# INFINITY

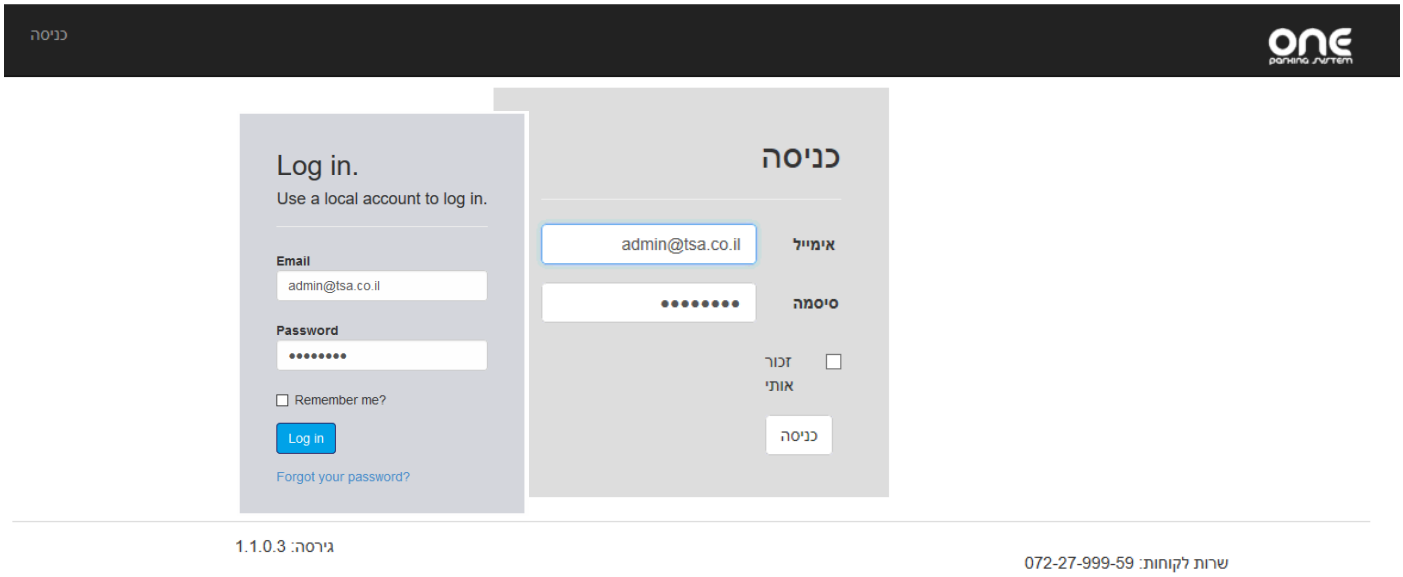
## *Infinity Parking Software management*

## Logging in

**To log in to the Fast Park NG system:**

1. Open your browser and type "localhost".

   The login screen opens.




2. Enter your user name and password.

*NOTE: System user names and passwords are set in the System Management module, see p.* **שגיאה! הסימניה אינה מוגדרת.**

3. Click **Login**.

   The application opens to the default screen based on your access rights.

## Hour Profile

An hour profile specifies the scope of days and hours assigned for use in a 7-day week to a specific entity: lane, subscriber's, company etc.

It is common to configure a number of hour profiles; as different scenarios require specific profiles. For example, you may have an hour profile for work-days, an hour profile for weekends, an hour profile for night-shifts, and so forth.

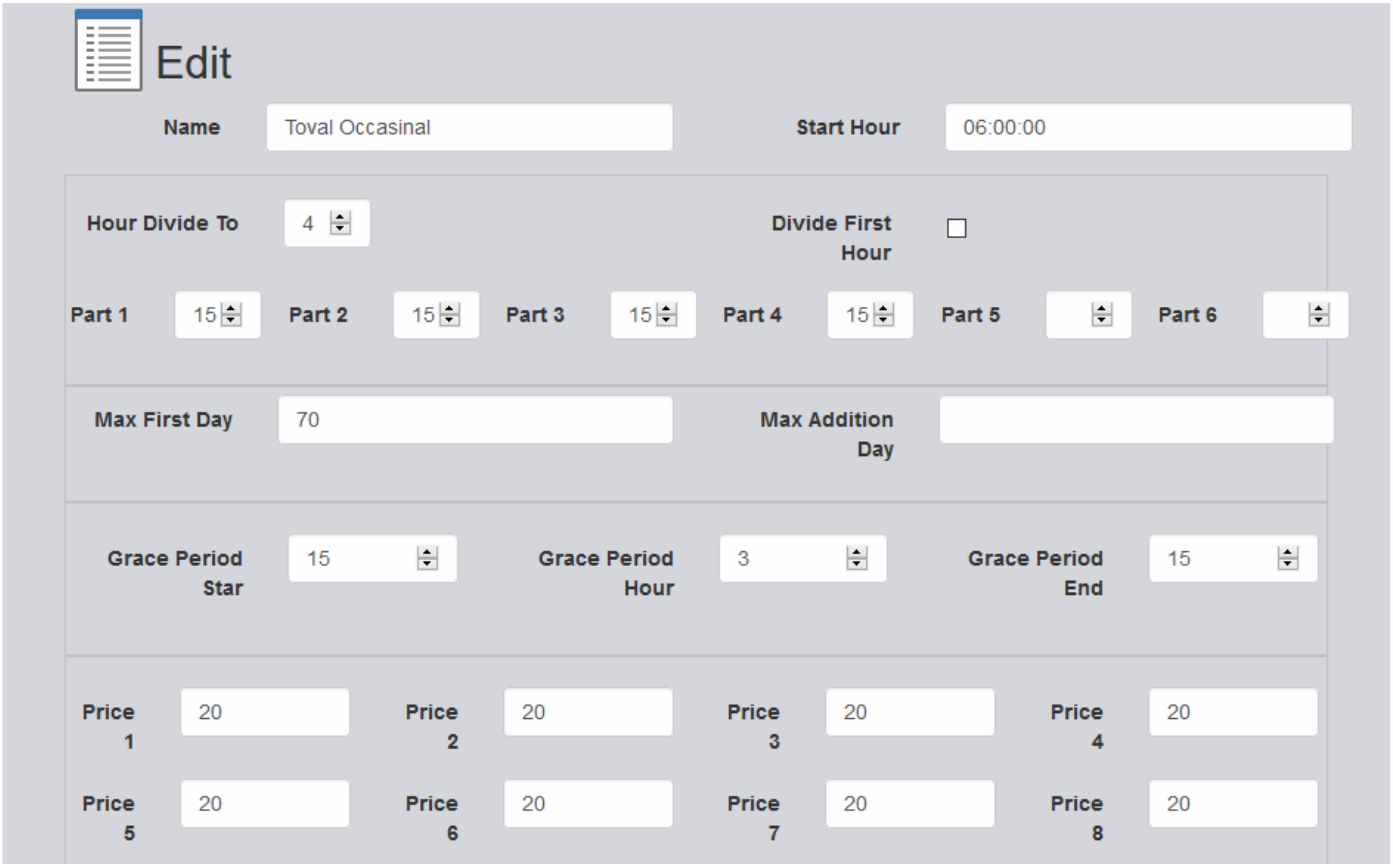
## Price list

### Overview

Price lists determine the various billing structures. When used in conjunction with rates, price lists provide the flexibility needed to address the numerous billing combinations.

Cash registers can use more than 100 price lists; they will always use the must current price lists available.

The price is in whole units (integers) of the local currency, for example shekel, dollar, pound.



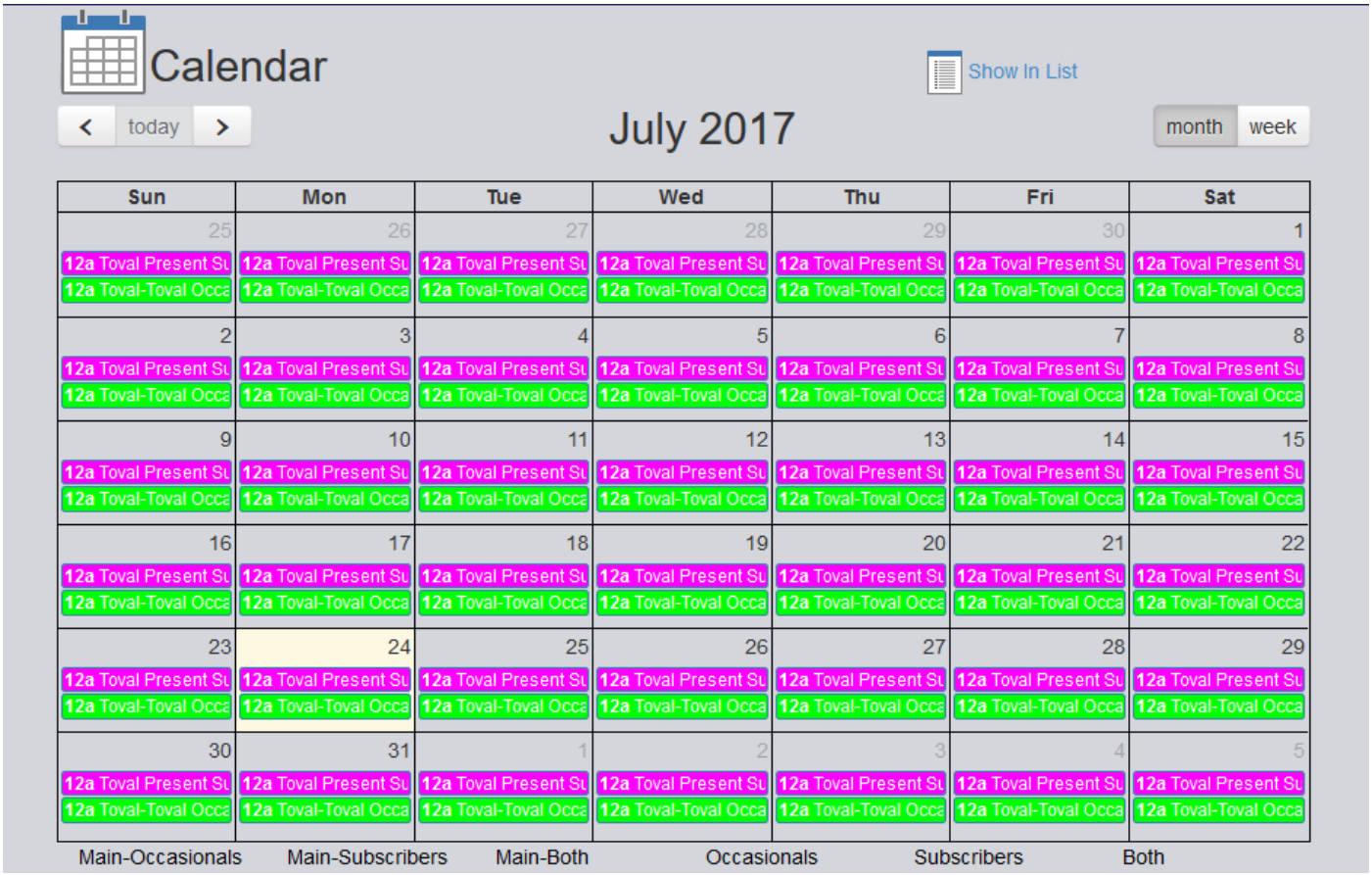

The hours' section is divided to 24 hours. The hour count starts upon entering the car park. There are 24 hours in a day, so a "parking day" begins the minute the car enters the car park, and ends after 24 hours.

Specify the charge for each point of exit in the day. For example: $ 10 if the car exits after 12 hours (half a day), or any hour before that; $ 24 dollars for a full day, or any hour after the half day hour mark passes.

## Rates (tariff) by calendar

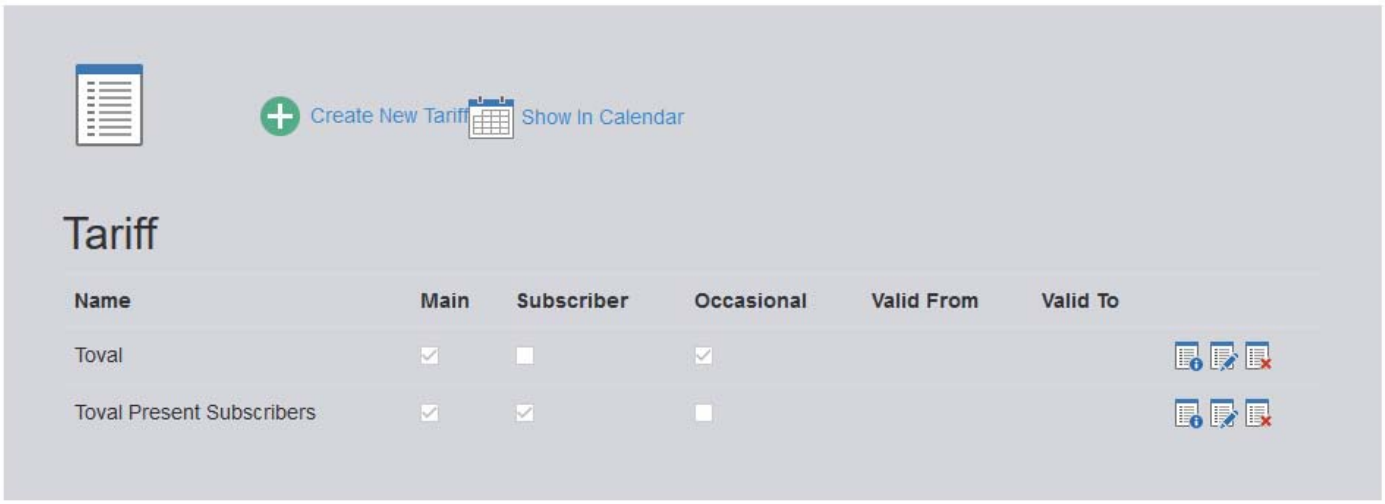
### Overview

Rates are the result of combining a time block with a price list. One rate in terms of the system is the configuration of all the hours of a week; it specifies the price list each hour of the week uses.




## Rates (tariff) by list

In one click you can convert the calendar into a list of unlimited rates.




## Initializing rates

The INFINITY system can use unlimited rates.

Following system installation there is a one-time rates' initialization.

## Quarter Hours

### Overview

Certain countries require by law the option of billing parking in quarter-hour increments. INFINITY quarter-hour billing definitions allow high-resolution configuration for this type of billing.

*NOTE: By default, quarter-hour billing is disabled.*

## System management

### Overview

INFINITY is a sophisticated system, which addresses the needs of users depending on their role. For example, administrators need access to all the system resources, whereas an operator would need access only to the operational resources such as HMI, transactions, Rates, Price Lists and Lost Ticket. After the roles are defined, the specific users who fill these roles are entered to the system**.**

## HMI

### Overview

Human Machine Interface (HMI) is a module that allows creating a visual representation of the parking site. This visual representation uses dynamic objects of LPR cameras, barriers, ticket dispensers, and POS terminals. These objects use current data and reflect the real-time activity happening at their actual counterparts in the car park. An 'actual counterpart' is the real entity in the car park that the object represents. Thus, the HMI display is used for effective monitoring and controlling of the car park.

*NOTE: To create the HMI visualization of your car park, you first need to set up the lanes and their related equipment in the Maintenance  Equipment in Lanes resource.*

**Parking site visualization**

Parking sites differ in their complexity; the number of lanes and the amount of equipment. For the purpose of this procedure we have provided an example of how a simple car park might look like in the HMI module. To create a visual representation of your site, refer to the following procedure.

## Equipment in Lanes

### Overview

A parking site is divided to parking areas. Entering and exiting both the parking site and the parking areas requires access lanes. Many of these lanes have assigned equipment that is used to detect who is parking where, to allow or block access, to dispense parking tickets and to validate the parking ticket upon exit.
The system differentiates between two lane types: physical lanes and equipment lanes. Physical lanes are the actual lanes that cars drive through to reach the parking areas or the exit. Equipment lanes are not actual lanes that cars drive in, but are destinations equipped with parking equipment, such as a cash register or a payment machine that is usually located in the parking area and allows paying the ticket prior to exiting the car park.

