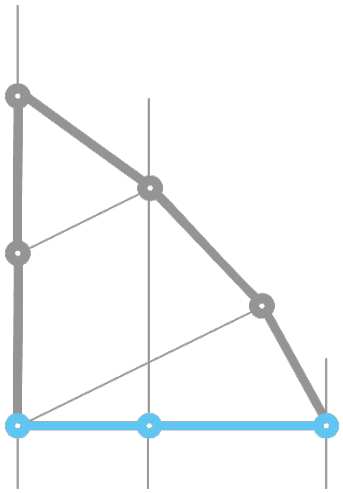


shark

license plate recognition

Shark LPR
Administrator Manual
V1.0

Contents

• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com

1. Copyright, trademarks, and disclaimer

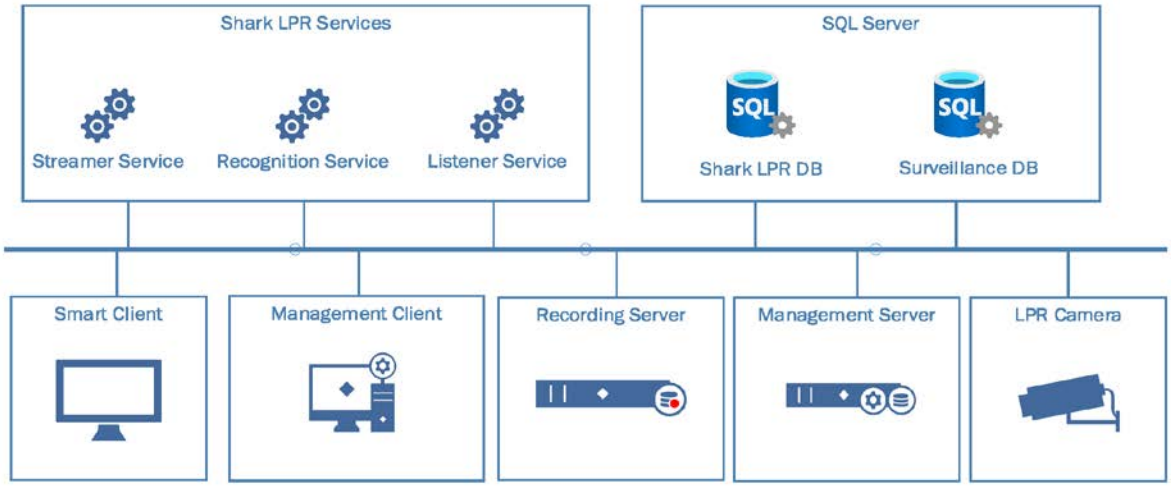
Trademarks
Shark LPR is a registered trademark of Systeminence Offshore SAL.
Microsoft and Windows are registered trademarks of Microsoft Corporation.
All other trademarks mentioned in this document are trademarks of their respective owners.

Disclaimer
This text is intended for general information purposes only, and due care has been taken in its preparation. Any risk arising from the use of this information rests with the recipient, and nothing herein should be construed as constituting any kind of warranty.
Systeminence Offshore SAL reserves the right to make adjustments without prior notification.

2. Product Overview

Shark license plate recognition is a high performance system that reads license plate information from vehicles and links this information with video. Designed for fixed and mobile installations, Shark is ideal for access control, law enforcement, territory control, toll management, site security and parking management. Shark can recognize license plates, make, model and color of vehicles and is supported by smart algorithm to detect cloned plates.

3. System components



• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com

Shark LPR comprises 4 windows services. The windows user assigned to each of these services should have administrator rights and should be assigned with a password. A blank password is not accepted.

- Shark LPR streamer: this service is responsible to pull the stream from the video management system.
- Shark LPR listener service: This windows service is responsible to receive the recognized license plates from the engine and write the reading results inside the SQL database. The service offers a redundancy functionality in case of network disconnection where the recognized license plates will be stored locally on a JSON file and then uploaded to the SQL database when the connectivity is restored.
- Shark LPR Recognition: This windows service is the engine that will process the stream coming from the LPR cameras.
- Shark LPR Event: This service is used to Auto import license plates list, raise alarms and detect cloned plates.

• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com

4. Pre-Installation requirements

Before the installation of Shark license plate recognition system, the below pre-requisites should be available:

- SQL server 2016 or above. Click HERE to download
- Microsoft ODBC driver 13 for SQL server or above. (required only in case of distributed architecture where Shark LPR Recognition service and SQL server are installed on separate machines). Click HERE to download.
- .Net framework 4.7.2. To download click HERE
- NVidia GPU driver version should be ≥ 14.1722

5. Installation

Note: The .exe and .ZIP file should be unblocked before being extracted.

- Run Shark LPR Installer.exe as administrator, a welcome screen will open, click "*Next*"
- On the feature window, the below options are available. Please note that you can choose one or all of the options:
    - Shark Management client plugin
    - Shark Smart client plugin
    - Shark recognition service
- Once the options are selected, click "*Next*"
- In multi-server environment, choose the proper IP address of the local recognition server
- Provide the SQL server name and the Login type
- Provide the password and click *"Test".* Click "*Next*"
- A successful installation message will be displayed

6. Shark LPR Management Client

Shark LPR management client is used to configure Shark LPR system. To access the system login to Milestone Management Client and go to Systeminence node, Shark LPR tab.

a) System Configuration

The system configuration tab includes the SQL and email configuration.

i. SQL configuration

The SQL configuration is used to store the configuration of the system and the recognized license plates data.

To configure the SQL server:

- SQL server name: Enter the Hostname or IP address of the SQL server.

• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com

- Login Type: you can switch between Windows authentication and SQL authentication
- Server Admin Login Name: Choose the username from the dropdown list. To note that the username should have *"Sys Admin"* role in SQL
- Login Password: Enter the related password and click Test connectivity. If the connection is established, a window saying *"Successfully connected" will pop up,* otherwise you will receive a "*Login failed"* error message.
- Click "*Save"* to save the current configuration

ii. Email configuration

Configure this part if you would like to send email notifications when alarms are triggered in the system.
Under **email configuration**:

- **sender email address:** enter the email address from which you would like to send the emails.
- **sender password:** enter your password
- **mail server address:** enter your SMTP mail address
- **mail server port:** enter the port used by the mail server

If your SMTP server requires authentication for your system's SMTP mail server, check the box **server requires login** and enter your credentials.
Click on **test mail connectivity** to test the functionality. You should receive an automated email.

b) Server Configuration

Shark LPR is a distributed and centrally managed LPR system. This tab displays the currently installed Shark LPR recognition server(s). Shark LPR management client displays the servers once the recognition service is installed on a server.

- To edit the server name or IP address, click *Edit* and proceed with the modification
- To delete the server, click *delete*
- To add a camera, click on **add camera**, check the boxes of the LPR cameras and select the stream you want to use.
- To disable the server, click *Disable.* Once the server is disabled, Shark LPR recognition service is disabled.
- To configure the Shark LPR engine on this server, click *Engine Configuration*

c) Camera configuration

Shark LPR is designed to add the cameras from the Video management system.

- To add the cameras, go to "*Camera*" tab and click *"Add Camera"*, a pop-up window will open containing a list of available cameras in the VMS. Select the recognition server under which you would like to add the camera(s), Click the checkbox of the cameras you want to add and choose the

• Systeminence Off-Shore, SAL I Adonis St. Charbel Street I Adonis Center I Zouk Mosbeh I Lebanon
• M. +961 71 366 728 I E. info@systeminence.com I W. www.systeminence.com

desired stream for each. Click save.

d) Engine configuration

From the *"Engine Configuration"* tab, you can define and fine tune the engine performance for each recognition server installed in your site.

