ADAPTIVE **RECOGNITION**

# Carmen® Axis Video App
# User Manual


User Manual for Carmen® related applications/tools/demos.



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20.02.2025.

# Carmen® Axis Video Application

## USER MANUAL

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# 1. INTRODUCTION

The **Carmen Axis Video Application** is a high-precision **Automatic Number Plate Recognition (ANPR)** and **Make and Model Recognition (MMR)** solution designed to operate on Axis network cameras. Powered by the **Carmen® platform**, this application enables real-time **license plate detection** and **vehicle identification**, ensuring seamless integration with Axis camera systems.

This application enhances Axis cameras by enabling **high-performance ANPR and MMR processing**, making it an ideal solution for:

- **Traffic monitoring & enforcement**
- **Parking management**
- **Security & access control**
- **Smart city & tolling systems**

Depending on your processing requirements, the application supports two deployment models:

- **Cloud-Based ANPR Processing** – No additional hardware is needed; all recognition tasks are handled in **Carmen Cloud**, providing **scalability** and **global accessibility**.
- **On-Device ANPR Processing (with License Server)** – Suitable for **offline environments** where **internet access is limited**. In this mode, ANPR runs locally on Axis cameras, requiring a **connected License Server** for authentication via a hardware key.

The **MMR** module supports real-time event detection and processing, adding an extra layer of intelligence to the application and enabling the recognition of the vehicle's make and model.

Axis is a **leading provider** of high-performance security cameras with an open, flexible platform. Running **Carmen ANPR** on Axis devices offers key benefits:

- **Seamless integration** – Carmen runs natively within Axis' camera ecosystem for smooth operation.

  **Flexible deployment** – Choose between **cloud-based** or **on-premises** processing to fit your infrastructure.

  **Scalability** – Easily expand your system by adding more cameras and licenses as your needs grow.

  **Reliable & accurate recognition** – Carmen is one of the **most trusted ANPR engines**, supporting **global license plate formats**.

**Cloud or On-Board processing with seamless integration**

When working with Axis cameras, two distinct processing options provide flexibility and robust capabilities, depending on your specific needs: **cloud-based processing** and **on-board processing**. Each option offers unique advantages for seamless integration and advanced functionality.

**Cloud processing: harness the power of scalability**

Effortless cloud processing allows users to leverage the scalability and global reach of Carmen® Cloud. By utilizing cloud processing, you can:

- Achieve seamless integration with your Axis cameras.
- Access real-time insights and worldwide coverage without managing on-premise hardware.
- Reduce infrastructure costs and simplify deployment processes.

**On-Board processing: high-performance ANPR on your device**

For scenarios requiring local processing power and independence from internet connectivity, on-board processing is the optimal choice. Advanced on-camera intelligence provides:

- High-performance automatic number plate recognition (ANPR).
- Flexible software licensing options to suit different operational needs.
- Reliable and secure deployment directly on your Axis camera system.

