



# 6SS LPR

## User Guide



# 6SS

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## 1. INTRODUCTION

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License plate recognition (LPR) has numerous applications in everyday life, besides the ones that drivers know from relation with the state. There are many areas where automatic license plate recognition can be used successfully, and all of them rely on the two most important values a LPR system brings: automation and greater security.

6SSLPR software is meant to fix problems in parking, security, retail, and comes with extra advantages of management and reports. It can also be integrated in a state institution parking, a private company, universities, a transport company, a real estate, retail, traffic management, bus lane enforcement, toll stations.

The main element is the 6SSLPR Smart Client Interface. Vehicles recordings, receipts, reports and statistics are accessible in this program and can be accessed from any Smart Client with valid authentication.

6SSLPR enable the user to set different actions to be executed when a license plate from the database is recognized: can open a barrier, can change a traffic light or can send an e-mail, popup on screen. It can thus be used for a more efficient management of a parking, office buildings, residential area of any size. For example, when entering a parking the plate is scanned and the time is recorded. When exiting, depending on time spent inside, a cost can be calculated.

In addition, 6SSLPR have also the option to save plate numbers as blacklist/whitelist that can be used to trigger actions like close/open barrier, fire siren alarm sound, etc...

### **6SS LPR Main Features**

- Supports all camera types that are compatible with Milestone VMS (approximately 8351)
- Fully integrated with All Milestone XProtect versions
- Accessed from the Smart Client interface
- Fully integrated with Maps
- Parallel handling and processing of unlimited camera inputs
- Multi-language support: Latin, Arabic, Cyrillic, Chinese, Korean, Thai and many more
- Country-Independent
- State and Country detection
- Color coding for faster search
- Compatible with any image source: analog, digital, still images and MPEG video streams
- Server side LPR processing
- Compatible with reflective, non-reflective, personalized and special interest plates
- Can handle distorted plate images
- Can detect the license plate number regardless of the speed
- High accuracy and recognition of license plate number

- Very fast processing speed
- Filter through LPR history based on various criteria
- Flexible search functionality by from-to date, plate number, country and license type
- List of all captured plate numbers including plate type, color, country, state, confidence level, image, camera name and date.
- Option to view a playback video for the period when the plate number was detected
- Rotated license plates option
- Scheduled reports on a daily, weekly or monthly basis
- Customizable dashboards and statistics
- Alarming capabilities (Email, SMS)
- Regular expression alerting
- Configurable actions in case of license plate recognition
- Option to save the license plate as Blacklisted or Whitelisted
- Can read the blacklisted file in various formats (DB Table, Excel or CSV)
- Hotlist alarming capabilities
- One click data export in Excel format
- Automatic data retention period handling
- Easy installation and operation
- Customizable upon request

## 2. GETTING STARTED

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### 2.1. System Requirements

- Windows OS 8.1 or above
- SQL Server 2012 or above
- Milestone XProtect Management Client (2016 or above)
- Milestone Smart Client (2016 or above)
- 6SS-LPR Recognition
- ARH Carmen FreeFlow (version 7.3.11 or above)

### 2.2. Quick Start

- Unpack the release folder on your drive.
- Start the installation process by opening the “setup.exe”.
- Choose the installation folder of 6SS LPR plugin.
- Finalize installation to the PC.
- Once the process completes, the 6SS LPR plugin for the Smart Client will be ready to use.

### 2.3. System Introduction

The server part of the system consists of 2 main components: Management and Recognition. Each LPR system contains only one Management server, and one or more Recognition servers, depending on the project size and the system’s distributed architecture. Both processes can be installed and ran on the same server, but each with its own configuration. The machine has to be licensed first before doing anything on the LPR system after the installation.

Below is a figure describing the architecture of the system.