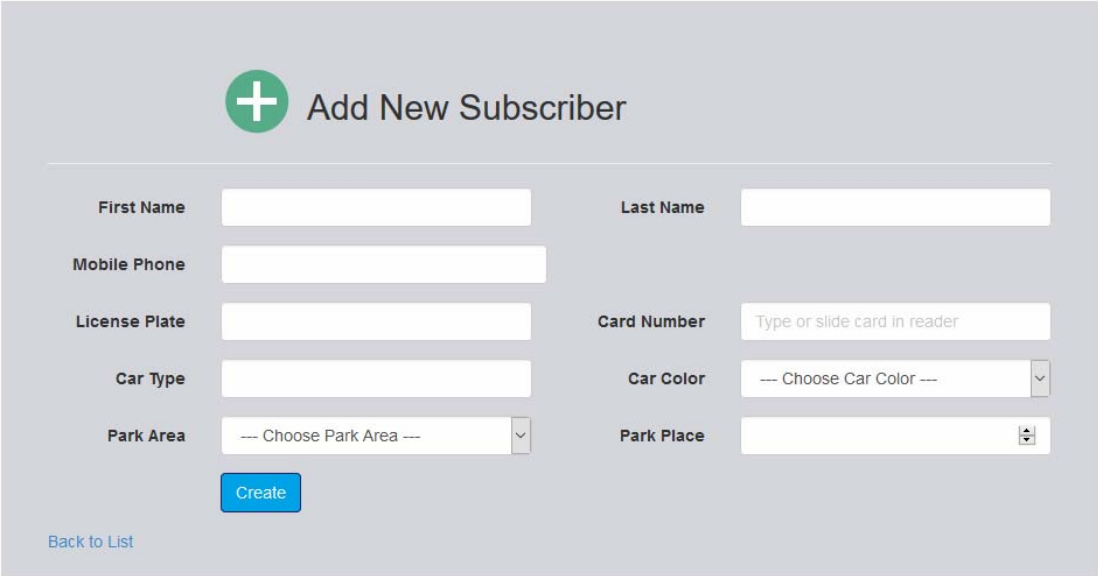
## Subscriber's

### Overview

subscribers are people who park their cars in the parking site according to permissions of the hosting company. subscribers are entered to the Fast Park system and assigned relevant entry permissions. An ‘instance’ is the specific period and time-of-day set for each guest, in which the guest is permitted to enter the car park. Each guest has associated instances. When all the instances for a guest expire, the guest is archived in the system’s History logs automatically.

| Company Name | Company Address | Company Contact | Contact Phone | Expiry Date | Max Subscribers | |
|---|---|---|---|---|---|---|
| Agoldsobol | Igal alon 98 | galit@goldsobel.com | 03-7442250 | 22/03/2017 | 2 | |
| blazemeter | Igal alon 122 | shlomit | 1-800-225-5224 | 22/03/2017 | 10 | |
| CA Technologies | Igal alon 122 | guy | 1-800-225-5224 | 22/03/2017 | 10 | |

Under the company (or section) we create a new subscriber

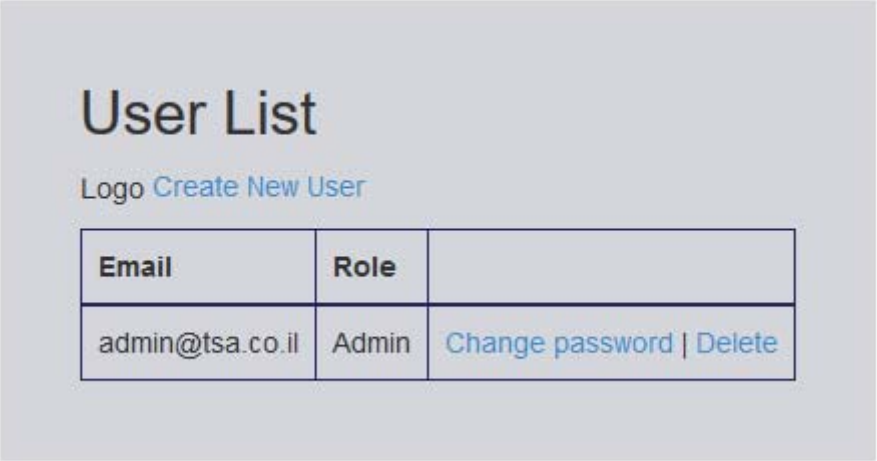



INFINITY can enter under company (or section) unlimited of subscriber's

## User list and administration

### Overview

INFINITY is Cloud-based web interface that can be used for configuring subscribers and inviting guests. This allows delegating the responsibility for these entities to the company's personnel.
The Web Users feature is for establishing users for this Web interface, and managing them.



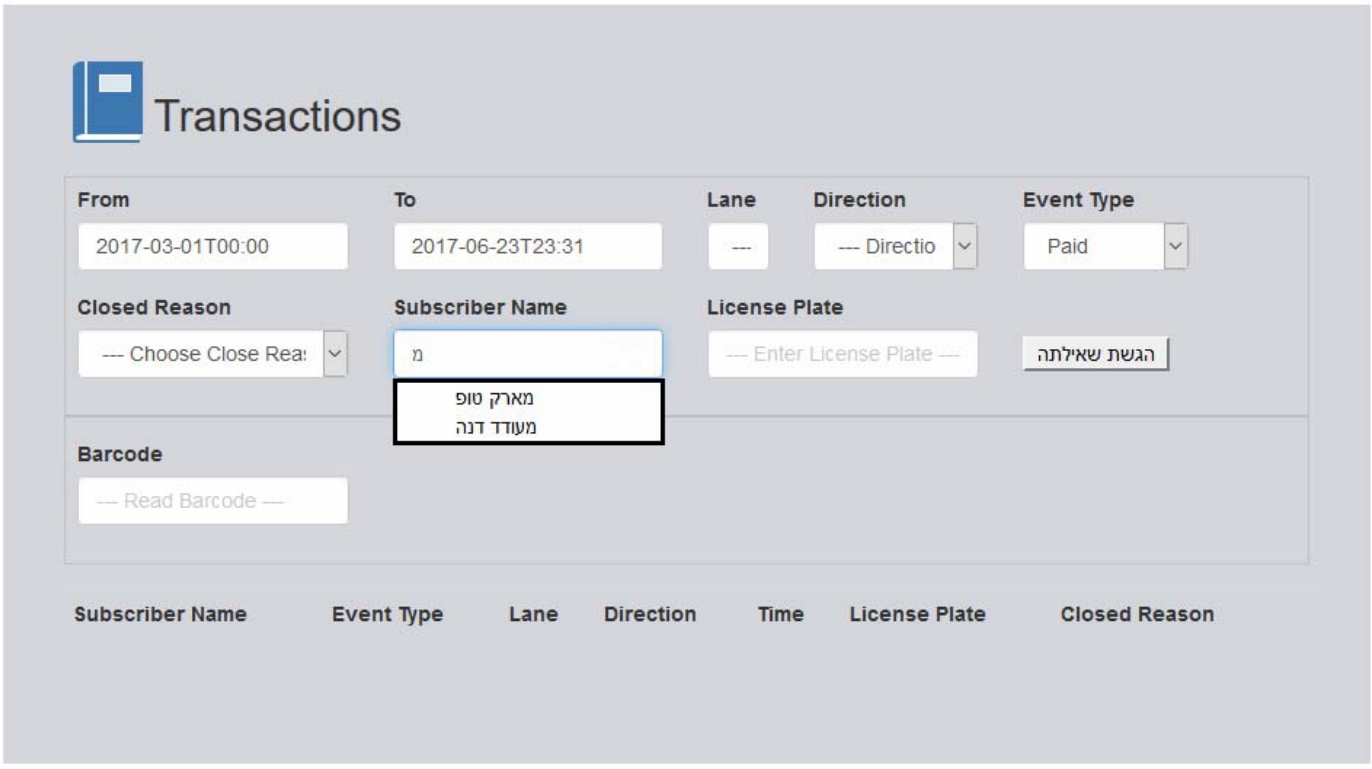

*NOTE: By default the username is admin@tsa.co.il and the password is Admin12#*

## Transactions

### Overview

In transaction lists allow you to quickly filter lists by searching for specific items.

Clicking the filter icon opens a search window. Using this window, you can either select from the list the value you need, or create a search query to present records that contain the criteria you specify.




## Transaction Result

| Subscriber Name | Event Type | Lane | Direction | Time | License Plate | Closed Reason | |
|---|---|---|---|---|---|---|---|
| | LPR | 2 | Out | 23/06/2017 23:31 | 2866117 | OccasionalOut | Detail |
| | LPR | 1 | In | 23/06/2017 21:28 | 2866117 | None | Detail |
| | LPR | 2 | Out | 23/06/2017 21:25 | 5399139 | OccasionalOut | Detail |
| | LPR | 2 | Out | 23/06/2017 21:22 | 7579738 | OccasionalOut | Detail |
| | LPR | 2 | Out | 23/06/2017 21:16 | 7883039 | OccasionalOut | Detail |
| | LPR | 2 | Out | 23/06/2017 21:06 | 7510154 | OccasionalOut | Detail |
| | LPR | 2 | Out | 23/06/2017 20:44 | 8732333 | OccasionalOut | Detail |
| | LPR | 1 | In | 23/06/2017 20:02 | 7883039 | None | Detail |
| | LPR | 1 | In | 23/06/2017 19:47 | 8732333 | None | Detail |
| | LPR | 1 | In | 23/06/2017 19:44 | 7510154 | None | Detail |
| | LPR | 1 | In | 23/06/2017 19:27 | 6399139 | None | Detail |
| | LPR | 1 | In | 23/06/2017 19:26 | 6399139 | None | Detail |

1 2 3 4 5 6 7 8 9 10 ... » »»

NOTE: By click on detail you can fine the LPR transaction photos of the vehicle from entrance and exit

| Subscriber Name | Event Type | Lane | Direction | Time | Out Permition | Permitter | Closed Reason | Payment |
|---|---|---|---|---|---|---|---|---|
| | LPR | 1 | In | 23/06/2017 19:44 | True | | None | |
| | LPR | 2 | Out | 23/06/2017 21:06 | True | | OccasionalOut | |
| | CalculatePayment | 2 | Out | 23/06/2017 21:06 | | | | 30 |

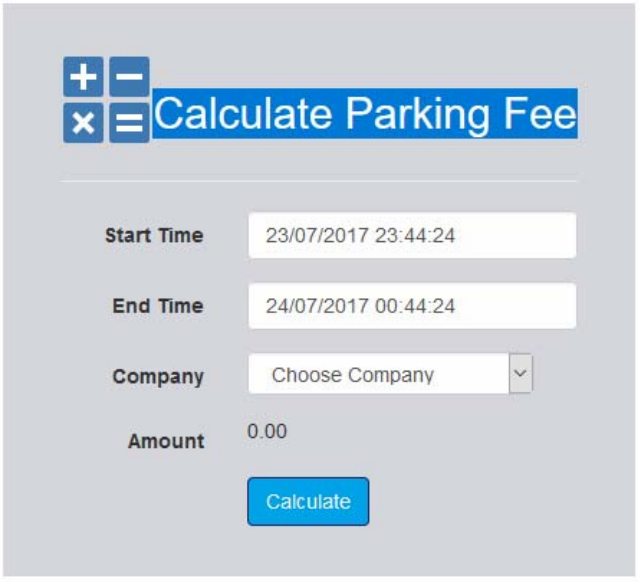
1

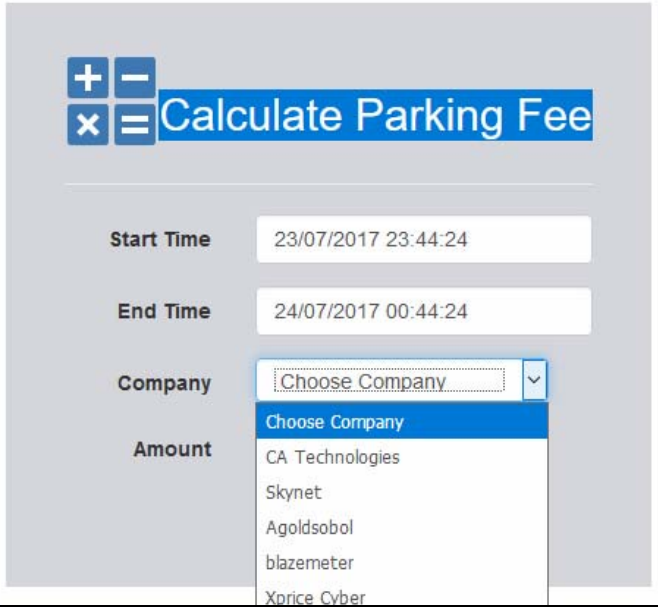
Return to Transaction List

## Calculate Parking Fee

### Overview

Calculate parking time - is critical and very important in parking lot. Through which you can calculate from the time the vehicle enters the vehicle until its departure and receive the price for the payment and send it to the exit point or the payment machine.



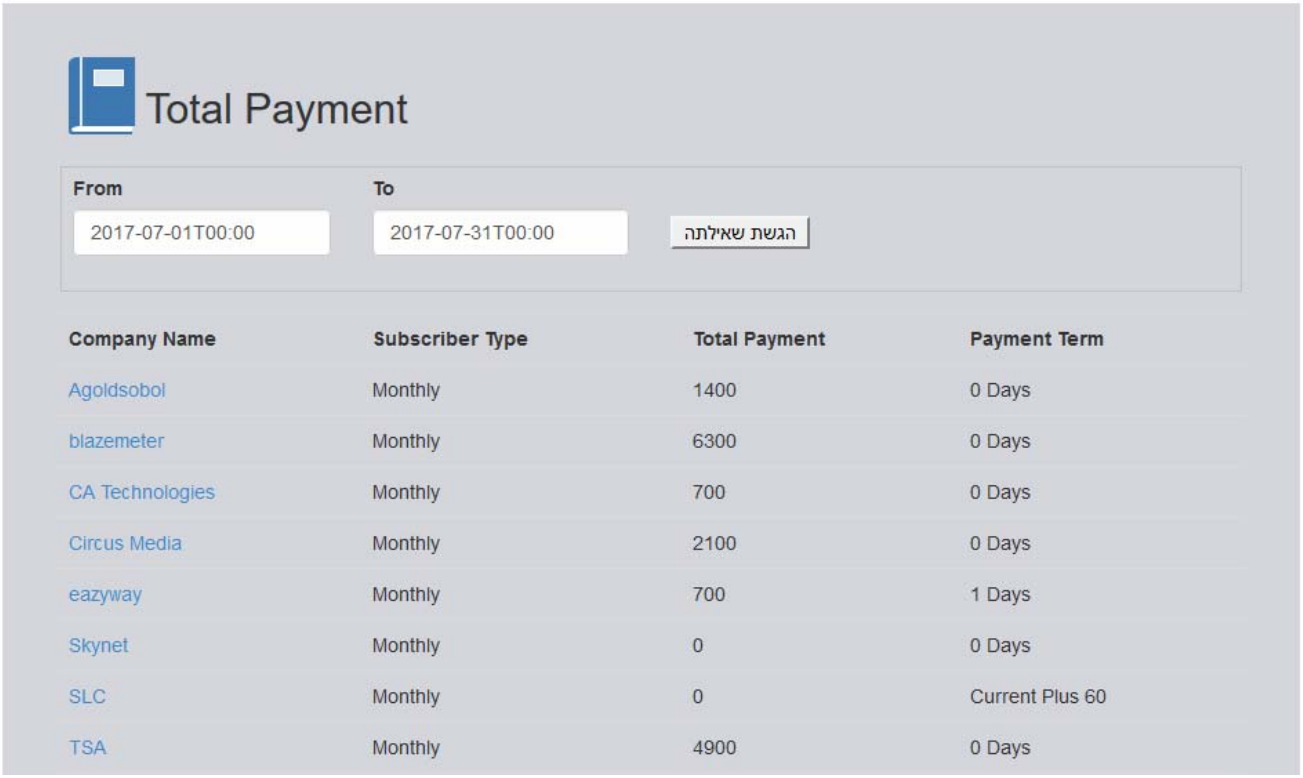




NOTE: The price per subscriber can be calculated according to a subscriber price list defined by the company or alternatively, a price can be calculated for an occasional customer.

## Total Payment

### Overview

Monthly cost for subscribers in the car park - from now on no longer has to calculate how much each company should pay me for the amount of vehicles parked in the parking lot during the month - at the click of a button all the information is received as a summary report of all the information and the size of the payment by company.



Total Payment

From: 2017-07-01T00:00 To: 2017-07-31T00:00 הגשת שאילתה

| Company Name | Subscriber Type | Total Payment | Payment Term |
|---|---|---|---|
| Agoldsobol | Monthly | 1400 | 0 Days |
| blazemeter | Monthly | 6300 | 0 Days |
| CA Technologies | Monthly | 700 | 0 Days |
| Circus Media | Monthly | 2100 | 0 Days |
| eazyway | Monthly | 700 | 1 Days |
| Skynet | Monthly | 0 | 0 Days |
| SLC | Monthly | 0 | Current Plus 60 |
| TSA | Monthly | 4900 | 0 Days |

# *LPR ONE Parking management*

## *General presentation*

Dear customer, we want you to obtain the best results in using this software. We kindly ask you to carefully read the entire manual before using the product and keep it for future consultations

- Read the user manual before installing and launching the program
- Follow the instructions
- Keep this guide at hand for future consultations
- Read all the documents

**Main characteristic's:**

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

- Working in "free-flow", which means analyzing the video streams from IP cameras in real time, working on.
- trigger, or a combination of the two.
- The system can recognize an unlimited number of license plates in the same frame;
- Syntax analysis and simultaneous recognition of plates from several countries
- Distributed operation (multiple cameras in multiple locations), with centralized reporting and administration.

- Predefined actions for each recognized license plate: open barrier, send warning e-mail, popup display on screen, or change traffic lights.
- Multi-user reporting and administration interface with secure access and viewing rights for each location and user.
- Multi-threading operation with auto ranging based on the number of cores/threads available.

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

The user of the TSA LPR must be aware that this software includes two solutions: one for license plate detection and recognitions and interface for managing one or more locations and the surveillance cameras for each one - TSA LPR SEEWEB INTERFACE.

