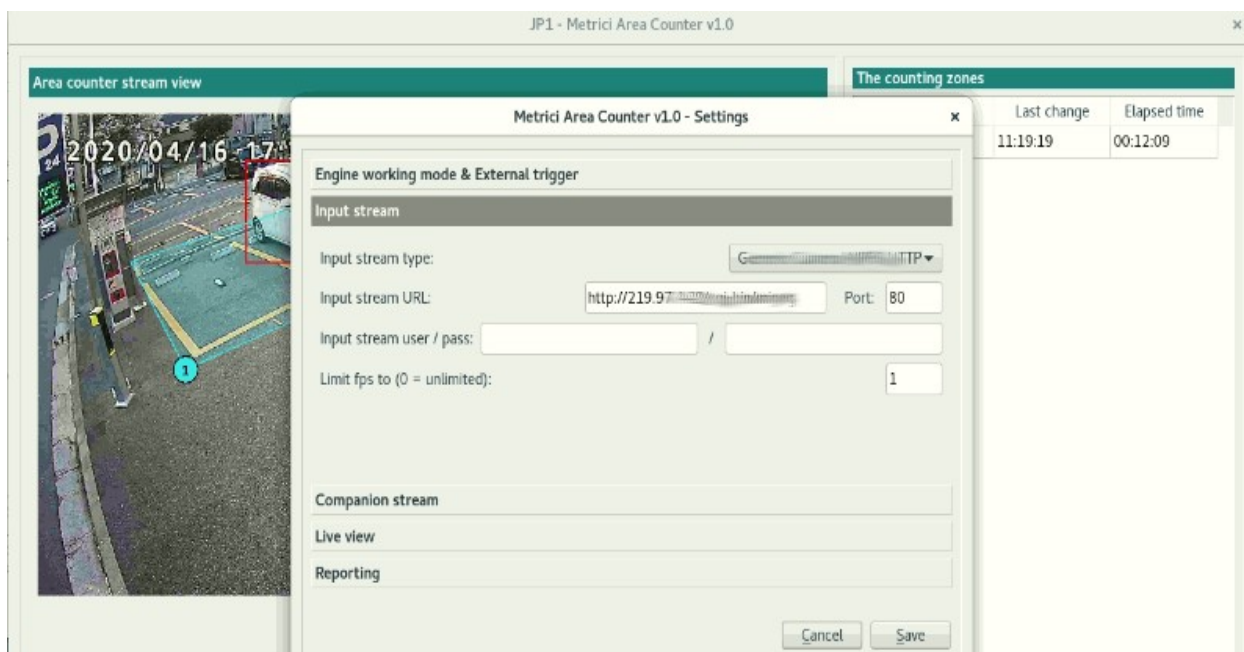


What this will do is increase the accuracy of detection from Low to Ultra. The higher the precision, the more processing power is needed but the precision is much better. A normal setting would be just enough in most cases.

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

A Metrìci virtual trigger is a copyright patent of Metrìci when one detection engine is sending signals to activate other Metrìci 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 an Area Counter Recognition. After that, go to Metrìci Interface and set different actions when one, two, or as many conditions you want are satisfied. 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

