SENSTAR

Automatic License Plate Recognition

7.2

User Guide

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Automatic License Plate Recognition

Senstar Automatic License Plate Recognition is an analytic pack for Senstar Symphony that can detect and index license plates.

Automatic License Plate Recognition can recognize and log license plates from different countries and regions on vehicles traveling up to 30 kph (19 mph). It can analyze video in real time without requiring an external trigger.

With Automatic License Plate Recognition, a 720p network camera can analyze up to two lanes of traffic if the license plate images are at least 32 pixels in height for Latin characters or 40 pixels in height for non-Latin characters.

Typical uses for Automatic License Plate Recognition include:

- Toll collection in parking garages
- Traffic control
- Border crossings
- Pattern of use analysis

Automatic License Plate Recognition Core

The Automatic License Plate Recognition Core video analytic is part of the Core Analytics analytic package.

Automatic License Plate Recognition Peripheral

The Automatic License Plate Recognition Peripheral video analytic is a separate purchase and installation. It requires a valid hardware key.

Camera field of view

The location of the camera that the Automatic License Plate Recognition video analytic uses to detect license plates affects the effectiveness of Automatic License Plate Recognition.

When mounting the camera above the vehicle, the camera should be as close to inline (directly in front of or behind the vehicle) as possible, within 50 m (160 ft.) of the vehicle, and at a vertical angle that is less to 30 degrees.
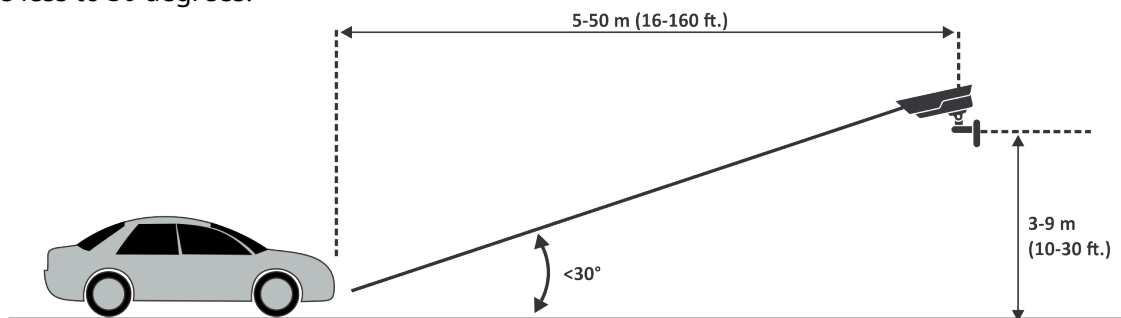
When mounting the camera to the side of the vehicle, the camera should be at the same height as the license plate and at a horizontal angle that is less than 15 degrees.
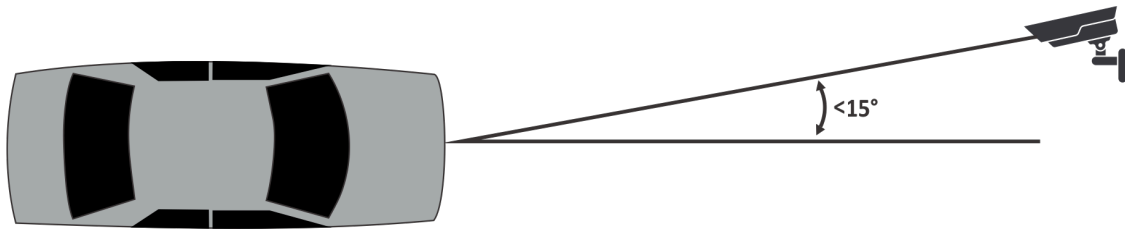
Camera frame rate

The number of frames per second that the Automatic License Plate Recognition video analytic requires to successfully detect a license plate depends on the speed of the vehicle.