The whole detection and analysis system is composed of three modules integrated in
TSA LPR:

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

The PROCESSING block consists of one or more servers containing software for real-time analysis of incoming video streams received from the IP cameras. Each interconnected camera needs its own analysis application. Analysis applications are multi-threading and, therefore, they work faster on multicore and/or multiprocessor systems. Multiple analysis applications can be used simultaneously on the same server. You can use more analysis applications in the same time on the same server
(Details in in Chapter 5- Settings and using TSA Control Panel)

The ADMINISTRATION and REPORTING block is in fact a SEEWEB INTERFACE application that receives data from the analysis application and can display them in a user friendly way. This application can be located on one of the servers for ANALYSIS or a completely independent server. Between the PROCESSING and ADMINISTRATION AND REPORTING blocks, there is no need to have IP connectivity on the local network; it is sufficient to have a public network allowing traffic on port 80.
(Details in Chapter 4 – Settings TSA LPR SEEWEB INTERFACE).

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

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

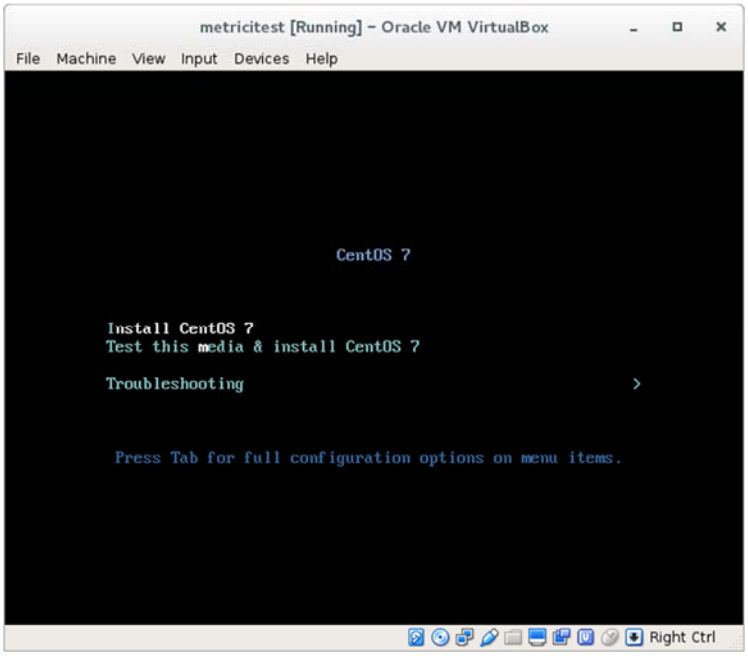
Note: In case you already have a server running on CentOS 7, you will begin installation process with Chapter 3.

## CHAPTER 1 - Installing CentOS7

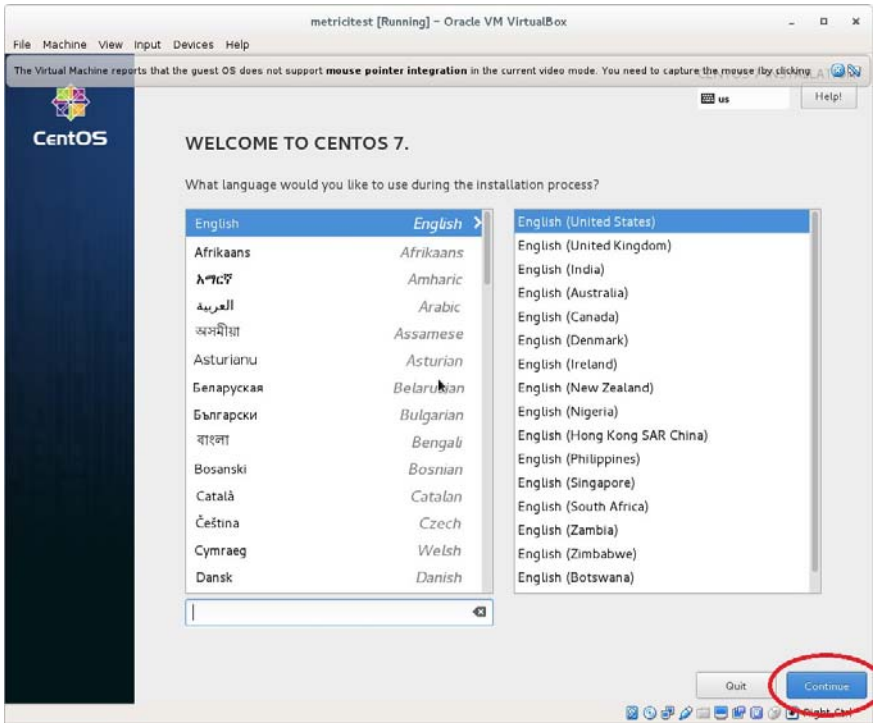
You can download the DVD image for installation at the address:
http://isoredirect.centos.org/centos/7/isos/x86_64/CentOS-7-x86_64-DVD-1611.iso

After the boot, using the keyboard arrows, choose option:

Install CentOS 7.

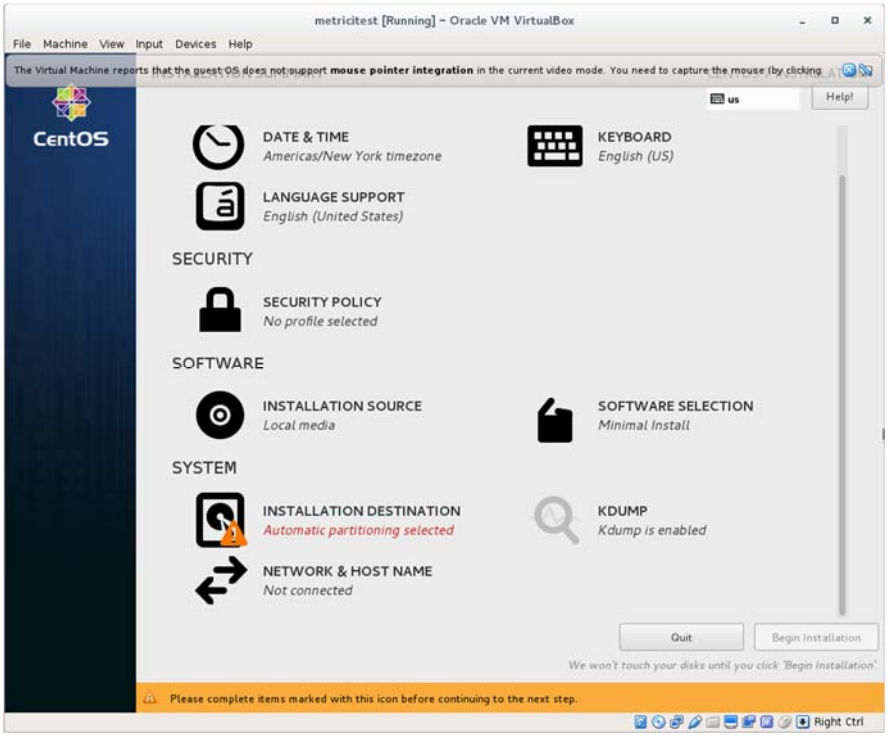



This command will launch the process of installing Linux CentOS7, under which the software TSA LPR will run.




Select language (e.g.: English) and the keyboard type (e.g.: us).

Enter to Continue



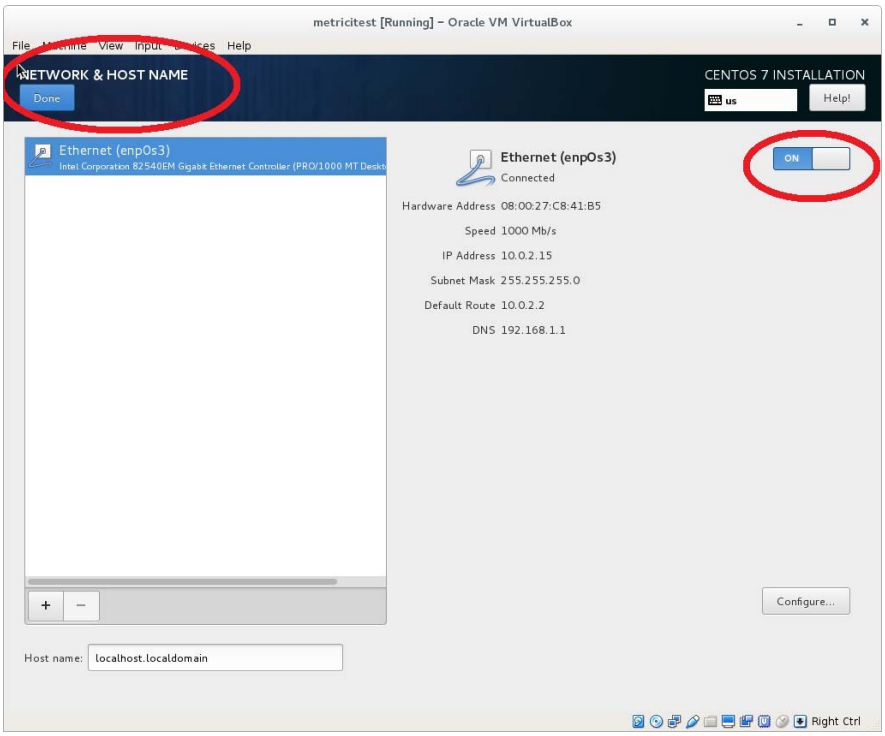

**Important! The server must be connected to the internet**

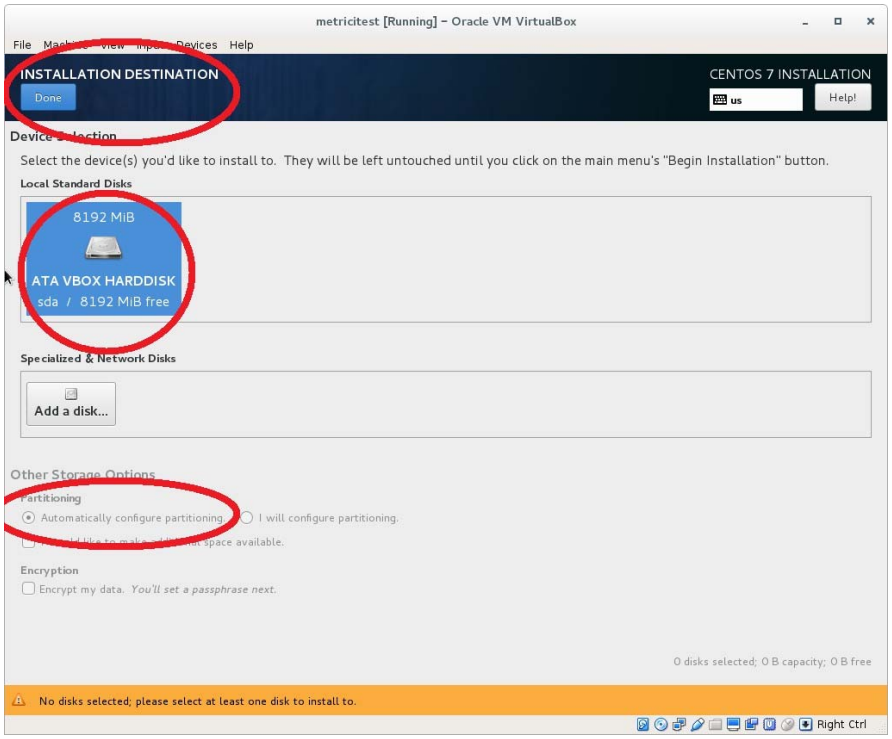
**Before the actual installing process, you need to change the default settings**

Pushing the DATE & TIME button, you will set the region.

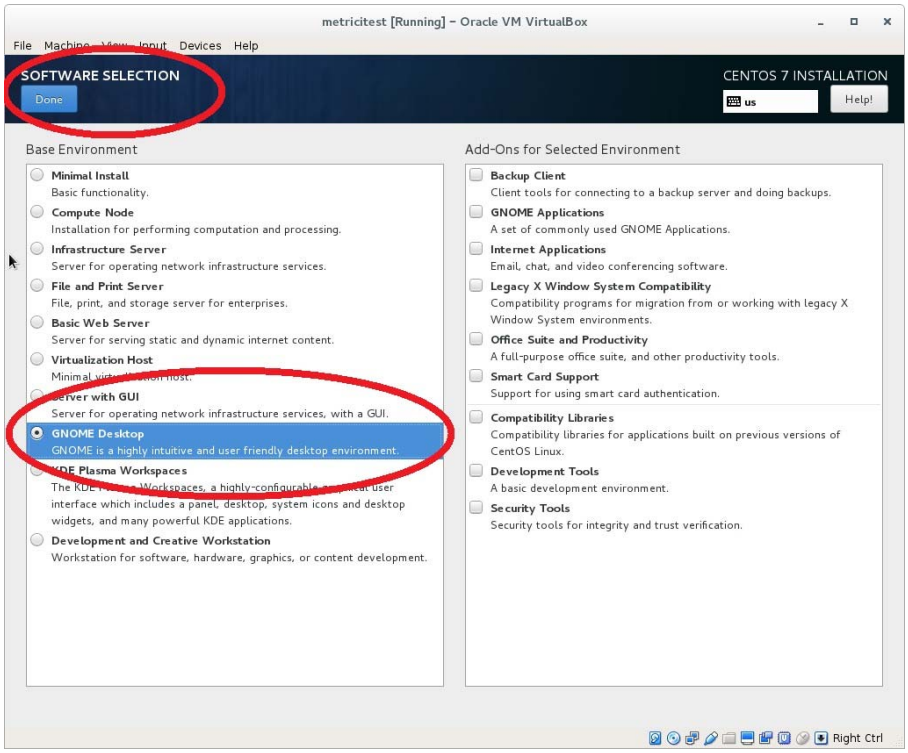
Go back in the menu, clicking the Done button, upper left.

**Next steps in installing do not necessary need to be taken in the explained order, but it is imperative taking all of them! The tab NETWORK & HOSTNAME will activate network interface from the button ON/OFF.**

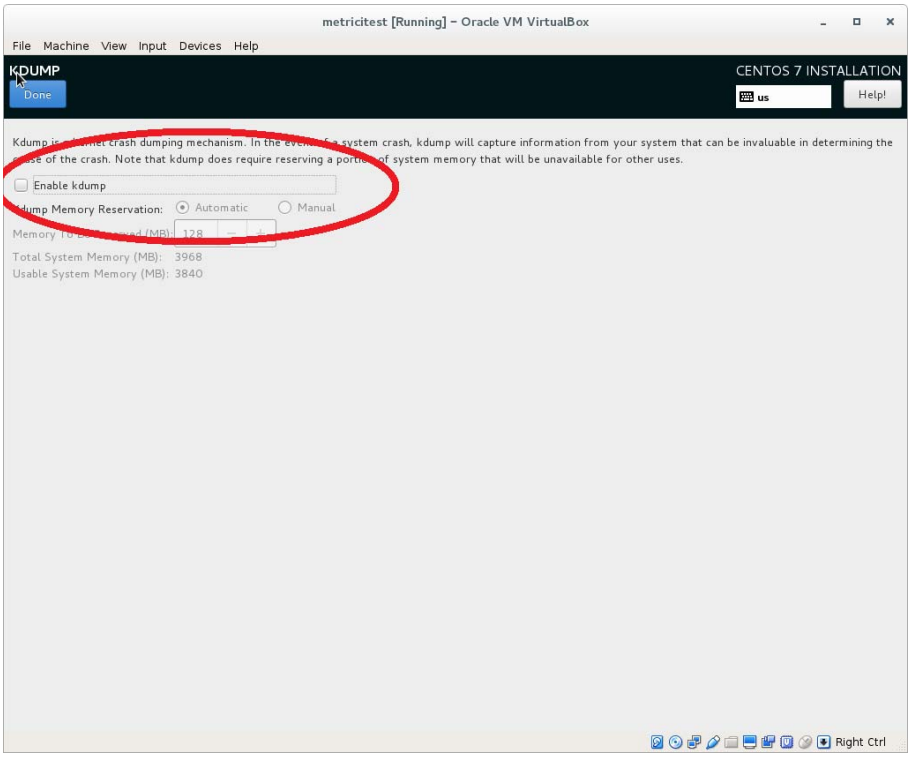


DESTINATION tab, select the local disk on which you want to install and type of partition (we recommend: Automatically configure partitioning). After choosing, go back with Done button.