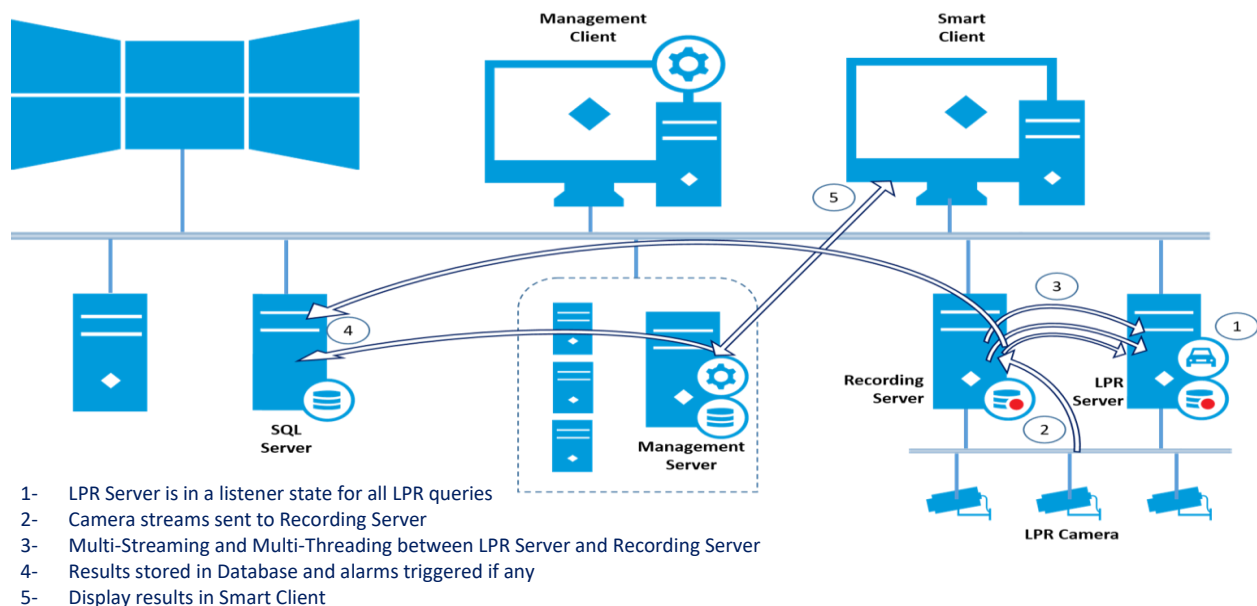


FIGURE 1: 6SS LPR ARCHITECTURE

### 3. 6SS LPR PLUGIN

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#### 3.1. Setup Wizard

Unzip the Release folder and open to run the setup wizard for the Smart Client LPR plugin.

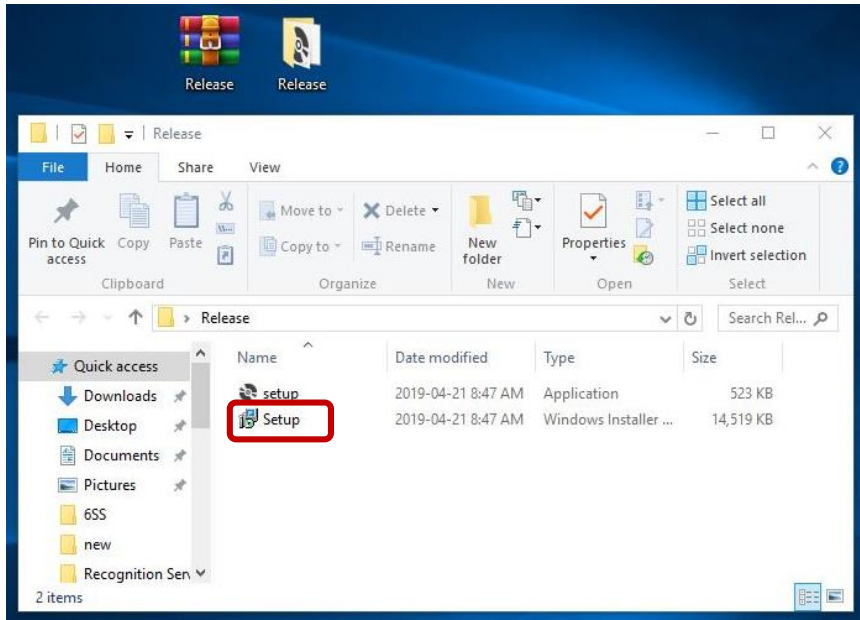


FIGURE 2: SMART CLIENT LPR PLUGIN SETUP WIZARD

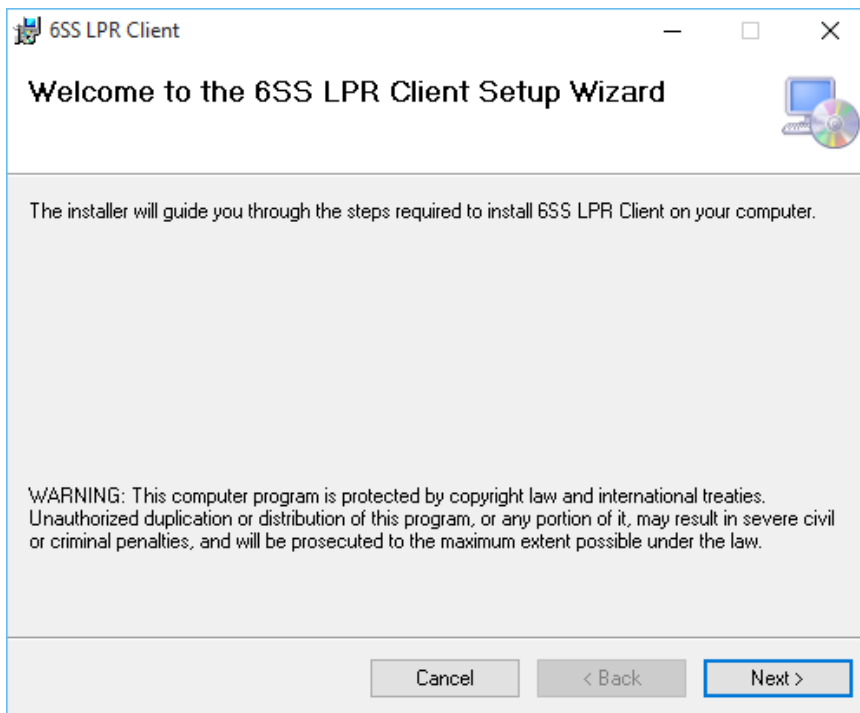


FIGURE 3: 6SS LPR CLIENT SETUP WIZARD

Choose the path to where the 6SS LPR plugin folder will be created as shown in **Figure 4**. Click next to continue and the setup will be installed as shown in **Figure 5**.