Automatic License Plate Recognition needs to read the license plate for at least 3 frames of video. If the vehicle is stopped, 1 frame per second should be sufficient. If the vehicle is moving at 30 kph (19 mph), 10 frames per second or higher should be sufficient.

Installation

The Automatic License Plate Recognition video analytic is a separate installation package that you can install on a Symphony Server.

The Automatic License Plate Recognition video analytic requires a hardware key. You must plug a hardware key into a USB port on every server that is running the video analytic. If you are using server redundancy, you must use an additional hardware key for the redundant server or move the hardware key to the redundant server in the case of a failover to maintain functionality.

Automatic License Plate Recognition Peripheral requirements

Requirement	Details
CPU	Intel dual-core processor (3GHZ or higher)
RAM	2GB or higher
Hard drive	250MB or higher
Operating system	Windows 7 or higher (with the latest updates) Microsoft Security Advisory 3033929 Microsoft Hotfix 485407
License	Automatic License Plate Recognition V7 Hardware key

Automatic License Plate Recognition Core requirements

Requirement	Details
CPU	Intel dual-core processor (3GHZ or higher)
RAM	2GB or higher
Hard drive	250MB or higher
Operating system	Windows 7 or higher (with the latest updates) Microsoft Security Advisory 3033929 Microsoft Hotfix 485407
License	Core Analytics V7 (AIM-SYM-VA-14)

Install Automatic License Plate Recognition Peripheral

Install Automatic License Plate Recognition video analytic on the computer that hosts the Symphony Server to which the cameras that will run the video analytic connect.

1. Download and run the Automatic License Plate Recognition installer on the server that hosts Symphony.
2. Read and agree to the license terms and conditions.
3. Click **Next**.
4. Click **Install**.

5. If you are prompted to install device software from ARH, click **Install**.

6. Plug the hardware key into a USB port on the server.

7. Click **Launch**.

8. If two different versions of the hardware key are plugged into the computer, select which hardware key to use.

9. In the region list, select the regions to install and click **Install Region(s)**.

> **Note:** You must select all the regions that you want to use even if the Automatic License Plate Recognition video analytic was using the region in a previous version.

10. Click **Exit**.

Configuration

Configure the Automatic License Plate Recognition video analytic in the Symphony server configuration interface.

Configure Automatic License Plate Recognition

Configure the Automatic License Plate Recognition video analytic for each camera that runs the video analytic.

1. In the Symphony server configuration interface, click **Devices** > **Cameras**.
2. Select the camera on which you want to run Automatic License Plate Recognition and click **Edit**.
3. In the **Add-Ons** section, click the button beside Automatic License Plate Recognition to turn it on.
4. Click the **Configure** button beside Automatic License Plate Recognition.
5. In the **Overview** section, configure analysis options and select whether the advanced options are hidden (simple mode on) or visible (simple mode off).
6. If the image in the **Processing Mask** and **Plate Detection** sections do not include an image that is suitable for license plate detection, update the image.
   a) Click **Change Image**.
   b) In the Web Access interface, use the timeline and video controls to navigate to an image that is suitable for license plate detection.
   c) Click **Select**.
7. In the **Processing Mask** image, define the areas that the video analytic analyzes and ignores.
   a) In the **Drawing Mode** list, select whether to draw an area to analyze or ignore.
   b) Using the **Size** slider, select the size of drawing circle.
   c) On the image, click and drag the drawing circle to define the areas to analyze or ignore.
8. In the **Plate Detection** image, draw a frame around the license plate so that the edges of the text on the license plate fall within the green frame.
   a) Click and drag the frame on the image.
   b) To move the frame, click in the middle of the green frame and drag the frame.
   c) To change the size of the frame, click an edge of the frame and drag the line to change the size.
   d) To adjust the slant and slope of the frame, click a corner of the frame and drag the corner to change the slant or slope.
9. Using the **Reporting Confidence** slider, select how sensitive the video analytic is to potential license plates.
10. Click **OK**.