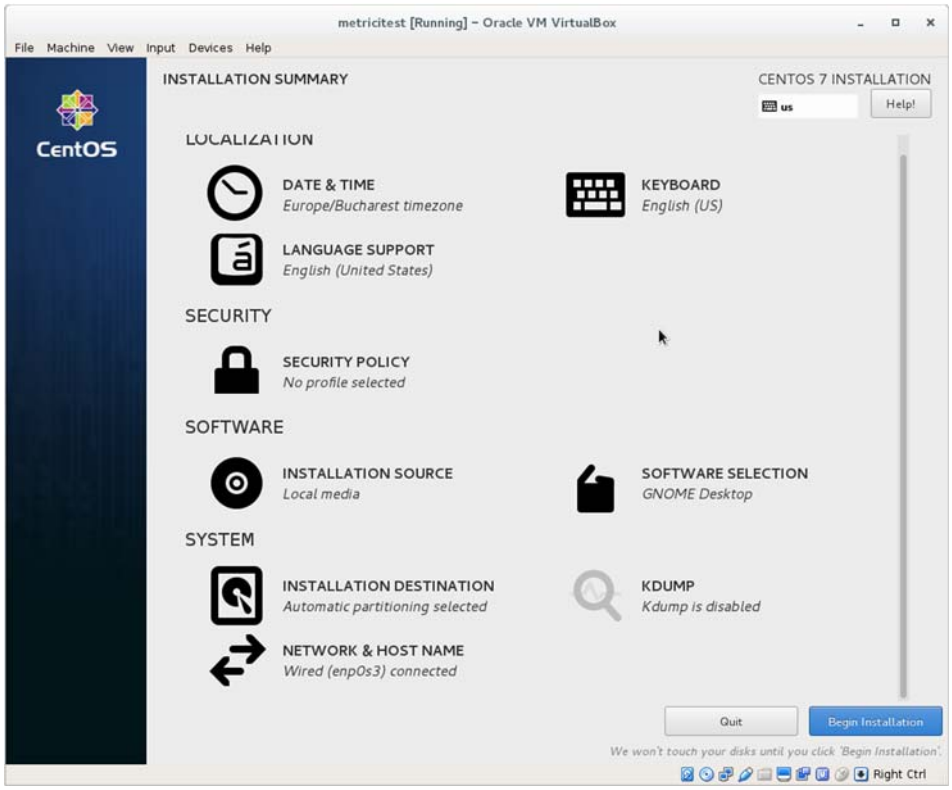

From SOFTWARE
SELECTION tab, select option
GNOME Desktop.
***You will check nothing on the right side***



INSTALLATION SOURCE sets

the place from where the operating system will be read. In our case can be a DVD, a USB or a web address as mirrors.xservers.ro/centos7.

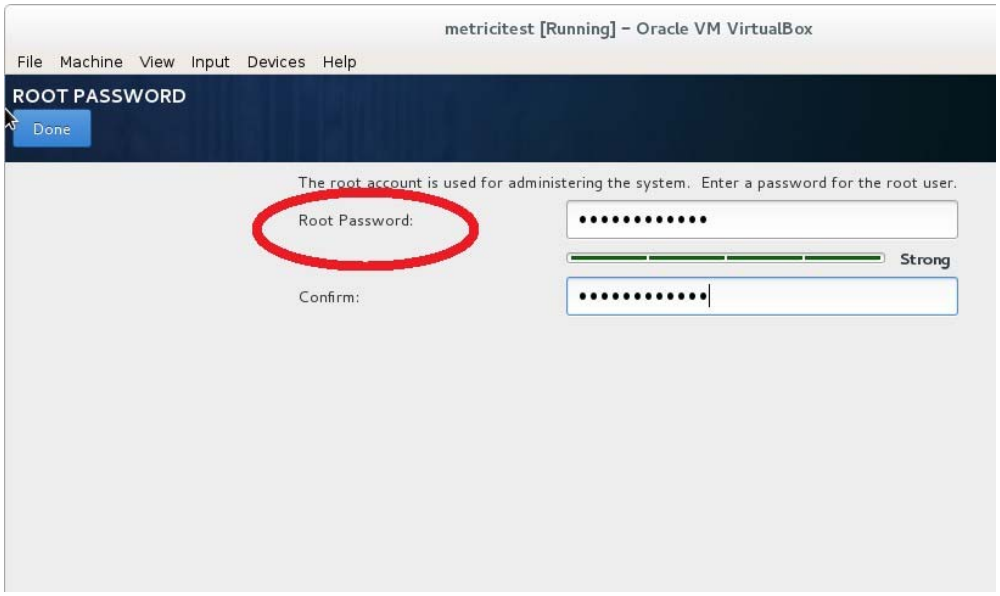
**In Kdump menu, you will NOT check Enable kdump option**



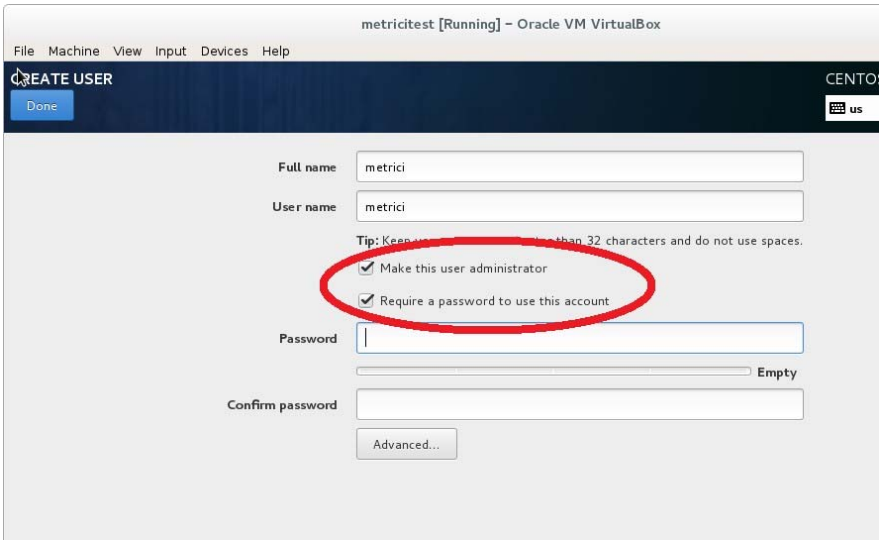

In the end, the installation screen should look similar to this image

Launch the installation with the button Begin installation. While it is working, you can set root password (administrator) and add a user

***Choose ROOT PASSWORD option, write a password and confirm it***




From USER CREATION, create a new user




***IMPORTANT! It is mandatory to check the option Make this user administrator.***
***Wait the end of installation, reboot***

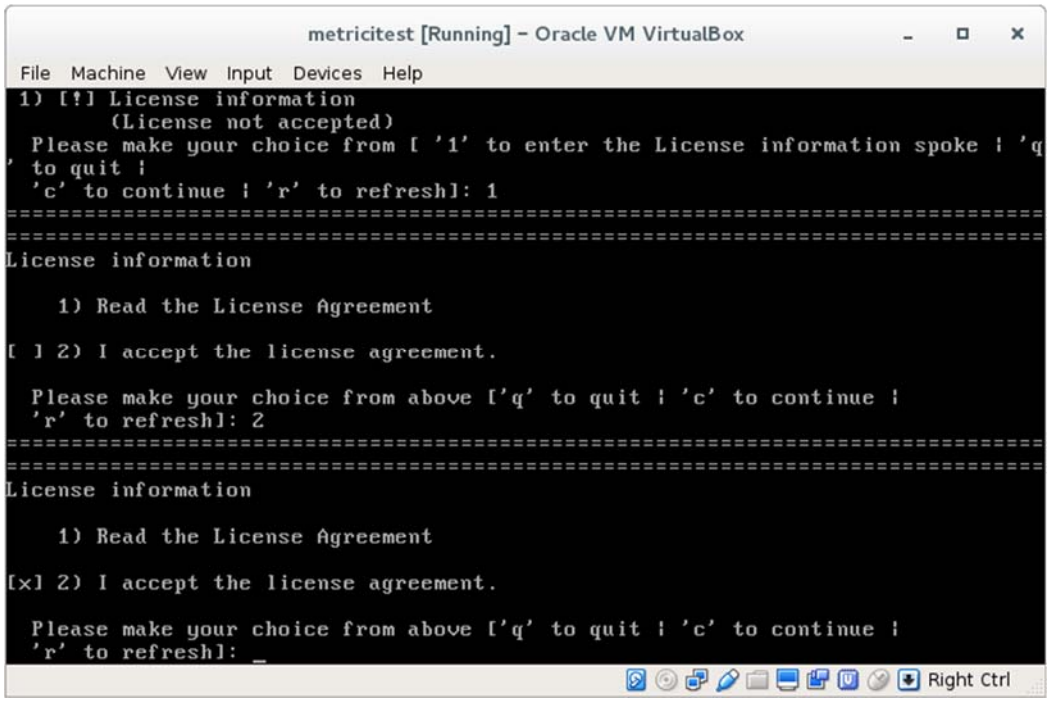
## *CHAPTER 2*

## *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.***

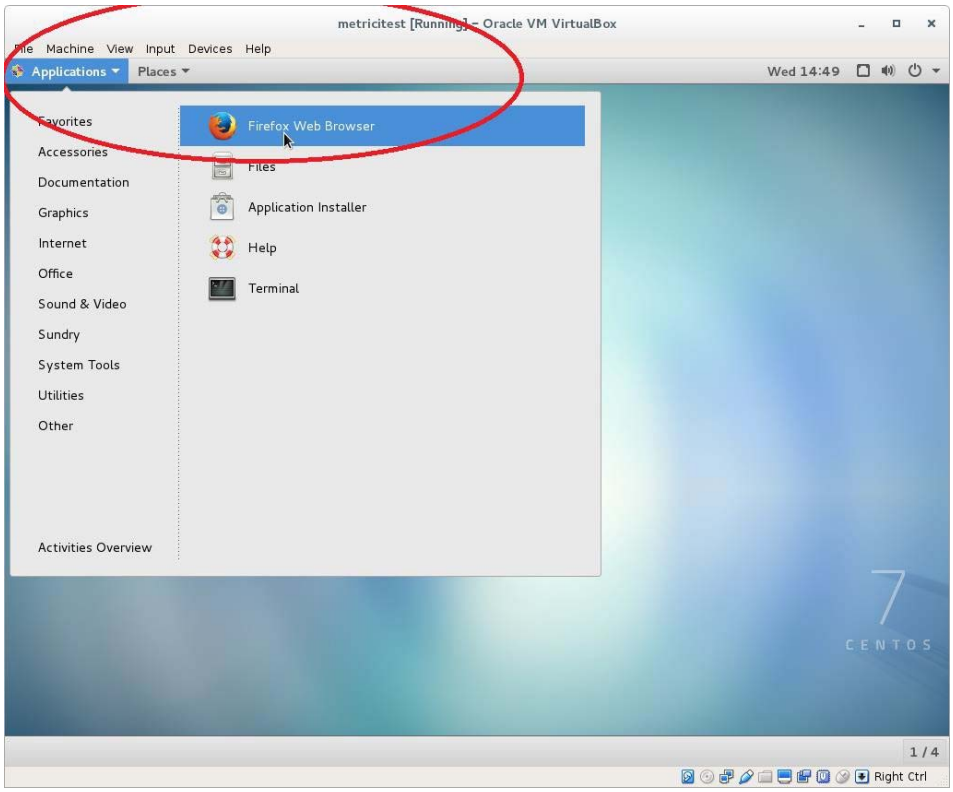
After the reboot, you can authenticate by using the user and password defined during installation.

You navigate through the last settings, click Next.

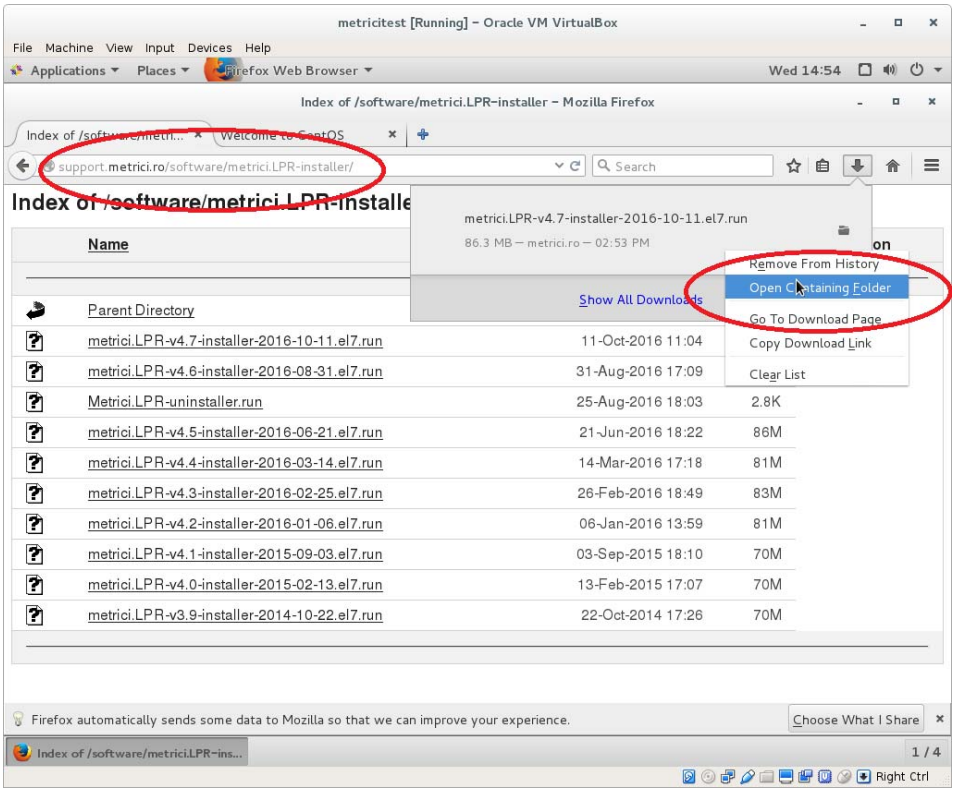
## *CHAPTER 3*

## *Download and install TSA LPR*

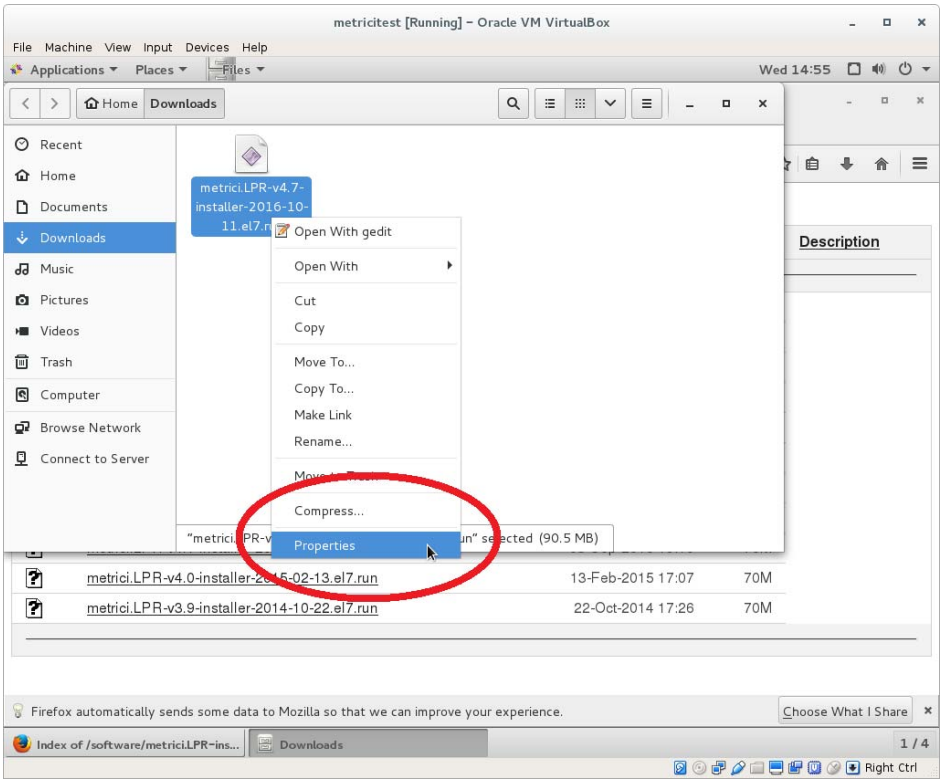
For TSA LPR kit download, open Firefox browser from link Applications menu, upper left if TSA send it to you.



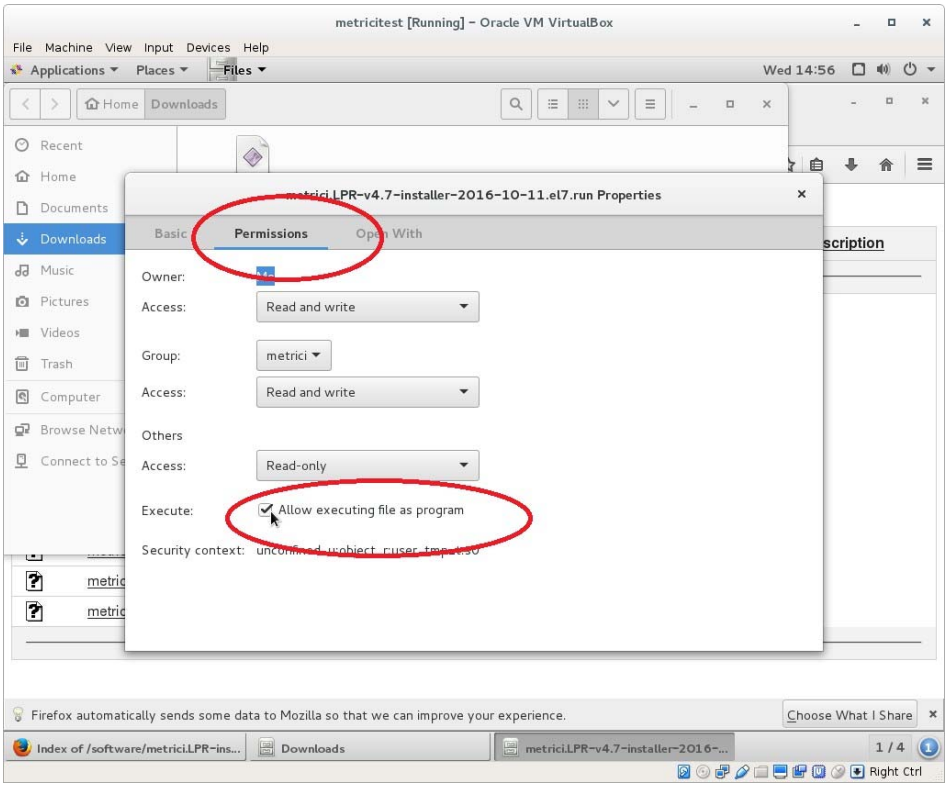

Open the folder where the file was saved (right click – Open Containing Folder).