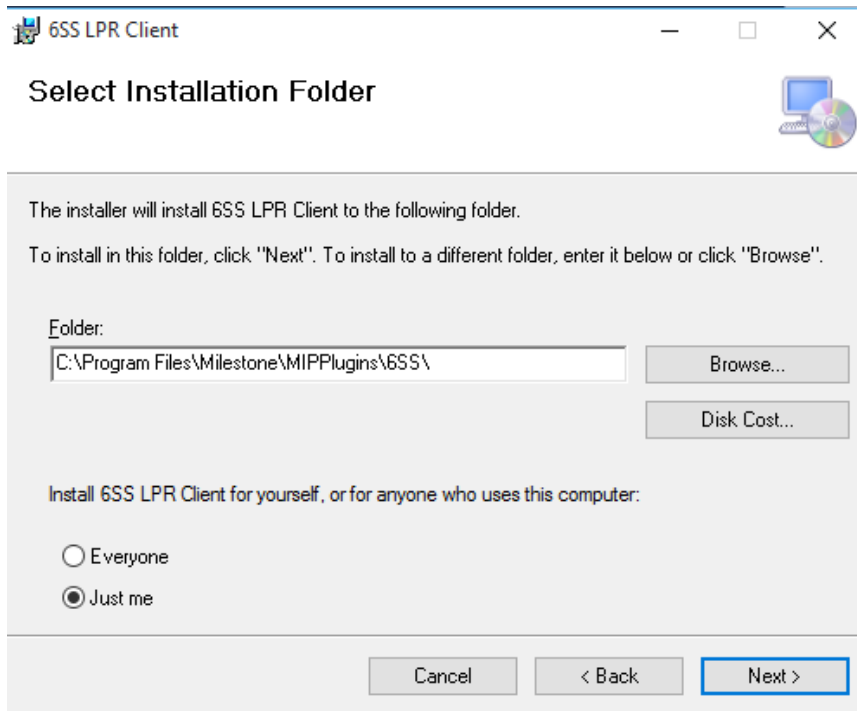


FIGURE 4: 6SS LPR CLIENT INSTALLATION FOLDER

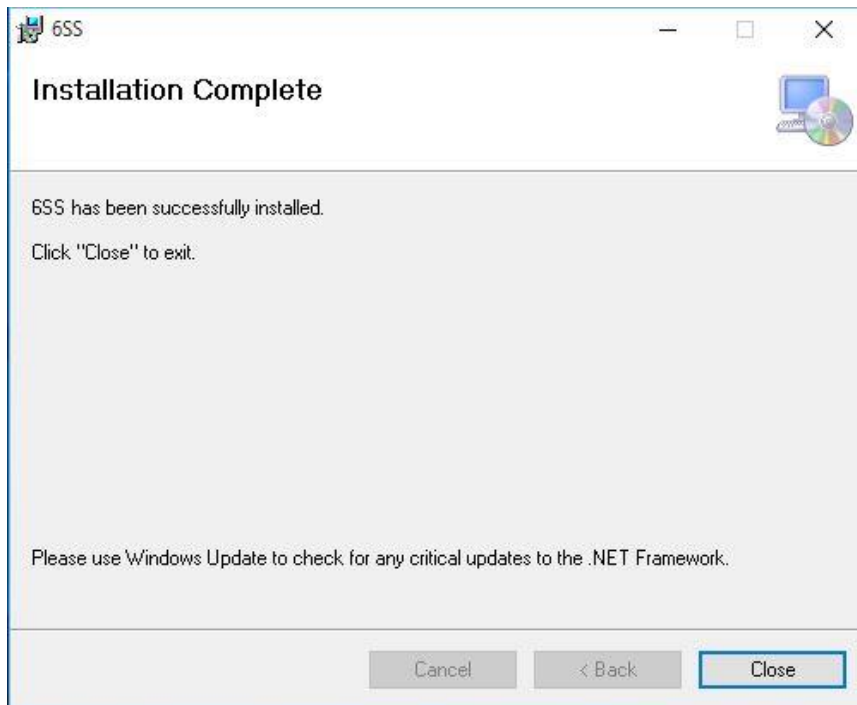


FIGURE 5: 6SS LPR CLIENT INSTALLATION SETUP



### 3.2. 6SS LPR Interface

Once the installation completes, navigate to Milestone XProtect Smart Client and specify the SQL server host name or IP address for first time use only. Once connected click on “Setup” button, and notice that “6SS LPR Plugin” now appears in the left panel as well as “History” tab in the upper panel, create a view and drag and drop the plugin into the view as shown in **Figure 7**.