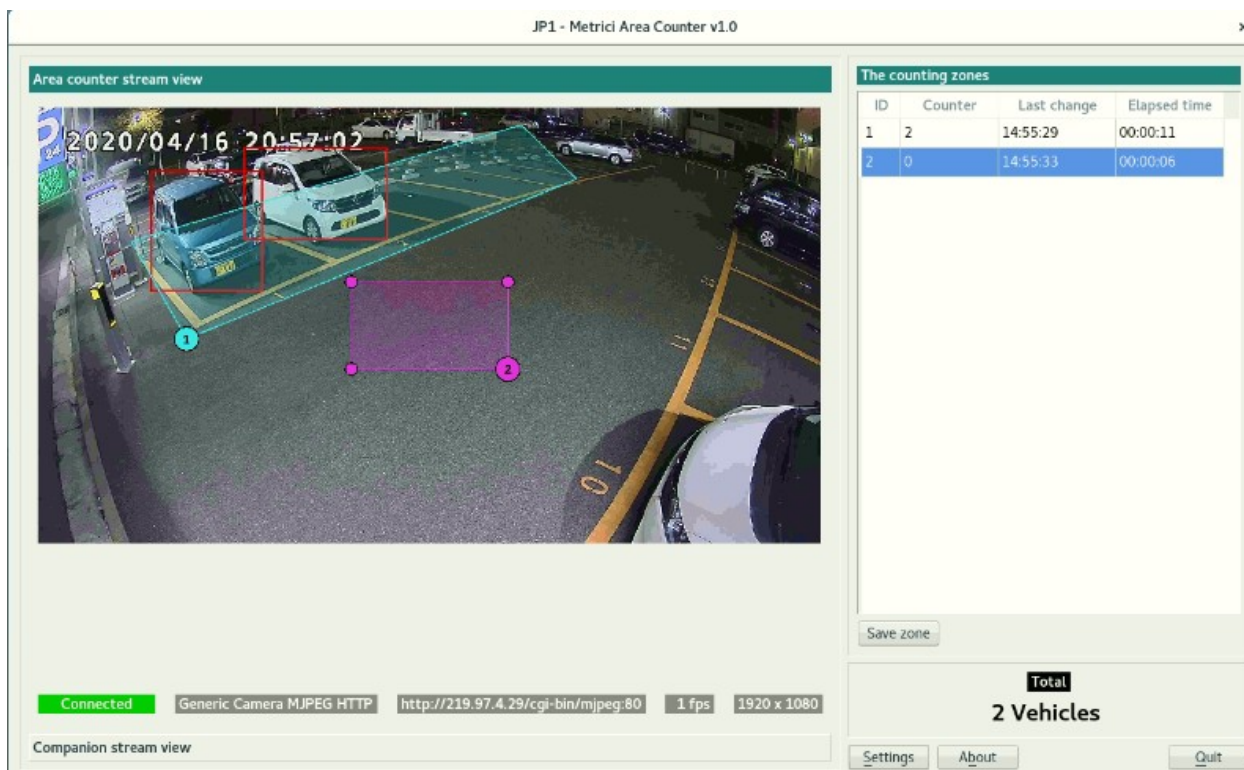


Section **Input stream** will be filled with connectivity data of the IP camera: camera's IP, as well as the user and password as they were established when installing the camera. **Be careful to choose the correct video stream type: Mjpeg, H.264, as was set in the camera. If you don't set the correct 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 Adding zones

If all the above settings were done properly, you will have to see the camera live on screen and it is time to add the zones allocated to each camera for the detection. Metrici advises to add zones for the parts of interest to reduce processing power.

From the list of cameras go to each one of them and begin to add zones by click on the Add Zone button, on the lower right.



A purple square will appear Stream View You just drag the corners to where a zone is an click on save Save.

Repeat the process for each zone you want to create

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.

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.

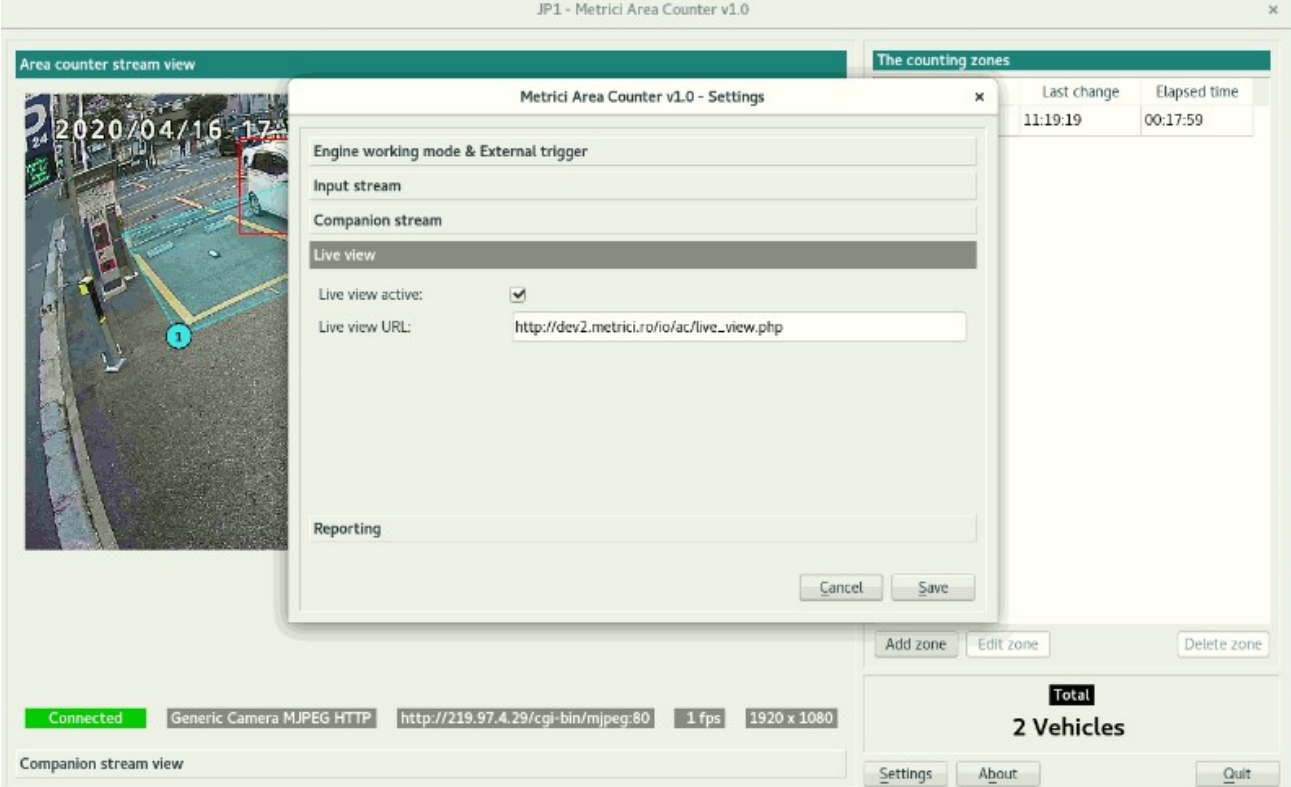
7.5 Live View

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/ac/live_view.php which is automatically filled in by Metricí.