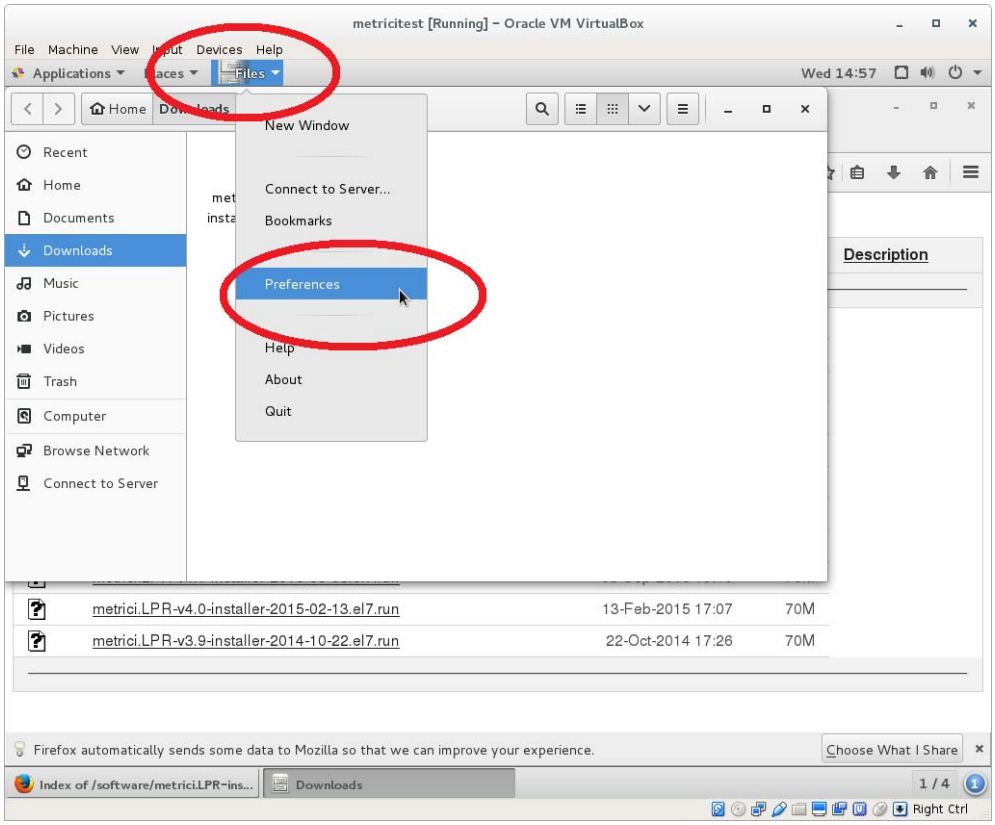

You need to change the administration rights for the file (right click on the file–Properties menu).



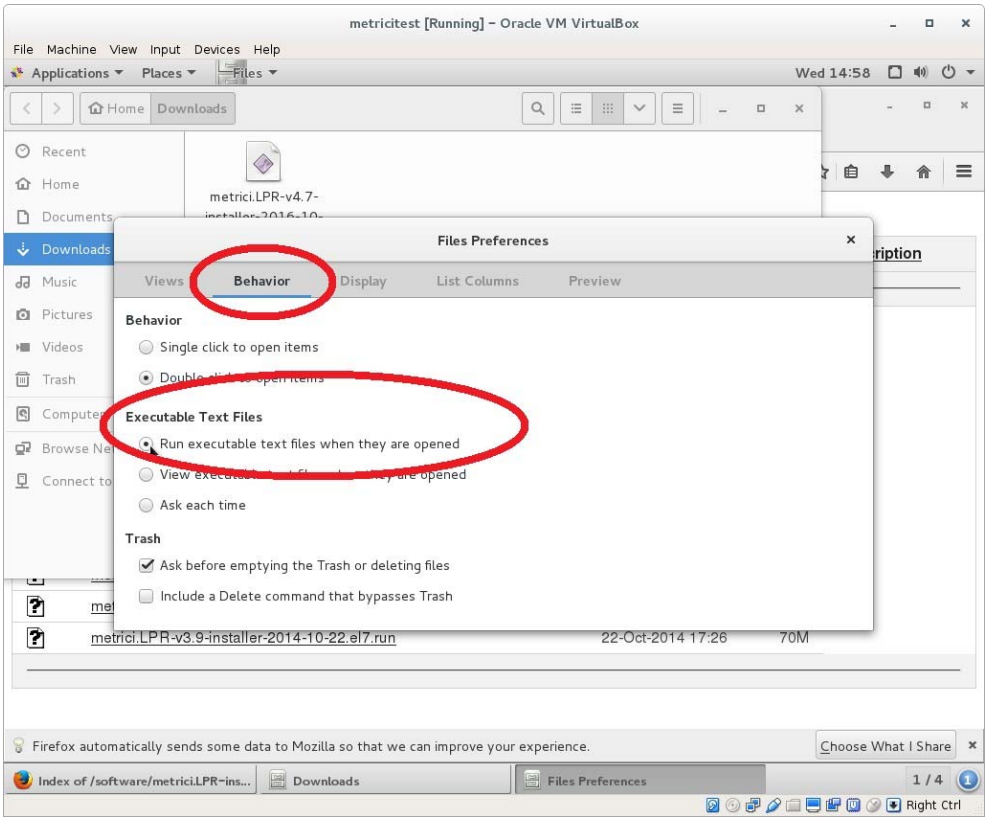

In the Permissions tab, check the option Allow executing file as program.




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.




Double click on the installation program to launch it. When asked, write the password for the user you are logged in CentOS7.
Wait for the installation to end, and reboot.

## *CHAPTER 4*
## *TSA LPR SEEWEB INTERFACE SETTINGS*

TSA LPR once installed will modify the default settings of the desktop, for a better experience of the user unfamiliarized with the Linux CentOS7.

Thus, TSA LPR activates automatic log in and creates a few shortcuts on desktop.

**4.1 Initiating TSA LPR SEEWEB INTERFACE**

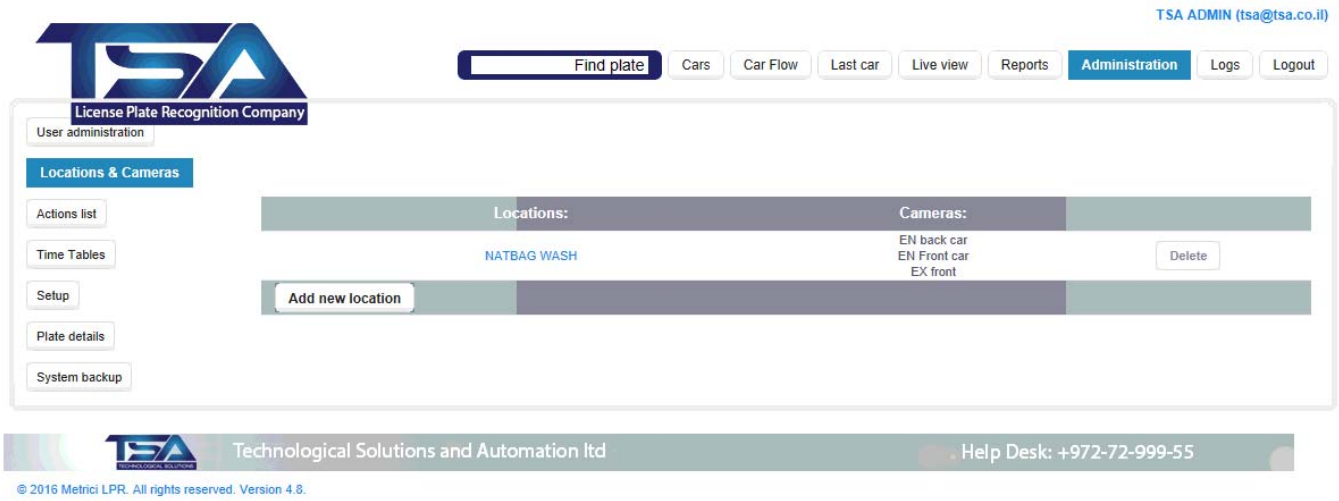
TSA LPR SEEWEB INTERFACE created a shortcut on desktop, and this will facilitate the access to the reporting interface, where one can see the recognized license plates and so many other statistics.

TSA LPR SEEWEB INTERFACE is the ADMINISTRATION and REPORTING block for the data from the video cameras, as explained in the introduction of this manual. There you can find and group the statistics, you manage reports, set multiple users and commands to be executed for license plates on databases.

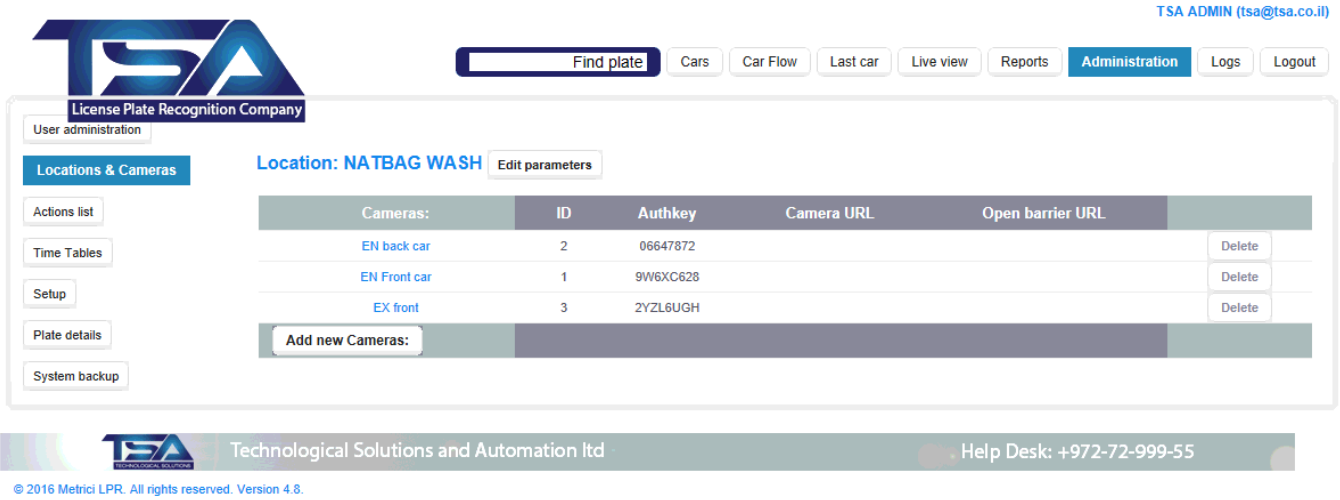
This interface allows setting up multiple locations, which in their turn can include more detection cameras. It is necessary to define minimum a location and a camera.

Launch the program from the TSA LPR SEEWEB INTERFACE shortcut. You log in the system using the following: e-mail: TSA@TSA.co.il and password: 1234. Please change this password after login.

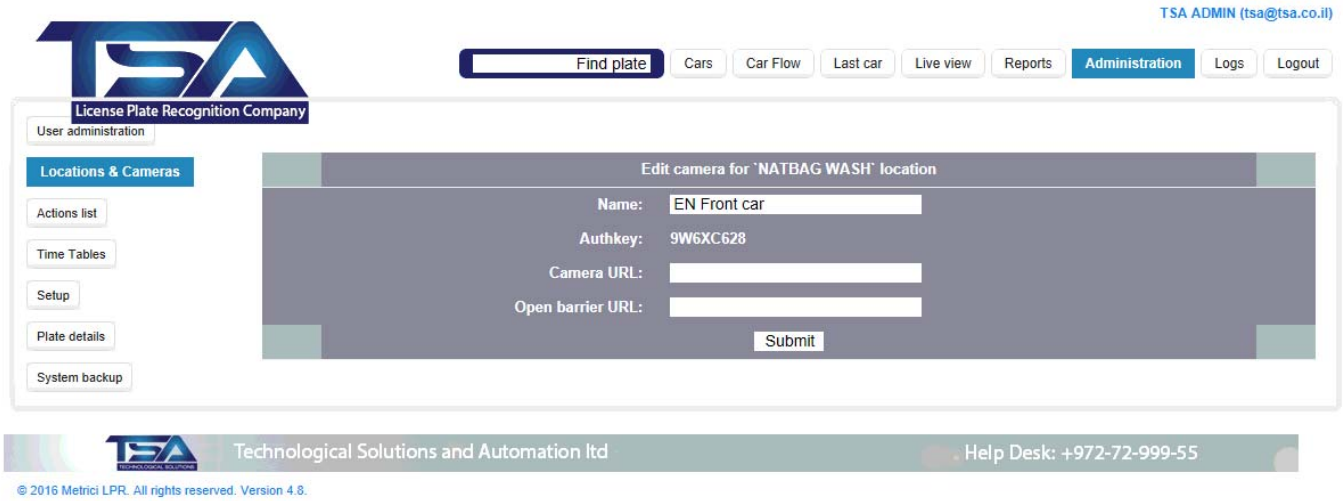
Access the menu Administration, submenu Locations & Cameras and click - Add new location button




The new location will be assigned to the default user.




Choose a name for the location, option Submit, and click on its name to define a camera or more by pressing Add new cameras button

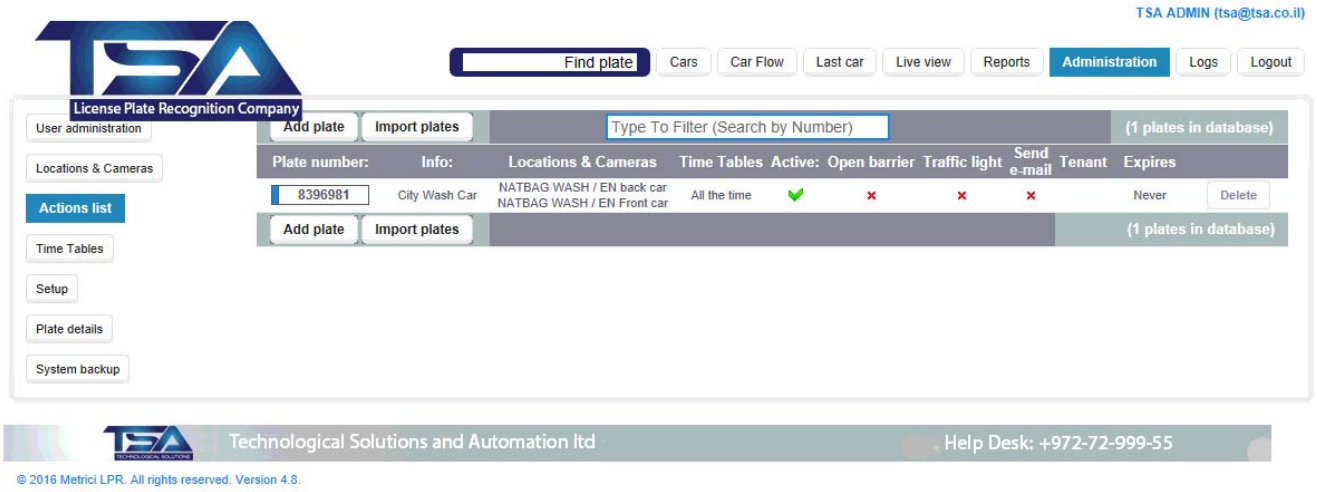


The system will generate an authentication key– Authkey that will facilitate the communication process between detection application and this TSA LPR interface. This authkey will be filled in TSA LPR Control Panel to have access to live view functions

*IMPORTANT If a camera was connected and began recording events and saved them on the interface, that particular camera can no longer be deleted from the menu.*

*NOTE In case you want a user to no longer have access to a location, you choose Settings menu, user administration tab and you will uncheck those particular locations you don't want any more the user to have access to.*

### 4.2 Actions List




The user can set preferences for one or more cars. These can manually be introduced in the system or you can import a list in format .txt or CSV.

When a license plate from the action list is detected, the program can execute one or more actions, such as: can open a barrier, change a traffic light, send an e-mail to a certain address chosen by the user, or it can generate a popup on screen. Also, the

user can choose what is the time interval in which these actions to be active, according to the Time Tables.