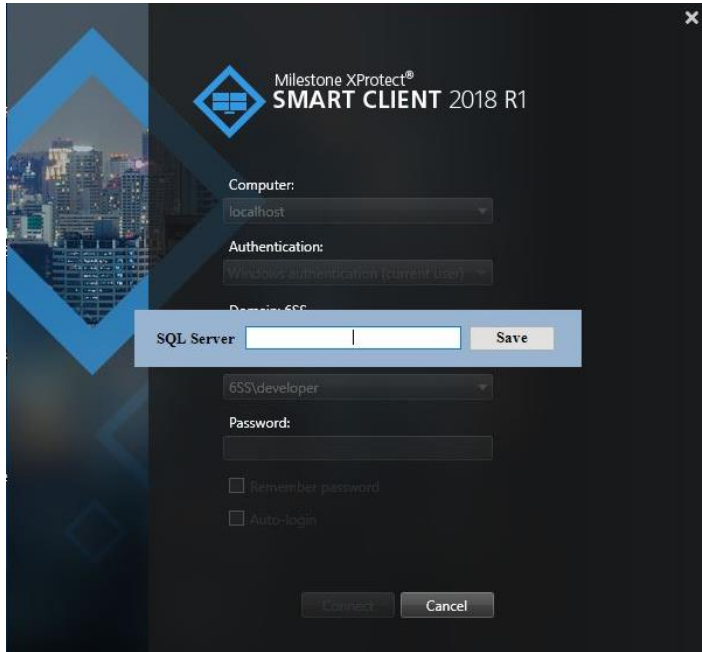


FIGURE 6: SQL SERVER NAME

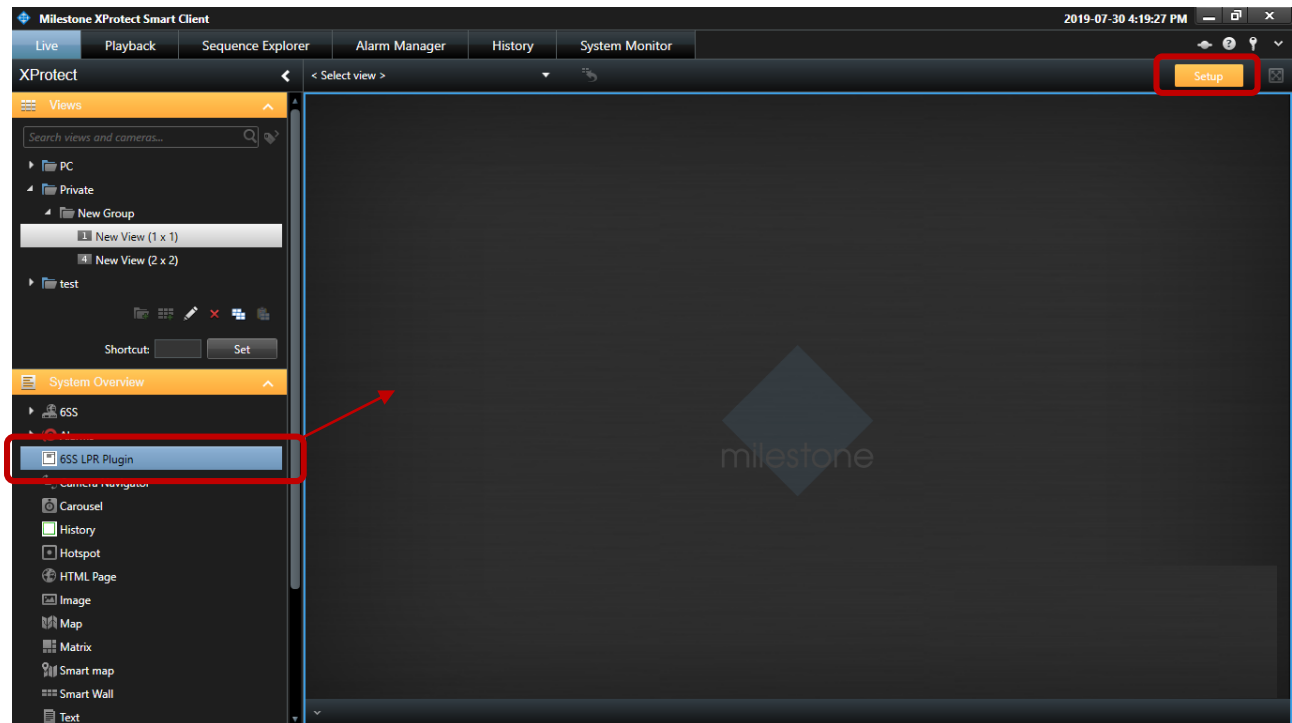


FIGURE 7: SETUP THE 6SS PLUGIN

Click again on setup to view the Live plugin you just created as shown in **Figure 8** by selecting a camera using the button “Select Camera” in the bottom right corner. The button will be renamed as the camera’s name. Each captured plate number by the specified camera will be shown in the right panel.