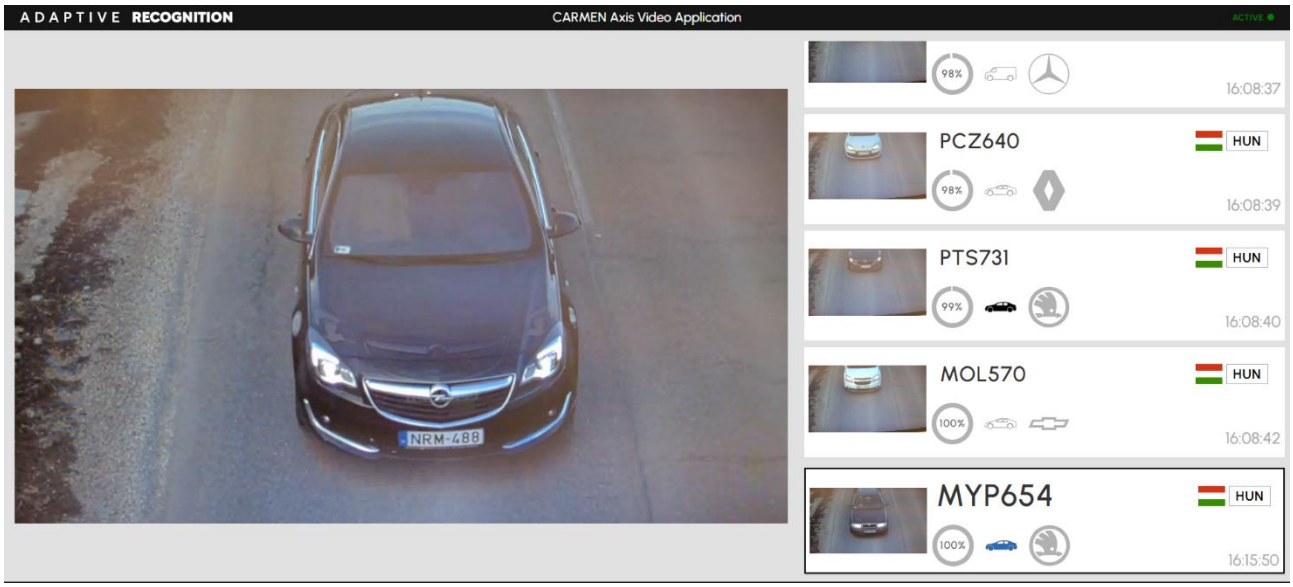
With on-board processing, users can experience exceptional accuracy in reading license plates from around the globe. This solution is particularly beneficial for installations in remote areas or locations with limited network access.

This advanced solution, optimized for Axis cameras, is an ideal choice for those seeking a modern, flexible, and reliable surveillance technology, whether for urban traffic safety, industrial monitoring, or other specialized applications.

Using this application, users gain access to **comprehensive Automatic Number Plate Recognition (ANPR) and Make & Model Recognition (MMR) solution** directly integrated into Axis cameras, that deliver real-time detection and detailed event insights.

**Main monitoring screen – live detection overview**

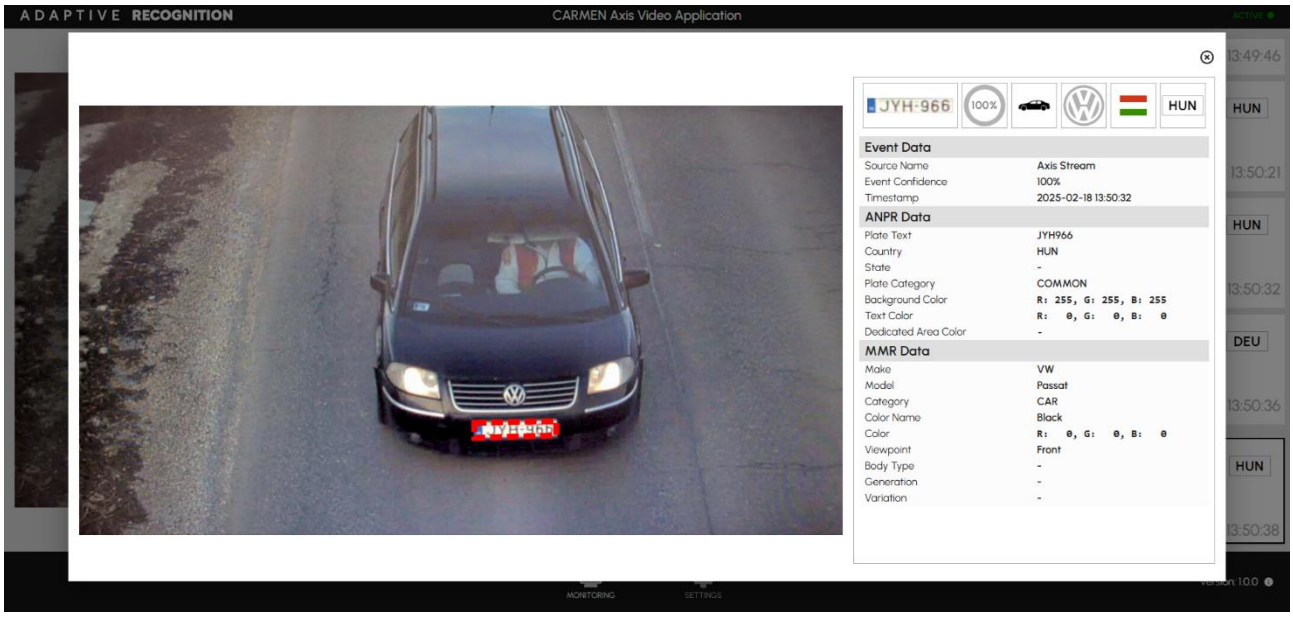
- **Real-time License Plate Recognition (ANPR):** The system continuously monitors traffic and **captures vehicle license plates** in real-time.
- **Vehicle snapshots and metadata:** Each detection is displayed with **a thumbnail image**, confidence percentage, **vehicle type, brand, and timestamp**.
- **Seamless interface:** The dashboard allows users to quickly review **recent detections**, check plate numbers, and monitor vehicle activity.
- **Automated data logging:** Every recognized event is **automatically stored** for easy access.