Automatic License Plate Recognition settings

Overview

Setting	Description
Analysis Resolution	Select the resolution that the Automatic License Plate Recognition video analytic uses to analyze video frames.
Analysis FPS	Select the number of frames per second that the video analytic uses to analyze video.

Setting	Description
Simple Mode	Turn off to make the advanced settings visible.
Region For Plate Analysis	Select the regional engine that the video analytic uses to analyze the license plates that this camera detects. The list includes the regions that you select during installation.
V9 Dongle	Select this option if you are using a new license with the Default or China engine.
Enable with Motion Detection	Select this option to only perform analysis when the camera detects motion.
Enable with Relay	Select this option to only perform analysis when a relay device records an input event. When you select this option, additional fields appear that allow you to select the relay and configure how the video analytic responds to the input event.

Processing Mask

Setting	Description
Drawing Mode	Select whether to draw areas to analyze or ignore on the processing mask.
Size	Define the size of the circle to draw on the processing mask.

Plate Detection

Use the plate detection image to draw a frame around the license plate in an image that represents a typical license detection situation. The frame can only surround one line of characters and outside boundaries of the characters should fall within the green frame.

This is an example of a good plate detection frame:

This is an example of a poor plate detection frame:

Setting	Description
Reporting Confidence	Use the slider bar to define how sensitive the video analytic is. The reporting confidence is 50% by default. A lower reporting confidence results in more detection and might affect performance.
Minimum height	This field displays the height of the inner rectangle.
Maximum height	This field displays the height of the outer rectangle.
Minimum width	This field displays the width of the inner rectangle. This setting is only available for Automatic License Plate Recognition Core.
Maximum width	This field displays the width of the outer rectangle. This setting is only available for Automatic License Plate Recognition Core.
Minimum slant	This field displays the minimum slant of the vertical lines. This setting is only available for Automatic License Plate Recognition Peripheral.
Maximum slant	This field displays the maximum slant of the vertical lines. This setting is only available for Automatic License Plate Recognition Peripheral.
Minimum slope	This field displays the minimum slope of the horizontal lines. This setting is only available for Automatic License Plate Recognition Peripheral.
Maximum slope	This field displays the maximum slope of the horizontal lines. This setting is only available for Automatic License Plate Recognition Peripheral.

Advanced

The settings below are advanced settings and any changes could adversely affect the performance of the video analytic.

Setting	Description
Minimum Plate Length	Define the minimum number of characters that the video analytic must detect before it recognizes the text as a potential license plate.
Plate Dwell Time	Define the time (in seconds) that a potential license plate must be visible before the video analytic begins analyzing the potential license plate.
Queue Time	Define how much video the video analytic retains for analysis. Frames that fall outside of the queue time are ignored by the video analytic.
Analysis Timeout	Define how much time can elapse before the video analytic stops processing a license plate.
Plate Display Time	Define how long the video analytic displays the license plate decoration in the client interface.
Plate Look Time	Define the time (in seconds) that the video analytic spends analyzing the license plate. During this time, the video analytic records all the characters that it recognizes (for example, the video analytic might detect a character as multiple similar characters as the license plate moves through the scene). After the time elapses, the video analytic selects and reports the best result. However, all results that the video analytic detects are saved to the database. If you set this value to 0 (zero), the video analytic reports the first result that it detects.
Import XML	Click this button to import a configuration XML file.
Export XML	Click this button to export the configuration XML file.
Show XML	Click this button to display the configuration XML.

Operation

Use the Automatic License Plate Recognition video analytic in the Symphony client interface to view and search for license plates, manage license plate lists, and import and export license information.

View license plate logs

You can view the license plates that the Automatic License Plate Recognition video analytic detects. Additionally, you can sort and filter the results by date and time, license plate, region, and camera.

1. In the Symphony client interface, click the LPR icon.
2. Click **View License Plate Log**.
3. To sort the list, click one of the headings in the **License Plate Log** list.
4. To filter the list, click the filter icon for one of the headings in the **License Plate Log** list and specify the filter.