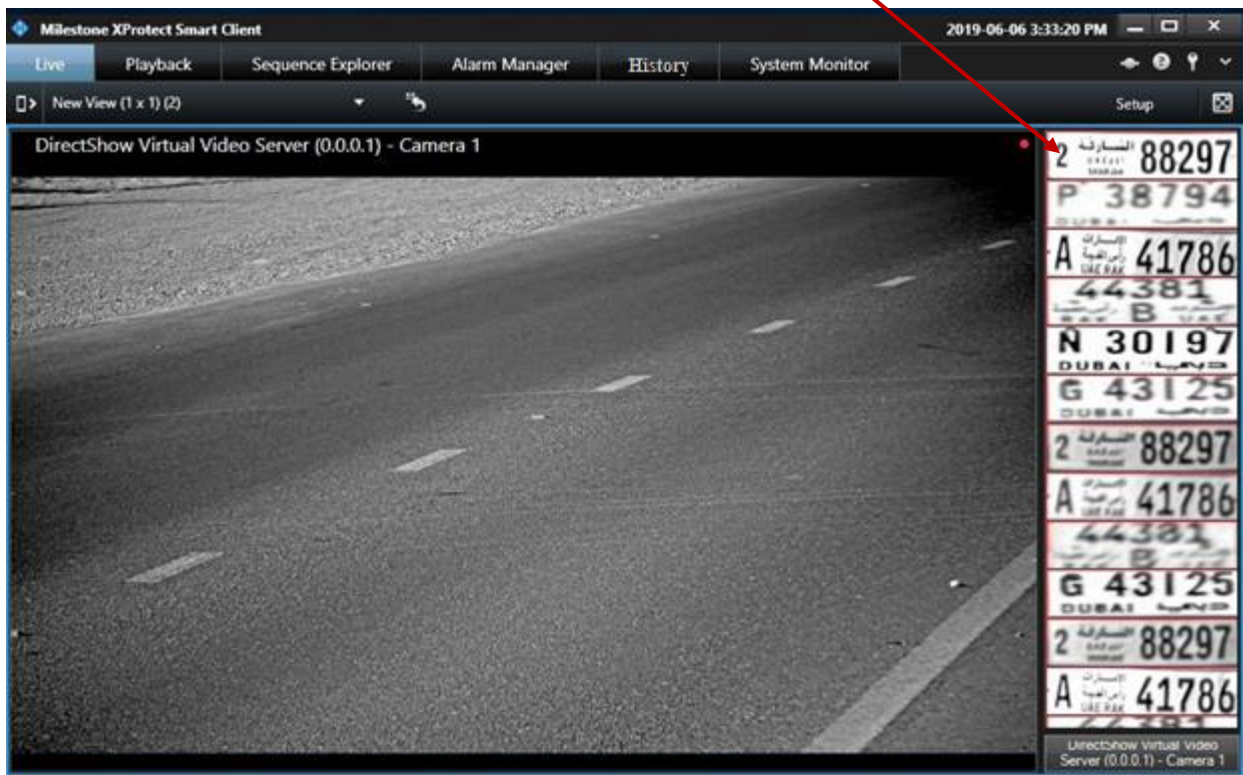
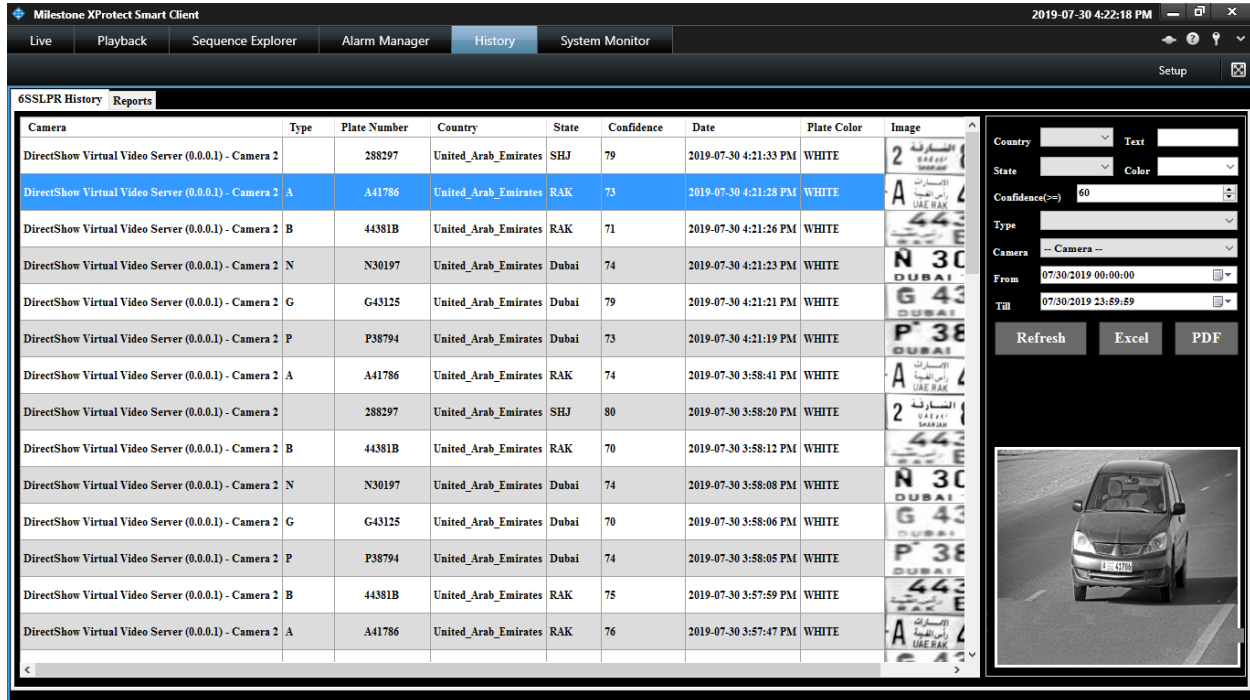


FIGURE 8: VIEW LIVE 6SS PLUGIN

By clicking the “History” tab you can easily find the list of all captured plate numbers with its relevant plate type, color, country, state, confidence level, screenshot image of the plate number, along with the camera’s name and the capturing date.