- **Server**: You can choose from the drop down which server to configure. By default, if one server is available it will be selected automatically.
- **Region**: You can choose from the dropdown list the engine configuration region. To note that Middle East engine convers Lebanon, Yemen and Jordan, Saudi Arabia, Kuwait, Qatar, UAE, Oman and Bahrain.
- **Motion Detection**: to Save processing power on the server, enable *"Motion Detection"* so the engine processes data only in case motion was detected.
- **Vehicle classification**: Enable "*Vehicle Classification"* to classify the vehicle of the recognized license plates.
- **Auto Start engine**: Enable this option to Automatically start Shark LPR engine in case of any server restart.
- **Enable GPU**: Enable this option to make the processing on the GPU.
- **GPU ID**: enter the GPU id the recognition server should use. (to get your GPU ID, open CMD and type "NVIDIA-SMI".
- **Upload address**: In a single server installation, where the "*Listener Service"* is installed locally, the upload address should be 127.0.0.1. In case the "*Listener Service"* is installed on a dedicated server, please provide the IP address of this server.
- **Third party upload address:** if your system is integrated with a PSIM, enter the ip address of the PSIM server.
- **License**: Enter your license to be able to process the data.

e) List Configuration

From the list configuration tab, you can define unlimited number of watch lists. In case White list checkbox was checked, the License plate numbers listed under this list will not be saved in the Database.
To add a list, click Add List:

- **List name:** Provide the list name
- **Description:** Provide the description for the list created
- **Auto import:** check this box and select the .xlsx file you would like to import.
- **Color:** Define the color of the list.
- **White list:** Check the box in case the list created is a White list

Click Save to create the list.

Once the list is created, the system will suggest to create a system action. If you click no, no action will be assigned to this list. If you click yes, a pop up window will open:

• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com

- **Category type:** Defines the category type of the events of interest.
- **Watch list name**: select the watch list name

Under **Alarm Definition** type the instructions the operator will see when the alarm is triggered, select the owner of the alarm, the priority, the map type and select the camera(s) on which the alarm(s) will be triggered.
Under **email definition** enter the email address of the recipient, subject and message. Note that you can include in the message the following variables:

- Camera name
- Car make year
- Car registration year
- Car color
- Car model
- Watch list
- Person name
- plate
- Owner birth year
- Social security number

Tick the checkbox(s) of the cameras which you want to relate to this alarm. Click "*Save"*. Click "close"

To edit the watch list, click on edit list information.
To delete a watch list, click on delete list.

To add license plates to the list, click on "*Manage Plates".* From the pop up window, you can add the license plates manually. The other fields are not required; however, they provide additional information for the operator about the listed car.

The administrator can import license plates from an Excel file that should have the below format:

plate	name	Social security number	Year of birth	Car model	Car color	Registration year	Car year

When you import a list, the system will ask you if you want to overwrite the existing list. If you click yes, the system will replace the existing plates with the imported plates. If you click no, the system will merge the lists.

f) System Action

From the system action tab, the administrator can add a new system action or edit an existing one. To add a new System action, click "A*dd Action".*

- From the condition drop down list, choose the list name.
- Tick the checkbox(s) alarm and/or email

Under **Alarm Definition,** type the instructions the operator will see when the alarm is triggered, select the owner of the alarm, the priority, the map type and select the camera(s) on which the alarm(s) will be

• Systeminence Off-Shore, SAL I Adonis St. Charbel Street I Adonis Center I Zouk Mosbeh I Lebanon
• M. +961 71 366 728 I E. info@systeminence.com I W. www.systeminence.com

triggered.
Under **email definition** enter the email address of the recipient, subject and message. Note that you can include in the message the following variables:

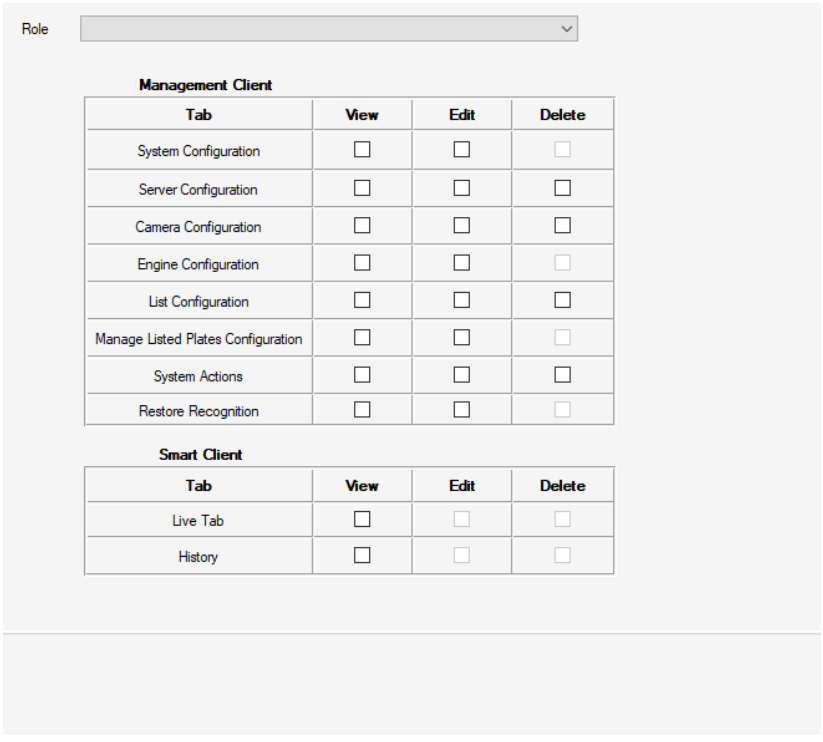
- Camera name
- Car make year
- Car registration year
- Car color
- Car model
- Watch list
- Person name
- plate
- Owner birth year
- Social security number

Tick the checkbox(s) of the cameras which you want to relate to this alarm. Click "*Save*". Click "close"

The administrator can "*Edit*", "*Delete*" or "*Disable*" a list.

g) User rights

Under user rights tab, you can configure the user access rights to Milestone Management client and Smart client by choosing from the dropdown list the role to which the users you want to configure access to belong as below:



• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com

h) Restore configuration

In case of disconnection between the recognition server and the SQL server, the recognition server will keep saving the plate readings locally in a JSON and CSV format. You can recover these files from the recognition server and restore them to the SQL server through the “restore data button” in the management client.

i) License

Under this tab you can see your site ID and the number of LPR cameras on that site.

To request a license, click on “request license” button, type the number of cameras you want to license and click on export. Name the xml file and send it by email to licensing@systeminence.com . you should receive an XML file. Click on import license and select that XML file.

7. Shark LPR Tray

Shark LPR tray is used to manage the services installed on each Shark LPR server. When you right click, the tray displays the services installed with their current status. If any service is stopped, the text will be highlighted in red and if the service is running the text is highlighted in green. If the license is valid, it will be highlighted in green and if it’s invalid, it will be highlighted in green.

- Recognition service:
  - Click stop to stop the service
  - Click Configuration to open the configuration menu:
    - SQL server name: Update the SQL database location and click “Get logins”
    - Login type: Choose between Windows authentication or SQL authentication
    - Provide the username and password
    - Click test, if connection is successful, Click Save.
  - Right click on the tray, go to recognition service and click Start
- Listener service:
  - Click stop to stop the service
  - Click Configuration to open the configuration menu:
    - SQL server name: Update the SQL database location and click “Get logins”
    - Login type: Choose between Windows authentication or SQL authentication
    - Provide the username and password
    - Click test, if connection is successful, Click Save.
  - Right click on the tray, go to recognition service and click Start

• Systeminence Off-Shore, SAL | Adonis St. Charbel Street | Adonis Center | Zouk Mosbeh | Lebanon
• M. +961 71 366 728 | E. info@systeminence.com | W. www.systeminence.com