Search license plate logs

You can search the license plates that the Automatic License Plate Recognition video analytic detects by license plate, date and time, region, camera, and description.

1. In the Symphony client interface, click the Automatic License Plate Recognition icon.
2. Click **Search License Plate Log**.
3. Define the search criteria.

    *   License Plate
    *   Start date and time
    *   End date and time
    *   Region
    *   Camera
    *   Description
4. Click **Search**.

Add a license plate

You can add a license plate to allow the Automatic License Plate Recognition video analytic to identify and take action on a specific license plate.

1. In the Symphony client interface, click the **LPR** icon.
2. Click **Add Plate**.
3. In the **License Plate** field, type the characters in the license plate.
4. In the **Region** list, select the regional engine that Automatic License Plate Recognition uses to detect the license plate.
5. In the **Description** field, type a description for the license plate.
6. Select the lists to add the license plate to and define the start and end date for list membership.
7. Click **Save**.

Edit a license plate

You can edit a license plate to correct errors in the license plate characters or details.

1. In the Symphony client interface, click the **LPR** icon.
2. Select a license plate.

3. Click **Edit Plate**.

4. Modify the details of the license plate.

5. Click **Save**.

Create a license plate list

You can create a list of license plates to allow the Automatic License Plate Recognition video analytic to take action on a group of license plates.

1. In the Symphony client interface, click the **LPR** icon.

2. Click **Manage License Plates**.

3. Click **Manage Lists**.

4. In the **Add List** field, type a name for the list.

5. Click **Save**.

6. In the **Permissions** field, click the down arrow.

7. Select the groups that will have permission to view the list.

8. Click **Close**.

Add a license plate to a list

You can add a license plate to a list to include it with the actions that the Automatic License Plate Recognition video analytic performs on the list. You can define when the license plate is on the list; this is helpful when you do not want to generate an alarm for a scheduled visitor.

1. In the Symphony client interface, click the **LPR** icon.

2. Click **Manage License Plates**.

3. Select the license plate.

4. Click **Edit Plate**.

5. Select the list.

6. (Optional) In the **Start Date** and **End Date** fields, select when the license plate is on the list.

7. Click **Save**.

Batch edit license plates

You can define when multiple license plates belong to a license plate list.

1. In the Symphony client interface, click the **LPR** icon.

2. Click **Manage License Plates**.

3. In the **List** field, select a license plate list.

4. Select the license plates that you want to edit.

5. In the **Start Time** field, select when the license plates join the list.

6. In the **End Time** field, select when the license plates leave the list.

7. Click **Apply.**

Export license plates

You can export license plates as a CSV file.

1. In the Symphony client interface, click the **LPR** icon.

2. Click **Manage License Plates**.

3. Select the license plates or license plate list to export.

4. Click **Export**.

5. Save the file.

Import license plates

You can import license plates from a CSV file.

1. In the Symphony client interface, click the **LPR** icon.
2. Click **Manage License Plates**.
3. Click **Import**.
4. Navigate to the CSV file and click **Open**.

Add a character substitution

You can add replacement characters for special characters on license plates. Decorations in the Symphony client interface show the replacement characters and not the special characters.

This can streamline working with data from license plates that include characters not found on standard keyboards.

1. In the Symphony client interface, click the **LPR** icon.
2. Click **Manage Special Characters**.
3. In the **Original** field, add the special character.
4. In the **Replacement** field, type the character that replaces the special character.
5. Click **Save**.
6. Click **Close**.

To remove a character substitution, select the substitution and click **Delete Selected**.

Regions

The Automatic License Plate Recognition Peripheral video analytic supports the regions listed below.

- Australia
- Bangladesh
- Brazil
- Caribbean
- Central America
- China
- East Asia
- Europe
- Inside Asia
- Iraq
- Japan
- Middle East
- New Zealand
- North Africa
- Philippines
- South America
- South Asia
- USA/Canada/Mexico

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