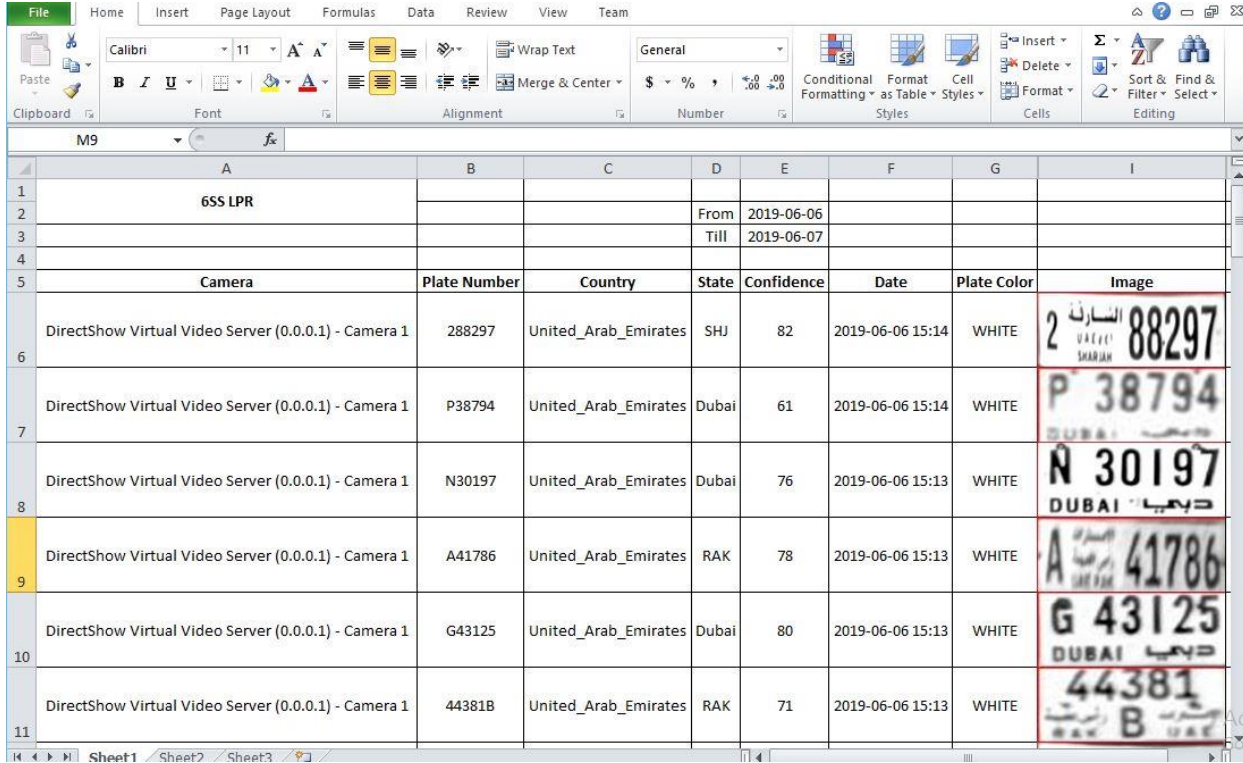
Use the filters in the right panel to filter the LPR list as convenient and click on “Refresh” button to update the LPR table. You can anytime generate an excel file (**Figure 10**) and a pdf document (**Figure 11**) for your evidence proof or later investigation.



The screenshot displays the 'History' tab in the Milestone XProtect Smart Client. The main area shows a table titled '6SSLPR History' with the following columns: Camera, Type, Plate Number, Country, State, Confidence, Date, Plate Color, and Image. The table contains 15 rows of data, with the second row highlighted in blue. To the right of the table is a filter panel with dropdown menus for Country, State, Confidence (set to 60), Type, and Camera. Below these are date pickers for 'From' (07/30/2019 00:00:00) and 'Till' (07/30/2019 23:59:59). At the bottom of the filter panel are buttons for 'Refresh', 'Excel', and 'PDF'. A small video preview window at the bottom right shows a car on a road.

Camera	Type	Plate Number	Country	State	Confidence	Date	Plate Color	Image
DirectShow Virtual Video Server (0.0.0.1) - Camera 2		288297	United_Arab_Emirates	SHJ	79	2019-07-30 4:21:33 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 A	A	A41786	United_Arab_Emirates	RAK	73	2019-07-30 4:21:28 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 B	B	44381B	United_Arab_Emirates	RAK	71	2019-07-30 4:21:26 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 N	N	N30197	United_Arab_Emirates	Dubai	74	2019-07-30 4:21:23 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 G	G	G43125	United_Arab_Emirates	Dubai	79	2019-07-30 4:21:21 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 P	P	P38794	United_Arab_Emirates	Dubai	73	2019-07-30 4:21:19 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 A	A	A41786	United_Arab_Emirates	RAK	74	2019-07-30 3:58:41 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2		288297	United_Arab_Emirates	SHJ	80	2019-07-30 3:58:20 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 B	B	44381B	United_Arab_Emirates	RAK	70	2019-07-30 3:58:12 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 N	N	N30197	United_Arab_Emirates	Dubai	74	2019-07-30 3:58:08 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 G	G	G43125	United_Arab_Emirates	Dubai	70	2019-07-30 3:58:06 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 P	P	P38794	United_Arab_Emirates	Dubai	74	2019-07-30 3:58:05 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 B	B	44381B	United_Arab_Emirates	RAK	75	2019-07-30 3:57:59 PM	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 2 A	A	A41786	United_Arab_Emirates	RAK	76	2019-07-30 3:57:47 PM	WHITE	