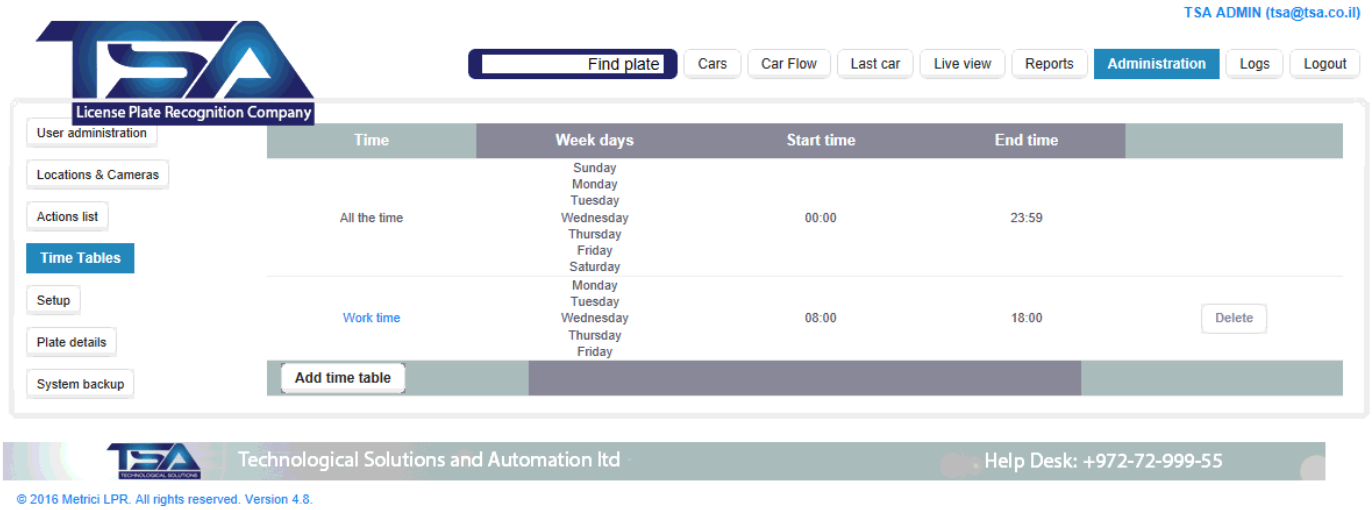
When adding new license plates to Action List, you can choose, for example, that all cars that contain a certain combination of letters/numbers to be included in the same action.

You must remember that the character "_" replaces only one letter or number, where "%" replaces unlimited number of characters or even none.

If you wish that cars that have license plates beginning with letter B to have unrestricted access at the barrier, you will write a formula as B%. This means that cars with license plate numbers that begin with letter B followed by at least other two character will have unlimited access.

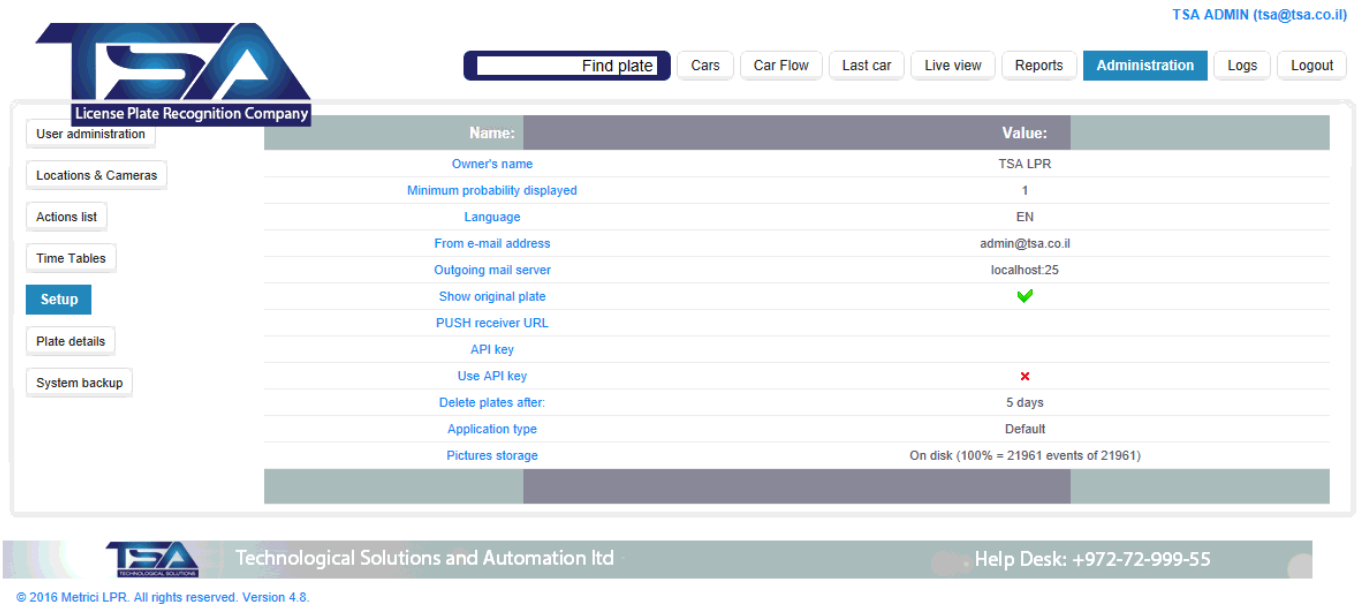
***For details, check also Chapter 5.1 Find plate.***

### 4.3 Time Tables




The detection software is operational 24/7, but a user can set time tables for different actions: for example, in which days or between what hours to open a barrier or to change a traffic light. Outside that time table, the program will go on to recognize the number from the action list, but will no longer grant access except according to the time table.

### 4.4 Administration Setup



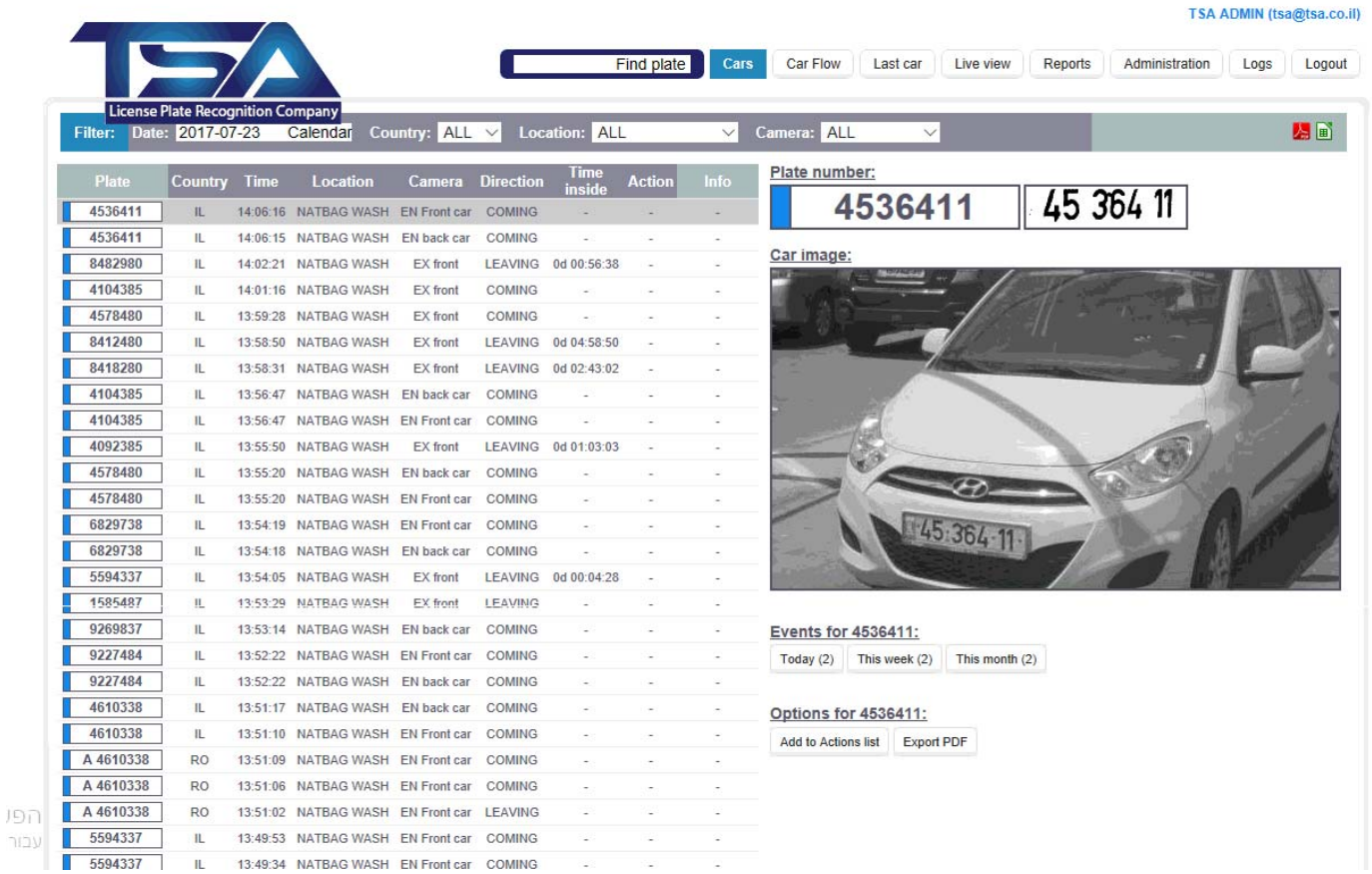

Administration menu, Setup submenu will allow changing some operational parameters of TSA LPR SEEWEB INTERFACE, such as the name, the way it displays information or you can choose in what module to work on: this is where you enter the Parking menu (see the detailed Parking manual).

## *CHAPTER 5*
## *MANAGING STATISTICS AND REPORTS TSA LPR SEEWEB INTERFACE*

Cars menu offers the means to see the list with the recognized license plates, with a probability bigger or equal to the one predefined (see Chapter 6.6). You can also make a search by date, country code, location or camera. The system will display only the locations and cameras for which the user has access.

For each of the license plates, the system will display the alphanumeric content, country code, the moment when the plate was recognized, location, camera and the direction (see Chapter Car tracking), the time interval between two detections with opposite directions.

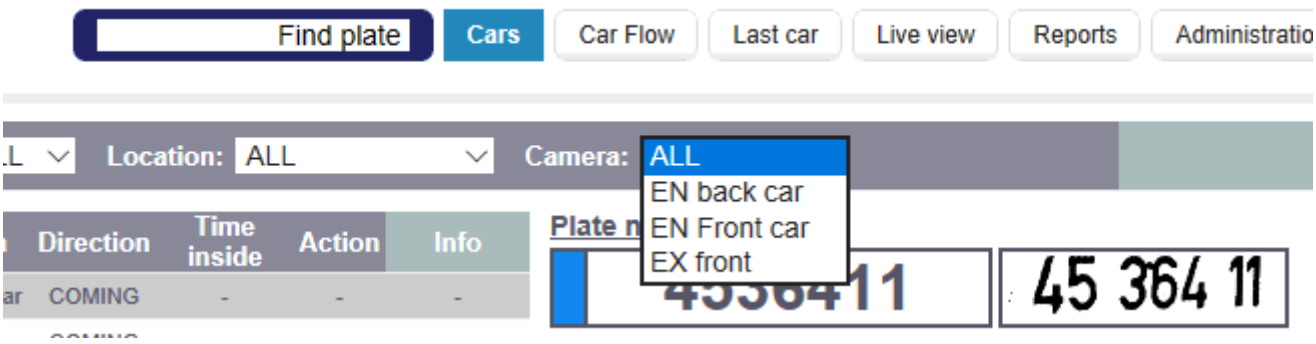
On the right side the system will display the reconstructed number and the processed picture of the plate.
Underneath, you will see car's picture and a few quick links for reports and actions.
If you click on cars picture or on plate, you can see them at the original size, as they were taken by the camera.




**5.1 Find plate**

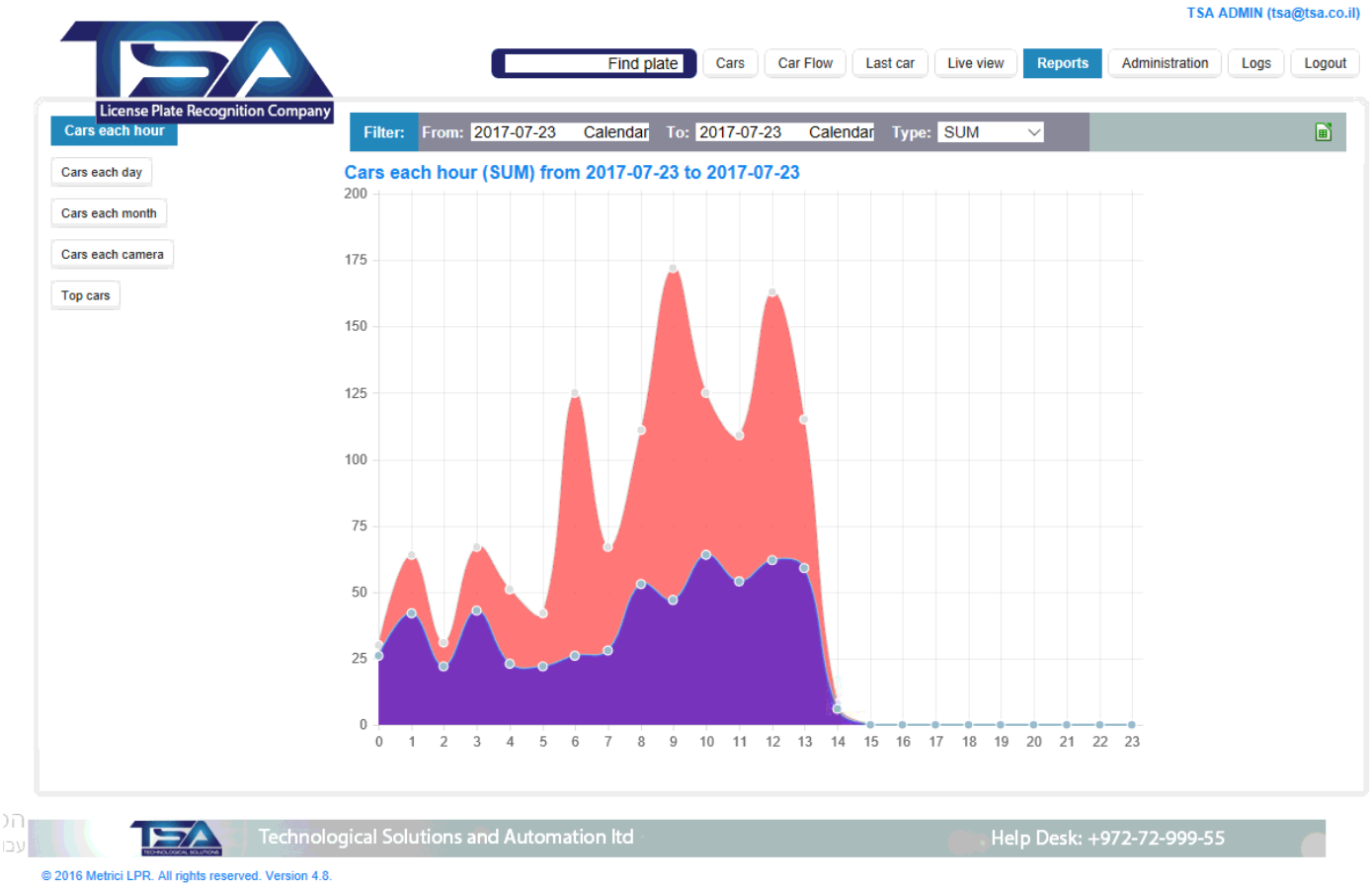
You can make a quick search of license plates by filling the blue box and pressing Find plate button. You can write only a part of the license plate and the system will display all the plates that respect that condition. For example, a search for GL will generate results such as GL 17 VGN, but also B 100 GLA or TR 34 AGL.

For every new search the character "_ "replaces a letter or a number. The character "%" will replace as many characters.
For example, a search as _B 01 will generate results from AB 01 county, also SB 01 or DB 01. A search like 41% will generate results as in the next image. "41" can be anywhere inside the license plate number.
Also, a search as GL % will generate a list with all the license plates numbers that begin with GL, followed by at least two other characters, as "% "can also have a zero value.