**Event data view – detailed information for each detection**

When selecting a detected event from the monitoring screen, users can access:

- **Captured image of the vehicle** – A full-resolution snapshot with the detected plate highlighted.
- **License plate information** – ANPR-extracted **plate text, country, category, and color details**.
- **Vehicle details via MMR** – The system identifies the **make, model, category, and color** of the vehicle.
- **Recognition confidence score** – Displays how certain the system is about the detection.
- **Timestamp and event source** – Logs when and where the vehicle was detected.



# 2. BUILD INFORMATION AND HARDWARE REQUIREMENTS

The **Carmen Axis Video Application** is developed using the **ACAP Native SDK (Image Version 1.9)** and is designed for seamless integration with Axis network cameras. To ensure optimal performance, specific **hardware and software requirements** must be met.

### Software Compatibility

- **Built with:** ACAP Native SDK Image Version 1.9
- **Compatible with:** AXIS OS 11.5 and later (up to Long-Term Support (LTS) versions)
- **Recommended minimum AXIS OS:** Version 12

### Hardware Requirements

- **Minimum AXIS camera platform:** ARTPEC-7
- **Tested with:** ARTPEC-7 & ARTPEC-8

### Free RAM Requirements (Estimated)

- **ANPR:** 450MB RAM
- **ANPR + MMR:** 650MB RAM
- **Cloud processing:** 150MB RAM

**Important!**

If the camera does not have **sufficient free RAM**, the interface will **display a warning**, and the application **may not function correctly**. It is recommended to check available memory and ensure the device meets the required specifications before deploying the software.



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# 3. AXIS CAMERA LOGIN

For Axis cameras, the camera login functionality plays a crucial role in ensuring secure system operation.

## 3.1. LOGIN PROCESS

1. Open a browser on your computer or mobile device.
2. Enter one of the following addresses in the URL field:
3. http:///[camera-ip]/
4. https://axis-[camera-mac-address]/camera/index.html#/
5. Press the **Enter** key.
6. Once the camera's interface has loaded, locate the **User** icon in the top-right corner and click on it.
7. To log in, fill in the following fields:
   - **Username:** root
   - **Password:** xxxxxxxx (set by initial setup)
8. After entering the appropriate data, click the **Login** button.
9. Upon successful login, the Axis camera interface will appear, where you can access the camera's features and settings.

## 3.2. USER MANAGEMENT

User account management page is available at System -> Accounts page. The detailed explanation of the key points:

- View existing users and their roles.
- Add new users with specific permissions.
- Remove or modify users as needed.

**Role-Based Access Control (RBAC)**

- Assign predefined roles such as **Administrator, Operator, and Viewer**.
- Customize permissions based on security and operational requirements.

| User Role | Description | Access Level |
|---|---|---|
| **Administrator** | Full access to all camera settings, including software installation, network configuration, and user management. | **Required for installing the Carmen Axis Video Application.** |
| **Operator** | Can adjust image settings and access live video but **cannot install applications** or modify system-critical settings. | **Limited access; not sufficient for app installation.** |
| **Viewer** | Can only view the live stream but **cannot change settings or install applications**. | **Restricted access.** |
| **Anonymous Viewer** | If enabled, users can view the live stream **without authentication**. | **Only viewing; no settings access.** |

**Authentication and security settings**

- Enable or disable **anonymous access** (viewer-only mode).
- Require strong passwords to enhance security.
- Manage API authentication for integrations.