FIGURE 9: 6SS LPR PLUGIN HISTORY







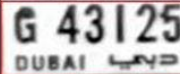
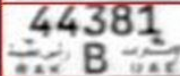
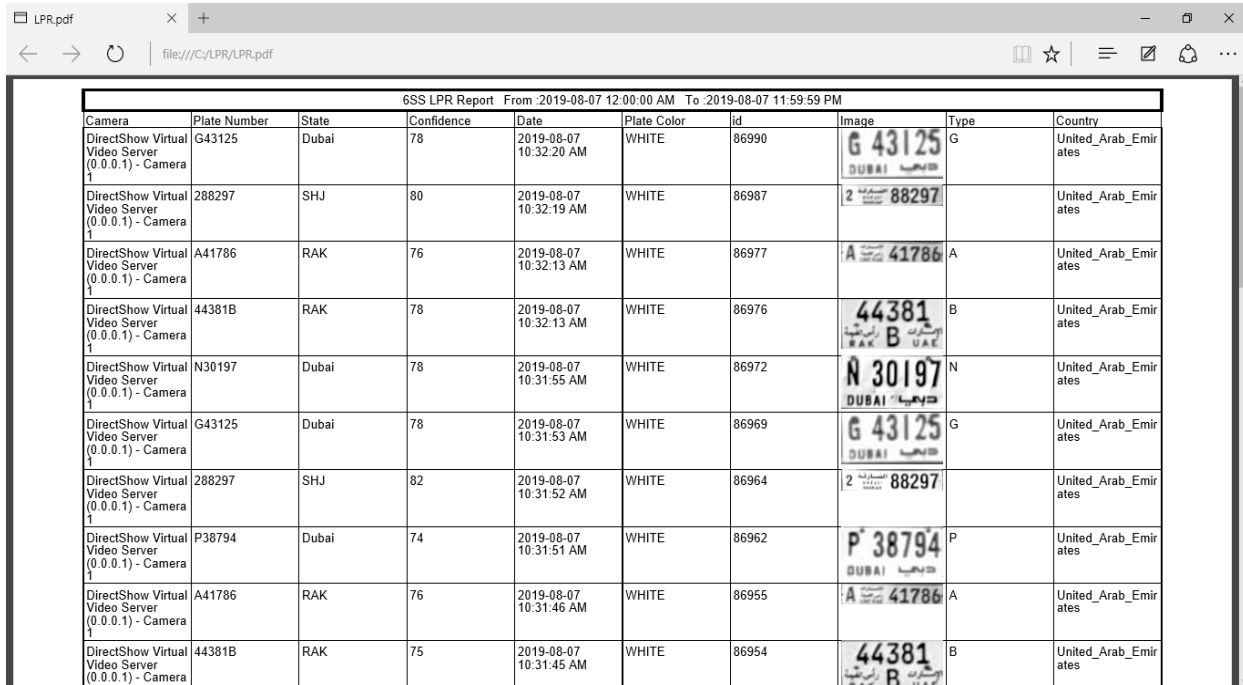
Camera	Plate Number	Country	State	Confidence	Date	Plate Color	Image
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	288297	United_Arab_Emirates	SHJ	82	2019-06-06 15:14	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	P38794	United_Arab_Emirates	Dubai	61	2019-06-06 15:14	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	N30197	United_Arab_Emirates	Dubai	76	2019-06-06 15:13	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	A41786	United_Arab_Emirates	RAK	78	2019-06-06 15:13	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	G43125	United_Arab_Emirates	Dubai	80	2019-06-06 15:13	WHITE	
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	44381B	United_Arab_Emirates	RAK	71	2019-06-06 15:13	WHITE	

FIGURE 10: 6SS LPR EXCEL FILE




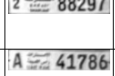
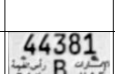


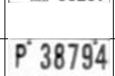

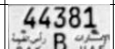




Camera	Plate Number	State	Confidence	Date	Plate Color	Id	Image	Type	Country
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	G43125	Dubai	78	2019-08-07 10:32:20 AM	WHITE	86990		G	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	288297	SHJ	80	2019-08-07 10:32:19 AM	WHITE	86987			United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	A41786	RAK	76	2019-08-07 10:32:13 AM	WHITE	86977		A	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	44381B	RAK	78	2019-08-07 10:32:13 AM	WHITE	86976		B	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	N30197	Dubai	78	2019-08-07 10:31:55 AM	WHITE	86972		N	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	G43125	Dubai	78	2019-08-07 10:31:53 AM	WHITE	86969		G	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	288297	SHJ	82	2019-08-07 10:31:52 AM	WHITE	86964			United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	P38794	Dubai	74	2019-08-07 10:31:51 AM	WHITE	86962		P	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	A41786	RAK	76	2019-08-07 10:31:46 AM	WHITE	86955		A	United_Arab_Emirates
DirectShow Virtual Video Server (0.0.0.1) - Camera 1	44381B	RAK	75	2019-08-07 10:31:45 AM	WHITE	86954		B	United_Arab_Emirates

FIGURE 11: 6SS LPR PDF FILE

You can also double-click on the desired row of the LPR list shown in **Figure 9** to view a playback video captured from the first moment the plate number was detected by the camera. Use the buttons  and  to navigate through the recorded video.