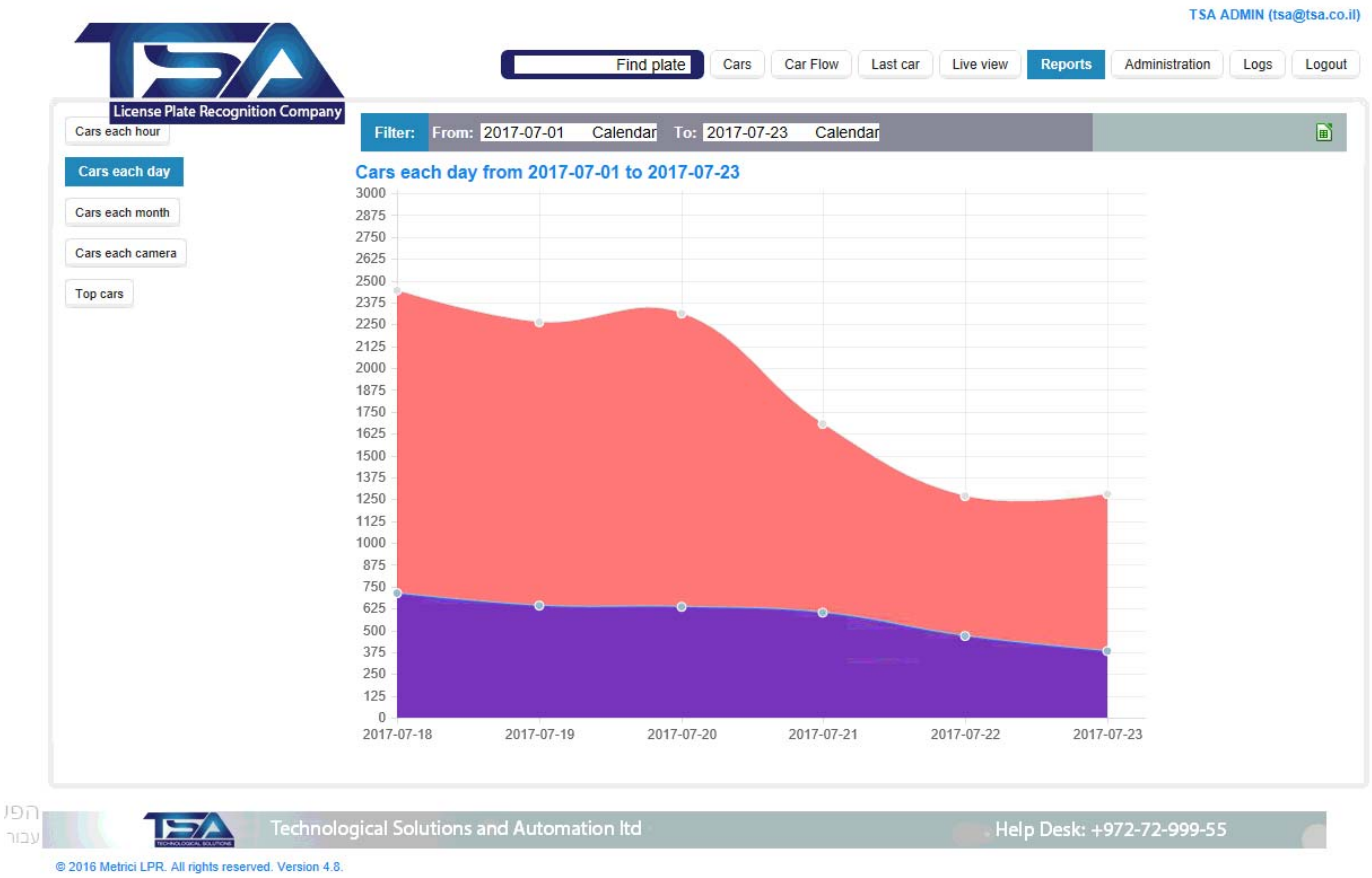



**5.2 Reports. Cars each hour**

One can see a few reports about the traffic by accessing Reports menu. Cars each hour report will show the number of cars and unique cars seen each hour of the day. You can choose the time interval for the report, as well as the type of report:
SUM = hourly sum for the reporting interval, or AVERAGE = hourly average for the interval.




Another reports offered by TSA are the number of cars each day on an interval chosen in days, months, or number of cars in comparison for selected cameras, also what are the cars who were seen more often in a time interval– Top cars.

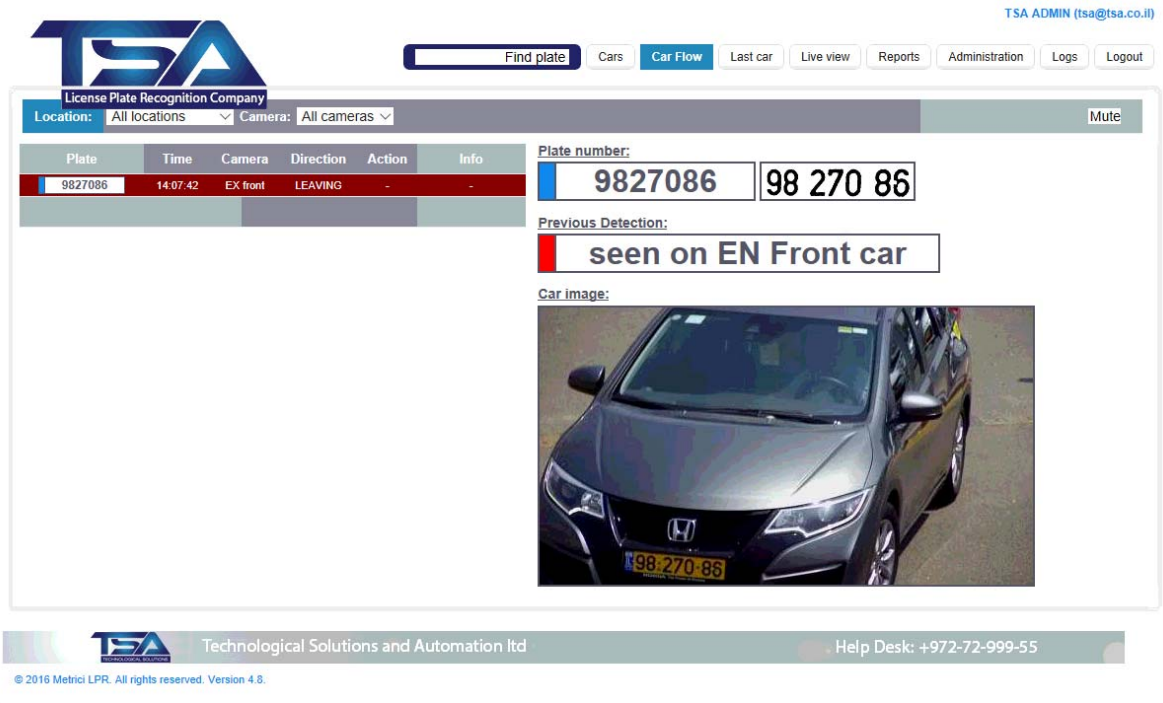



### 5.3 Car flow

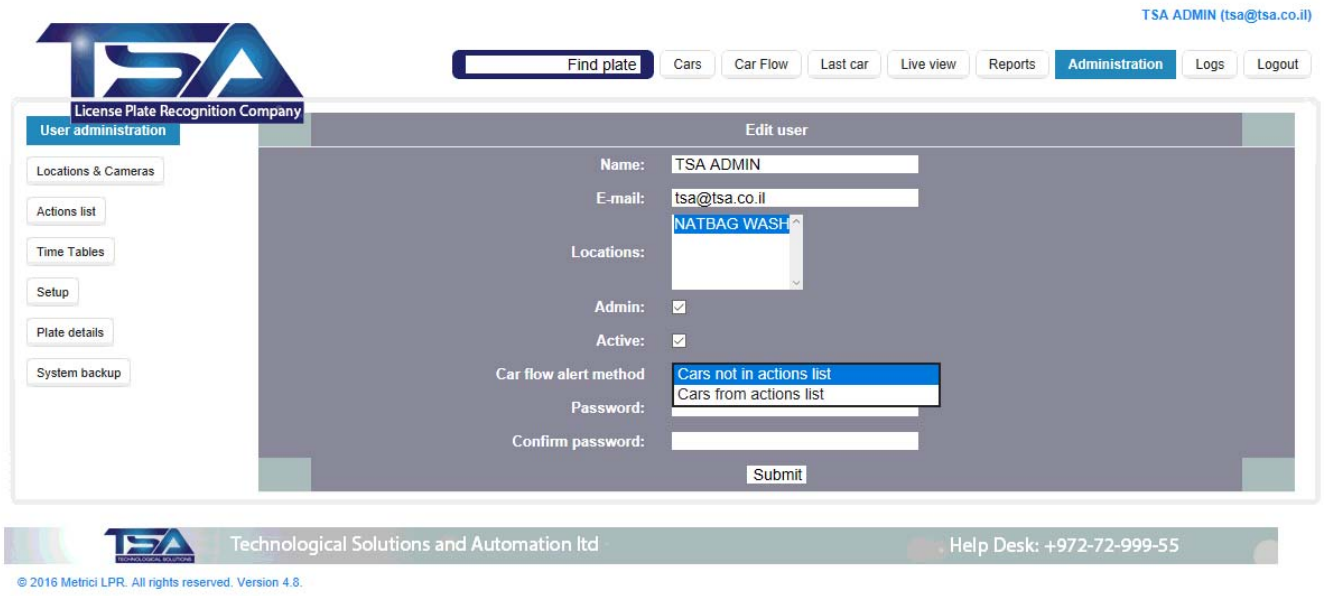
This menu will generate a list with the cars that are detected by TSA LPR. Depending on the alert method chosen by the user: “cars in the action list” or “cars not in the action list”, a beep will accompany each detection.

On the left side, you can see the license plate, the hour of the detection, camera which did it, the direction of movement and the action to be executed if the car is in the action list.

On the right side the photo of the car is displayed, along the plates reconstructed



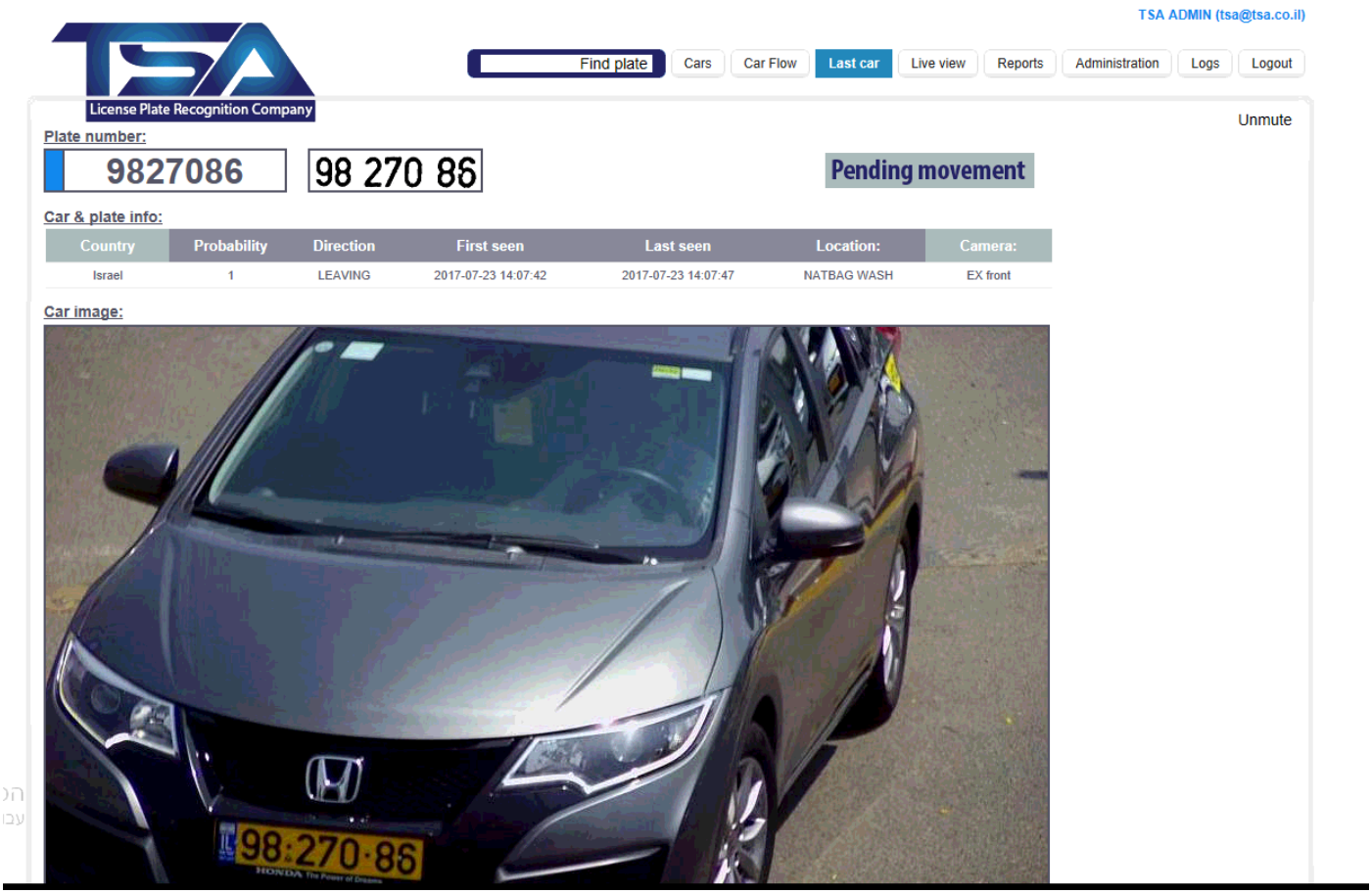

*NOTE The type of alert for each user is selected in the Administration menu, User Administration submenu. From the list of user, click on the wanted one and a dialogue window will open.*




"Car flow alert method" tab let you chose what type of alert you prefer.

### 5.4 Last car

This menu will show the photo of the last detected car, together with some info: the date, location, camera, and action list setting. That image will change with a new detection.




NOTA: Car Flow menu and Last car have a button to Mute the sound.

## *CHAPTER 6*
## *TSA CONTROL PANEL SETTING AND USING*

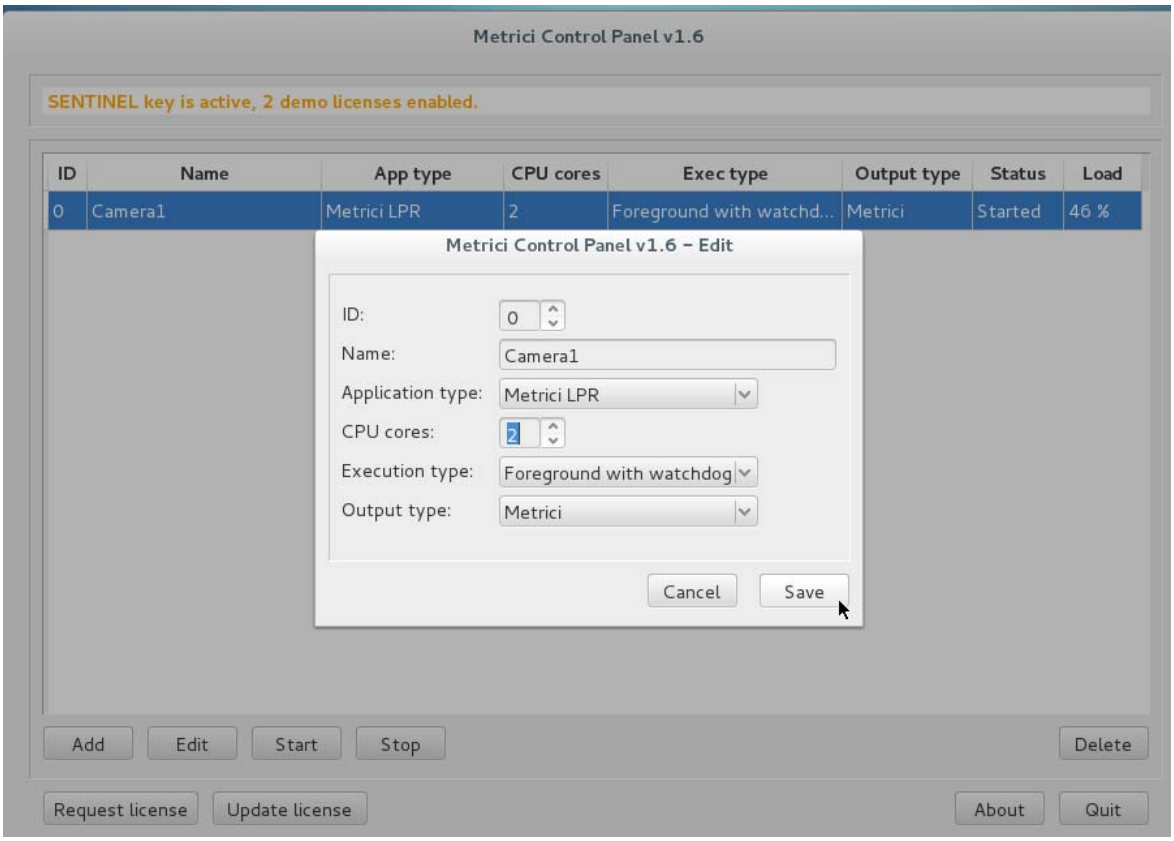
TSA Control Panel application is in fact a unit for processing detection applications and data gathered by video cameras, as explained in the first pages of this guide

The data processed in this application will be send for recording, arrangement and reporting towards the TSA LPR SEEWEB INTERFACE, where they can be easily accessed. The detection application can work independently, but TSA Control Panel makes sure that they are not jamming and are working as they are meant to do. Also, this is where you can set, change or later execute many useful options, as we are about to explain in this chapter

TSA Control Panel application will launch automatically each time the server is on.

You can add a new detection application by using the Add button. When adding a new application, you set the CPU for 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

For example, an INTEL i5 processor has 4 CPU cores, so if you want to designate a 3 Megapixels camera and a 1 Megapixel one to this, we recommend using 3 CPU cores for the first one and 1 CPU for the second




After adding a camera to a detection application, for a complete setup, such as connectivity data, checking country syntax for recognized plate, actions to be executed, this has to be set in Execution type in working mode Foreground with watchdog.