**Third-Party integrations**

- Configure credentials for **cloud-based services or local software** requiring access to the camera.
- Set up user authentication for external applications (e.g., ANPR systems, security monitoring software).

**Audit and activity logs**

- Monitor login attempts and user activity.
- Identify unauthorized access attempts or configuration changes.

**Limited** functionality with **Anonymous login:**

- **Function availability:** When the camera is accessed via anonymous login, many functions—such as **App installation**—are **not available**. In this mode, the camera operates solely as a simple viewer, meaning that only image viewing is possible, and access to configuration or developer settings is restricted.

- **Security and user experience considerations:** This limitation helps ensure that the system provides a basic level of protection by allowing only authorized users to access critical system functions. Although anonymous login offers a quick way to view the camera feed, it does not permit any configuration changes, thereby preserving system stability and security.

- **Installation and configuration:** The installation of applications and modifications to the system's deeper settings are available exclusively to users with administrative privileges. This ensures that only authenticated and verified personnel can access critical functions, thereby protecting the system.

**Full access** with **Administrative privileges:**

- **Default login credentials and roles:**
  - On Axis devices, the default user for login is generally "admin" (or in earlier versions, sometimes "root"), accompanied by the default password provided by the manufacturer.
  - It is important to note that, for security reasons, it is strongly recommended to change the default password during installation and deployment. Changing the password reduces the risk of unauthorized access and complies with modern security standards.

- **Requirement for Administrative privileges:**
  - **App installation:** The installation and configuration of the application (for example, integrating the Carmen platform) on an Axis camera can only be performed by a user with administrative privileges. This ensures that all necessary system settings during installation are handled by an appropriately authorized individual, maintaining the reliability and security of the system.
  - **In-App settings:** During the use of the application—especially when modifying system-critical settings such as network configurations, access permissions, or other security parameters—administrative privileges are also required. This policy prevents unauthorized individuals from altering system settings, which could compromise system stability or security.

- **Security considerations:**
  - Access to **administrative privileges** is strictly regulated since these users have the ability to execute fundamental system-level changes. Such changes include firmware updates, modifications to network settings, and enabling or disabling critical functions.



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# 4. CONFIGURING YOUR AXIS CAMERA FOR OPTIMAL PERFORMANCE

Properly adjusting your Axis camera's image is crucial to achieving the best results for your surveillance or monitoring needs. This guide will walk you through the steps to configure the camera's alignment and focus modes effectively.

## 4.1. LEVEL THE CAMERA

Aligning your camera's view with a reference area or object ensures accurate monitoring. Follow these steps to level the camera:

1. **Access the camera settings:**
    - Navigate to the Video tab in the camera's interface.
    - Select the Image section.
2. **Enable the level grid:**
    - Click on the button to display the level grid. This grid will serve as a visual aid for alignment.
3. **Mechanically adjust the camera:**
    - Using the physical adjustment mechanisms on the camera, reposition it until the desired reference area or object aligns perfectly with the grid lines.
4. **Finalize the adjustment:**
    - Verify that the camera's perspective provides optimal coverage and clarity of the intended area.

## 4.2. ADJUSTING IMAGE SETTINGS FOR LPR

To ensure accurate LPR performance, adjust your Axis camera's image settings as follows:

**Access camera settings:**

- Log in to your Axis camera's web interface.
- Navigate to **Settings > Video > Image**.

**Configure key image parameters:**

- Resolution & Aspect Ratio: Recommended Resolution: 1280x720 (HD)
- Aspect Ratio: 16:9

> Note
>
> **Higher resolutions improve recognition accuracy** but may increase processing load.

**Frame Rate:**

- 20–30 FPS for fast-moving vehicles.
- 10–15 FPS for low-speed traffic.

## 4.3. ADJUST THE FOCUS

Focusing the camera is essential for capturing clear and detailed images. Axis cameras offer four distinct focus modes to suit different scenarios:

1. **Auto Mode**
    - The camera automatically adjusts the focus based on the entire image.
    - Ideal for general-purpose monitoring where the vehicle's position may vary.