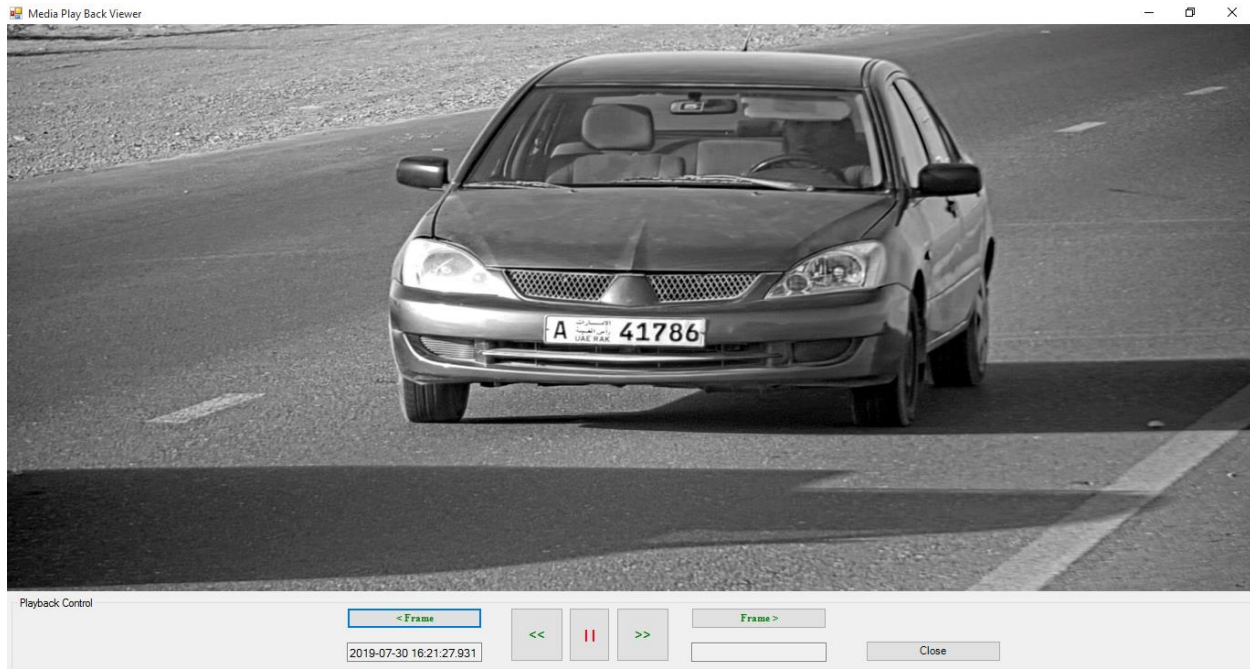


FIGURE 12: LICENSE PLATE PLAYBACK VIDEO

Click the “Reports” tab to view a set of customized dashboards. Example of dashboards could be the number of license plates capture per camera/region/month.

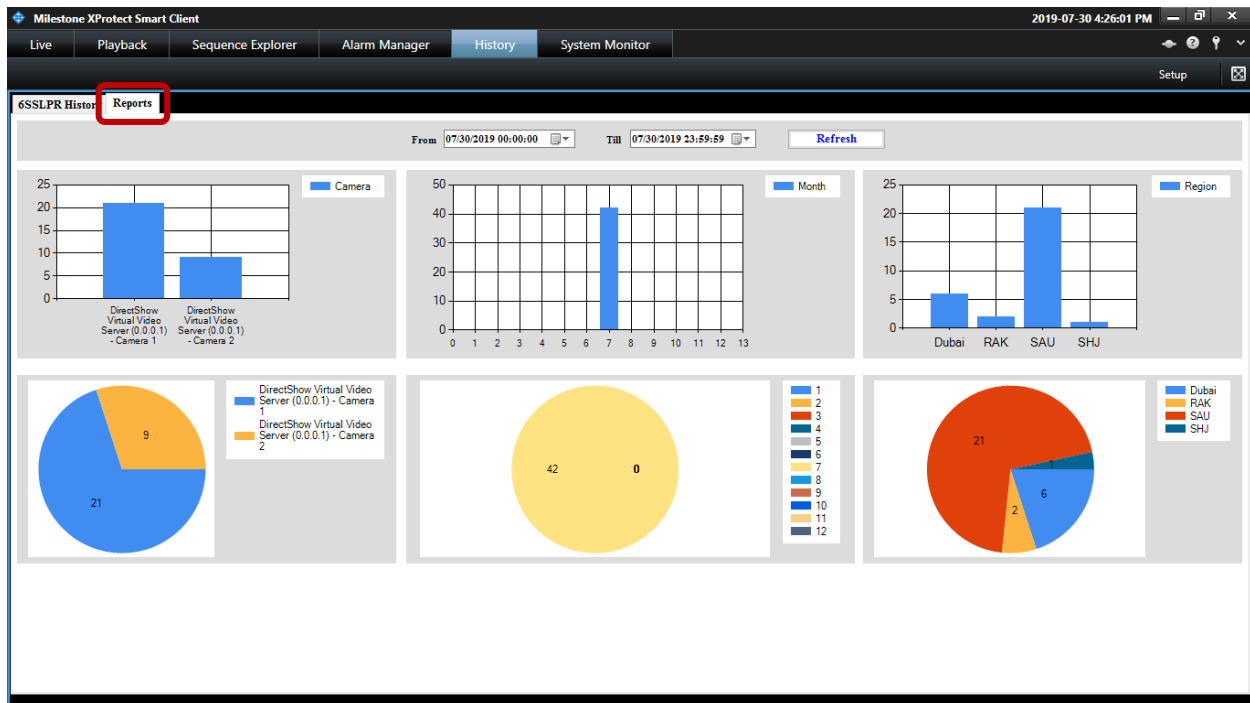


FIGURE 13: 6SS LPR CUSTOMIZED DASHBOARDS