At a later date, this working mode can be changed. 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 TSA LPR SEEWEB 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 server 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,

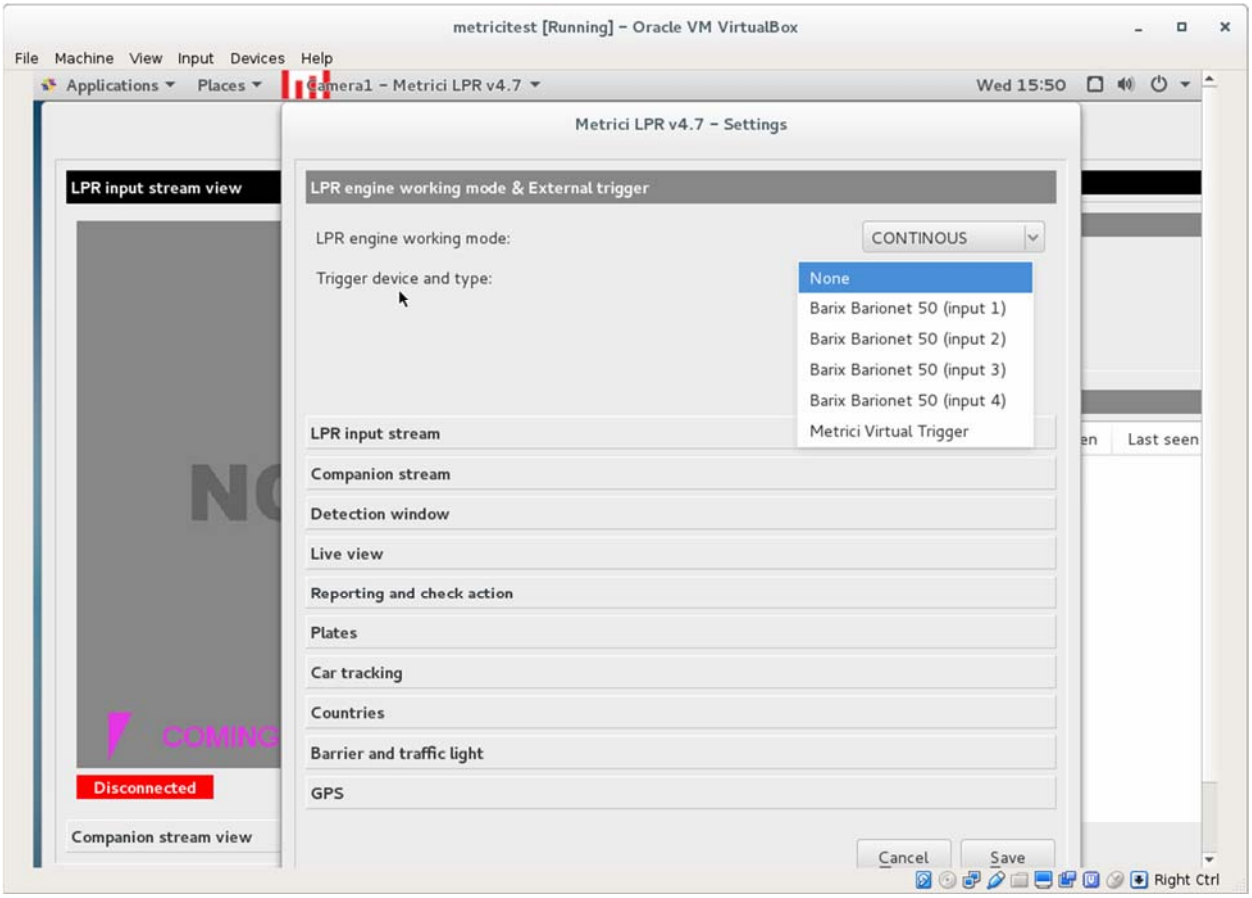
*In case that more cameras will be connected to Control Panel, the settings in this chapter will be applied for each one of them.*

**6.1 LPR engine working mode & External trigger**

By pressing the Settings button, the first option is LPR engine working mode & External trigger which will set the working mode for the detection software

TSA LPR can be active in continuous mode and try to detect numbers around the clock or if it receives a command from a compatible device, such as Barix Barionet.

TSA Virtual Trigger can be used when IP camera has a digital input that can be triggered by an inductive loop, for example, and thus generating an event for TSA LPR server.



### 6.2 LPR Input Stream

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

### 6.3 Companion (color overview) Stream

Companion Stream This option allows the user to set a new camera that will record an image along the one that captures the license plate. The images from the two cameras will be saved together on SEEWEB INTERFACE

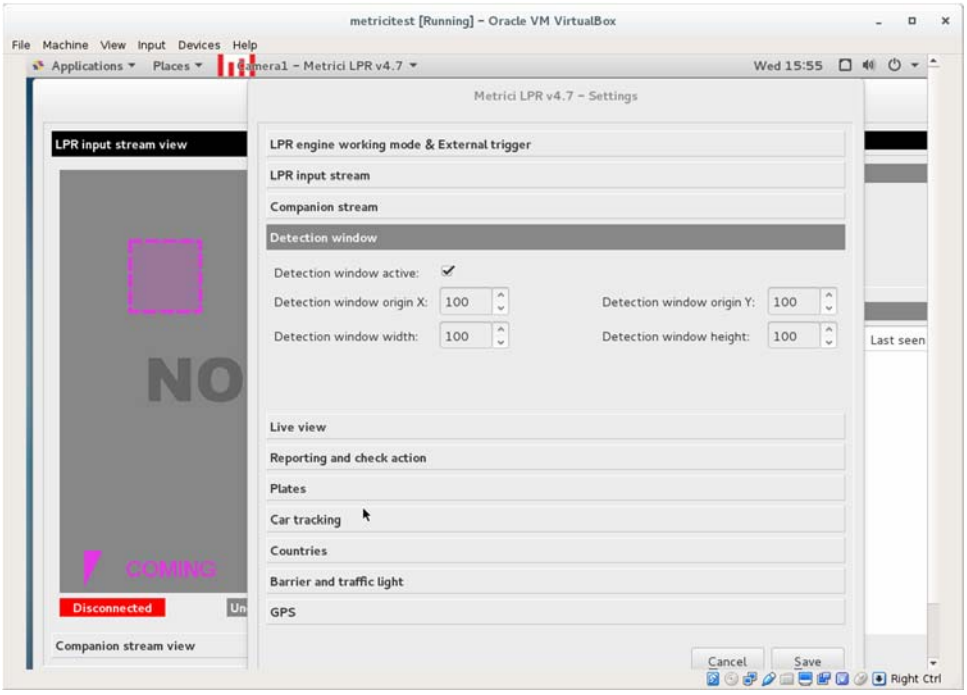
**Companion Stream Type:** Choose the model of the second camera. In case this model is not on the list, choose Generic camera and the video format it uses.

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

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

### 6.4 Detection Window

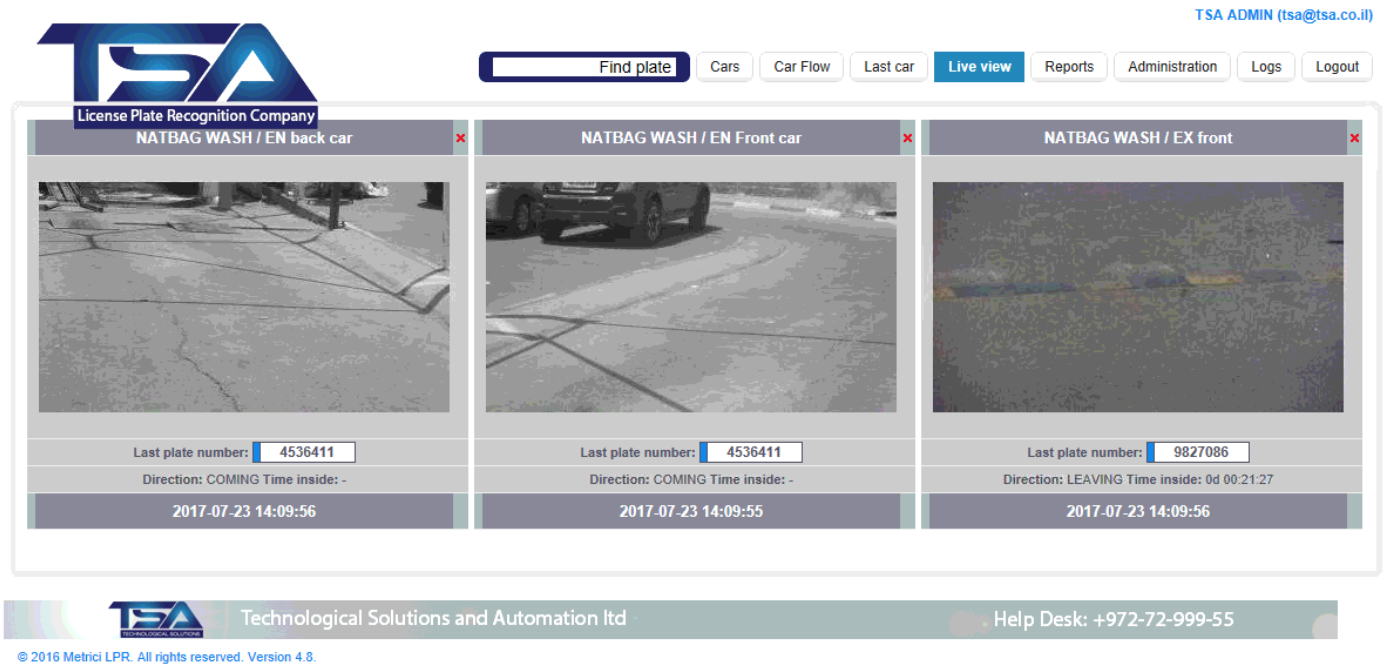
Detection window tab, when checked, will reduce the area scanned for a license plate. This will allow a greater speed of detection, and a smaller need of resources for saving and recording and faster processing. This option can be used for barriers, or in other areas where license plates can only be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




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

### 6.5 Live view

Live view. By checking this button, image from detection camera will be broadcast to the SEEWEB INTERFACE or an IP address.




### 6.6 Reporting and check action

The menu Reporting and check action will be listed with the data from Reporting/ Check action-authkey / id, generated by TSA LPR SEEWEB INTERFACE.

These values were set automatically by TSA LPR SEEWEB INTERFACE when a camera was introduced in the system. This is the only way in which you integrate the communication between the detection unit and analysis center.

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*NOTE These data can be accessed in TSA LPR SEEWEB INTERFACE on Administration menu, Location and Cameras submenu.*

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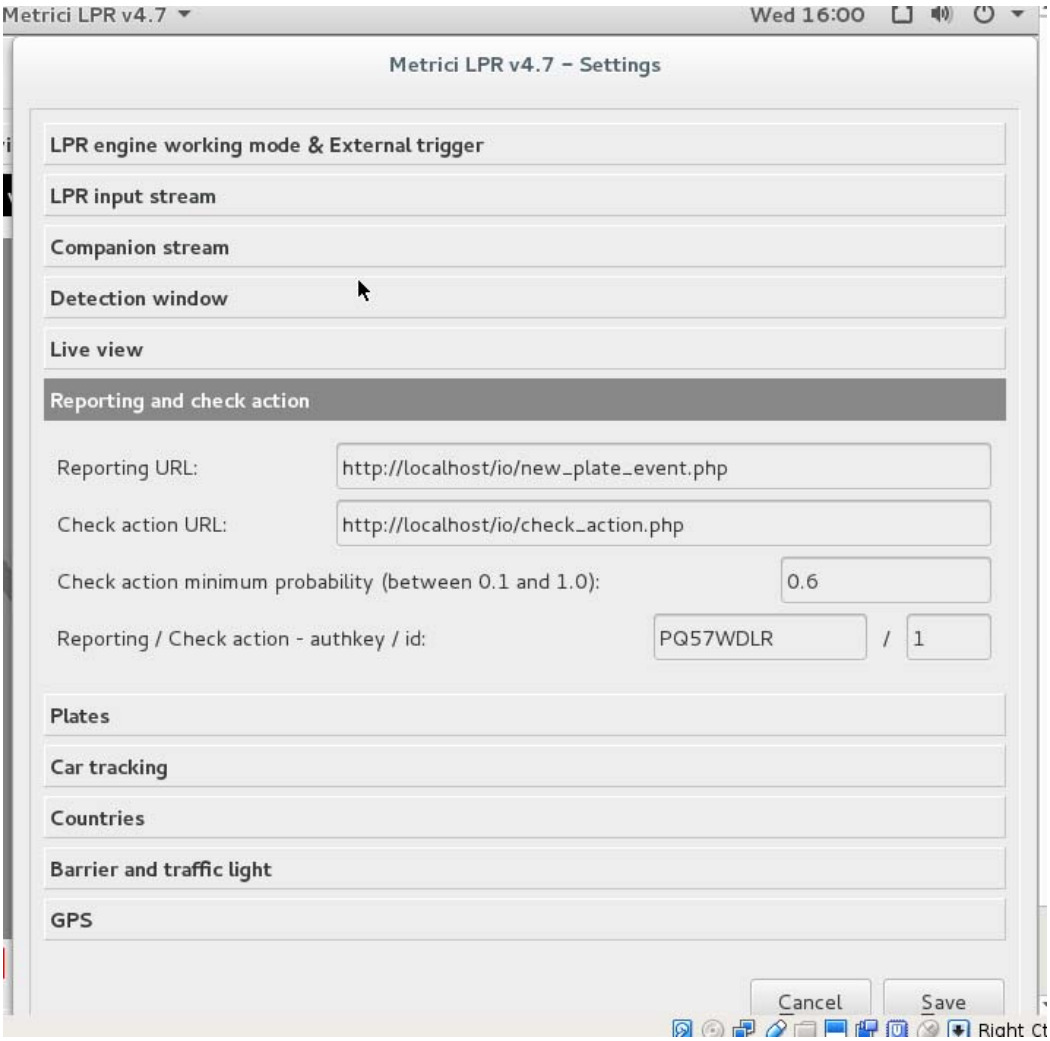
Reporting URL – the virtual address where the system will send the data of recognized license plates and the images from the cameras. This will be as http://IP_ADDRESS/io/new_plate_event.php. In case that reporting and administration interface is installed on same server with the analysis application, IP_ADDRESS will take the form 127.0.0.1

Check action URL – the address of the unit for checking the actions to be executed if a license plate is recognized. The actions can be set in TSA LPR SEEWEB INTERFACE and take a form such as: open barrier, send e-mail, popup on screen, change traffic light.
It is seeing like: http://IP_ADDRESS/io/check_action.php. In case that reporting and administration interface is installed on same server with the analysis application, IP_ADDRESS will take the form 127.0.0.1




Check action minimum probability between 0.1 and 1.0 tells the system which is the minimum value at which a license plate is checked for possible actions in database. We recommend a value of 0.6

**6.7 Plates**

For Plates tab, the optimum value of Plate min. length and Plate max. length will be set only after placing the camera and choosing an appropriate resolution, depending on results. You can start with a Plate min. length = 120 and Plate max. length = 1000.

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

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

**6.8 Car tracking**

Car tracking will establish the direction of movement for the cars. The data from this option can later be accessed in the TSA LPR SEEWEB INTERFACE

**6.9 Countries**

From the list of available countries, one can choose the ones from which the license plates to be recognized. In case only a few states are selected, license plates from other countries, not on list, will be ignored by the system and will not be saved in reports, lists or images.
In case “catch all” option is checked, the bigger the risk of recording “false positives”, but all the possible license plates will be scanned. For example, it is possible to have saved in database entries with “Taxi” box or identification numbers of buses.

**6.10 Barrier and traffic light**

Will set the parameters for closing and opening a barrier when a license plate is recognized.
This will take the form of the URL address of the device

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

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

Traffic light ON URL will be filled in case a traffic light is installed, which will commute when a license plate is detected.

All the settings from Barrier and traffic light menu will be correlated with the TSA LPR SEEWEB INTERFACE menu for each license plate that is in action list.

**6.11 GPS**

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

**6.12 Weight Scale**

When integrating a IP weight scale, an IP address will be saved in the dedicated box. Each detected license plate will be recorded in database together with the weight of the vehicle. TCP Port can be changed manually accordingly to the data on set.

**6.13 Radar**

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

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*NOTE: The detection system TSA 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 TSA LPR SEEWEB INTERFACE, when a connection at internet /network is set.*

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## *RECOMMENDATIONS*

For a better detection rate and recognition of license plates, we recommend

- Place IP camera, choose a video stream resolution and a framerate so every license plate to be in at least two frames and its size to be at minimum 200 pixels. The horizontal axes angle must not surpass +/- 20 de grade.
- Use infrared lightning daytime and night time, together with an optic filter low-pass for video cameras.
- Use a IR light with and illumination angle similar to the camera view field
- Don't put the IR light at a distance bigger than 30 cm from IP camera. The best position is right below the camera.
- Set the camera so that the shutter time to be correlated with the speed of moving vehicles (e.g.: 1/1000 s for speed up to 60~70 km/h).
- Choose a video camera with a bigger sensitivity and set it in the night mode of detection even during day time.
- For the image noise to be reduced, you need to set a small gain in camera video settings. Do not use the software correction of the camera (e.g. noise reduction).
- Deactivate or reduce: WDR, noise reduction, edge enhancement.
- The camera and IR settings will be made during the night and day. Also make adjustments on a sunny day to make sure there are no shadows in the detection area: stairs, pillars, trees...Try to estimate the most difficult position of the Sun and place the camera so it isn't blinded by it
- Change the scenery so the speed of cars to be in tune to the overall performance of the camera: (e.g. speed bumpers, barriers etc.).
- Use one or more servers for detection and recognition, configured properly in regards of RAM/processing power.
- Reduce the need for processing power by creating a detection window for the areas of interest
- Read the user guide.

**Contact TSA LPR support engineers to get recommendations for what equipment to use in difficult situations.**