2. **Manual Mode**

- Enables you to set the focus to a fixed distance manually.
- Recommended for static environments where the vehicle remains at a consistent distance from the camera.
- Adjust the focus slider or use fine-tuning options to achieve sharpness.


3. **Area Mode**

- This mode allows you to select a specific area within the image for the camera to focus on.
- Best used when a particular zone, such as a license plate, requires detailed attention.
- To configure:
    - Highlight the desired area in the image using the selection tool.
    - Save the settings to lock the focus on this zone.


**Best practices for image adjustment**

- **Test the settings:** After configuring the level and focus, test the camera by observing live footage. Ensure the image quality and coverage meet your requirements.
- **Periodic calibration:** Regularly inspect and adjust the camera to maintain optimal performance, especially in dynamic environments.
- **Lighting considerations**: Account for lighting conditions when configuring the focus. Adjust exposure settings if necessary to complement the focus modes.
- **Documentation:** Keep a record of your configuration settings for quick reference during maintenance or troubleshooting.

# 5. INSTALLING THE CARMEN AXIS VIDEO APPLICATION

## 5.1. INSTALLING THE APP

1. Open a browser and navigate to the following URL:
2. https://adaptiverecognition.com/doc/license-plate-recognition-traffic-analytics/carmen-axis-video-application/
3. On the opened page, click the download button and save the **.eap file** to your computer.

> Note
>
> Select the **.eap file** for the camera's architecture (**armv7hf for ARPTEC-7, aarch64 for ARPTEC-8+**)

## 5.2. DOWNLOADING THE ENGINE

1. Open the proper link and find the engines section on the webpage, based on your purchase:
   - **Carmen GO** license-based engines:

     https://adaptiverecognition.com/doc/license-plate-recognition-traffic-analytics/carmen-go/
   - **Carmen FreeFlow** license-based engines:
     https://adaptiverecognition.com/doc/license-plate-recognition-traffic-analytics/carmen-freeflow/
2. On the opened page, find the download option and click to download the .zip file.
3. After downloading, extract the .zip file to a chosen folder on your computer.
4. Within the extracted folder, navigate to the **/arm32 or /arm64** subfolder.
5. Upload the .tar.gz file located in the **arm32 or arm 64** folder to the Axis camera's interface to install the application.



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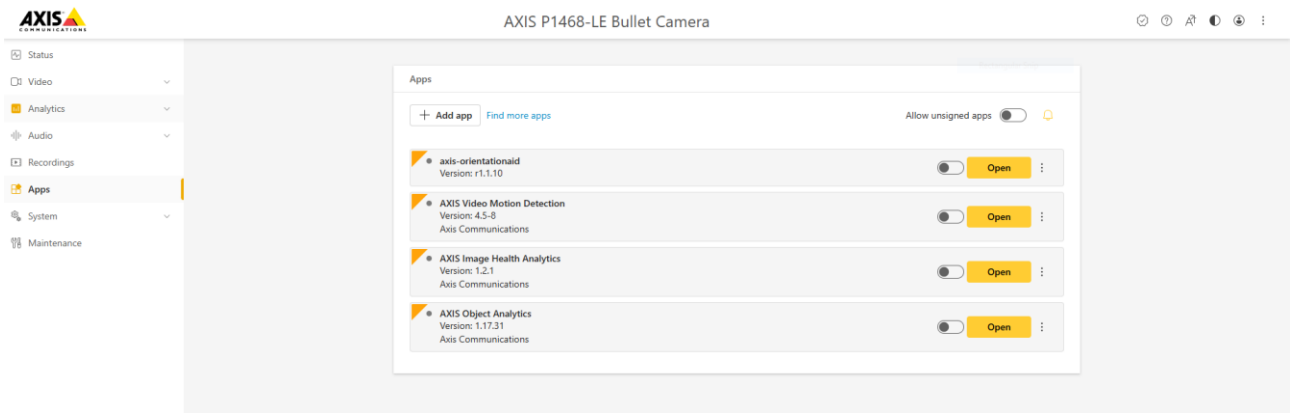
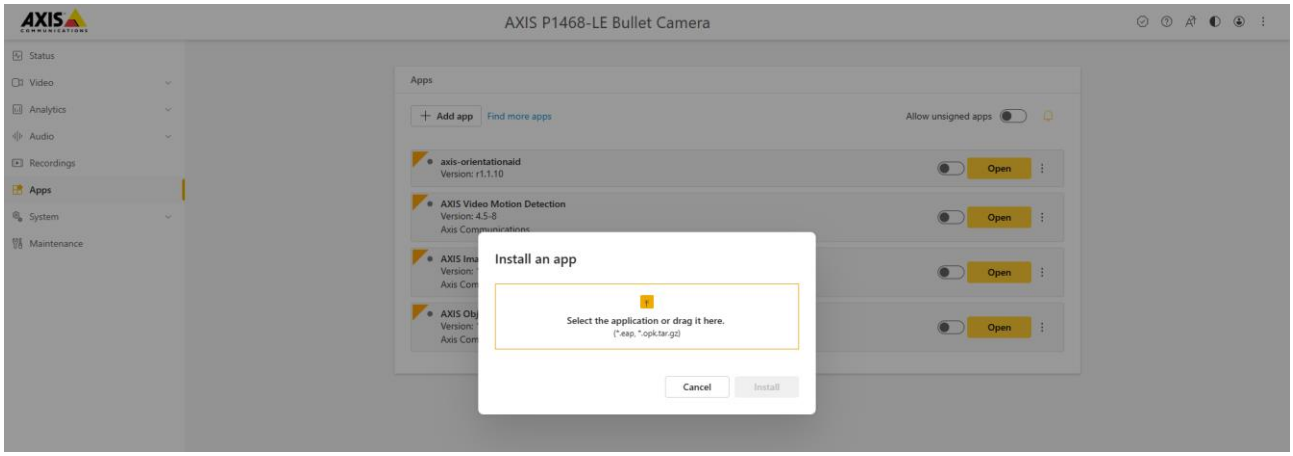
## 5.3. ACCESSING THE APPLICATION