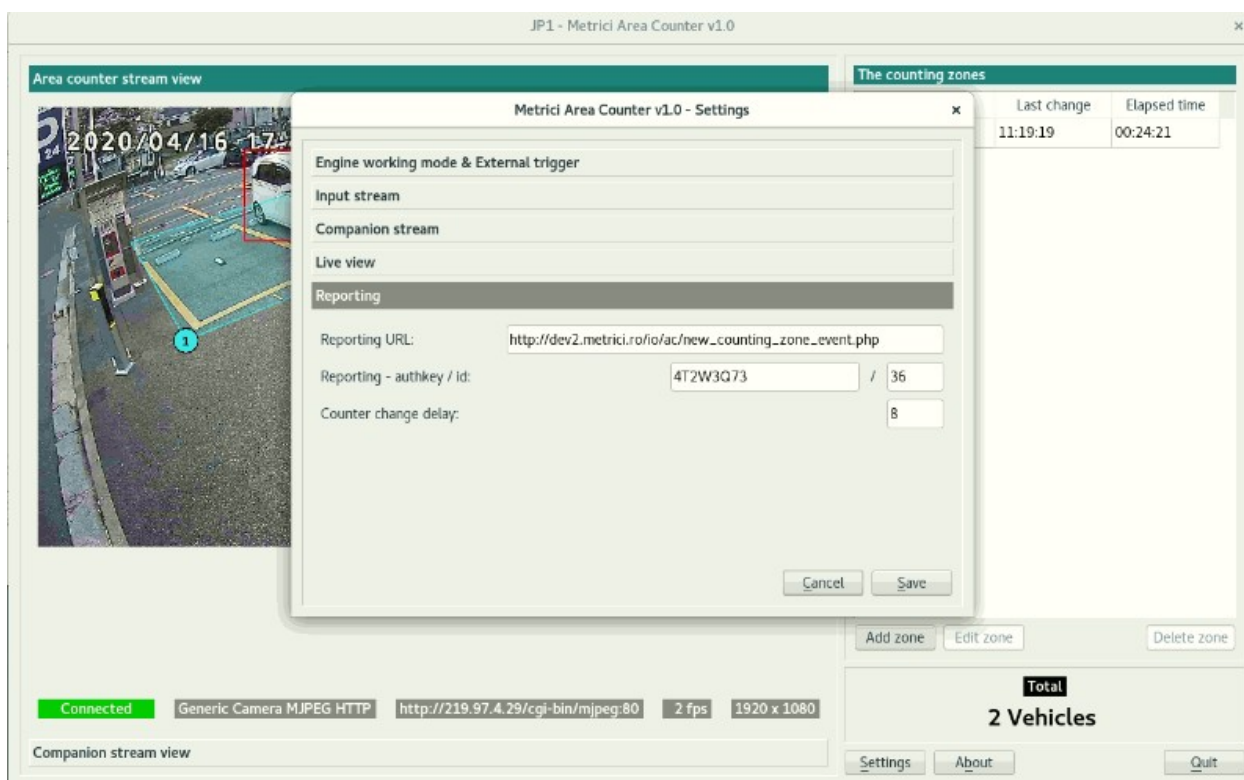
The screenshot shows the 'Metricí Area Counter v1.0 - Settings' dialog box. The 'Live view' section is highlighted, showing 'Live view active' checked and 'Live view URL' set to 'http://dev2.metricí.ro/io/ac/live_view.php'. The background interface includes a live camera feed, a table for 'The counting zones', and a status bar at the bottom showing 'Connected', 'Generic Camera MJPEG HTTP', 'http://219.97.4.29/cgi-bin/mjpeg:80', '1 fps', and '1920 x 1080'. A 'Total' box displays '2 Vehicles'.

Last change	Elapsed time
11:19:19	00:17:59

Total
2 Vehicles

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

7.6 Reporting



In the menu **Reporting** you will fill in the communication data for where Metricí sends the detections about area 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.- **See chapter 5.5. Each camera has a unique ID and authkey which will be used in the engine.**

Status change delay is the time interval Metricí waits at a status change for an area/zone before sending the events to database. An 8 seconds interval means that when a zone changes number of objects, for more than 8 seconds, that event is sent to database. This is useful to eliminate the false positives.

If the reporting is on same machine, the Reporting URL will take a form such as http://localhost/io/ac/new_counting_zone_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/ac/new_counting_zone_event.php and will result a formula such as http://192.1.1.1/io/ac/new_counting_zone_event.php or http://metrici.ro/io/ac/new_counting_zone_event.php