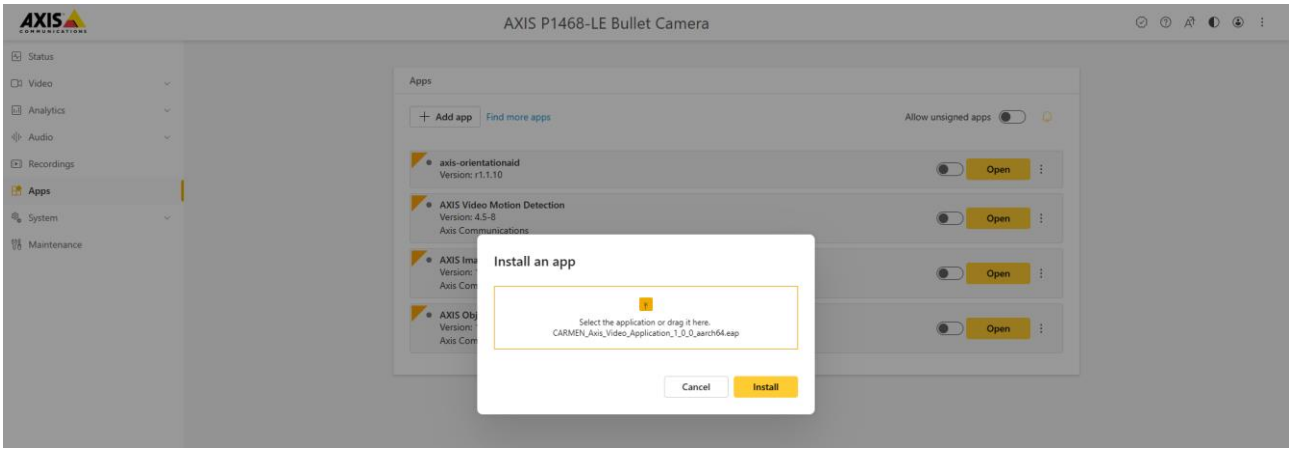
1. After logging into the camera interface, go to the main menu on left side of the screen.
2. Select the **Apps** tab on the displayed page.
3. From the list of available applications, locate the **CARMEN Axis Video Application**.
4. If the application is not visible, you can also upload it from your computer:
    - Click on the Add app button



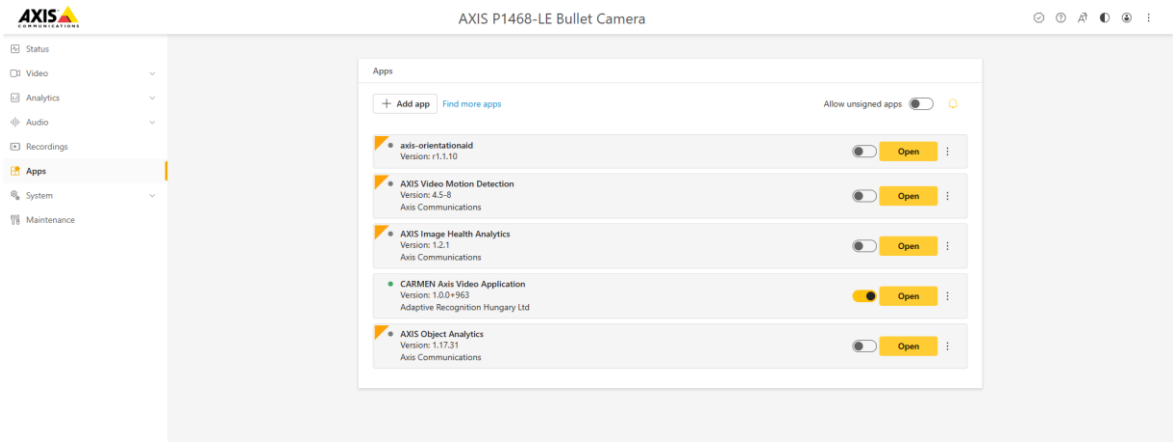

    - Select the application and drag in to the pop-up window.



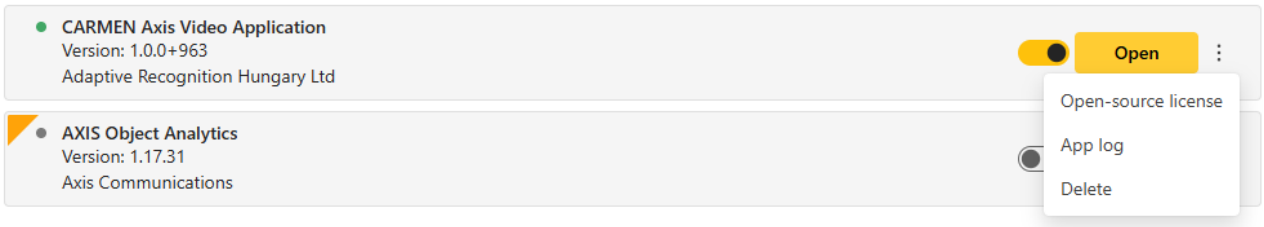
- The selected application appears in the window, then click on Install button.




5. If the application is not visible, use one of the following direct links for quick access:
   - https://[camera-mac-address]/local/carmen_axis_video/index.html#/
6. The application has been installed on the camera, you can jump to the Carmen Axis Video Application web interface by clicking the Open button.




In the **Carmen Axis Video Application**, users can easily access the **application log** by opening the **three-dot menu**. This log provides essential diagnostic and operational data, helping users **monitor system performance, troubleshoot issues, and review past detections**.



# 6. SETTINGS

The **Settings** menu in the **Carmen Axis Video Application** provides a centralized interface for configuring key system parameters to optimize **ANPR (Automatic Number Plate Recognition)** and **MMR (Make and Model Recognition)** performance. This section allows users to fine-tune image processing, network settings, event handling, and integration options to ensure seamless operation within various environments.

## 6.1. CARMEN TAB

Two types of licensing options are available for the Carmen Axis Video Application. It is recommended to choose one of these options first and configure it accordingly. Detailed steps for setting up each option are described in the following sections.

### 6.1.1. CONFIGURING THE LICENSE SERVER

Setting up a **License Server application** to share the licenses over the network, allowing multiple engine-using devices to work.

In the **License Server-based solution**, all image processing occurs locally on the camera or server. License plate recognition and other computational tasks are performed on-site, with only the license verification handled by an external server.

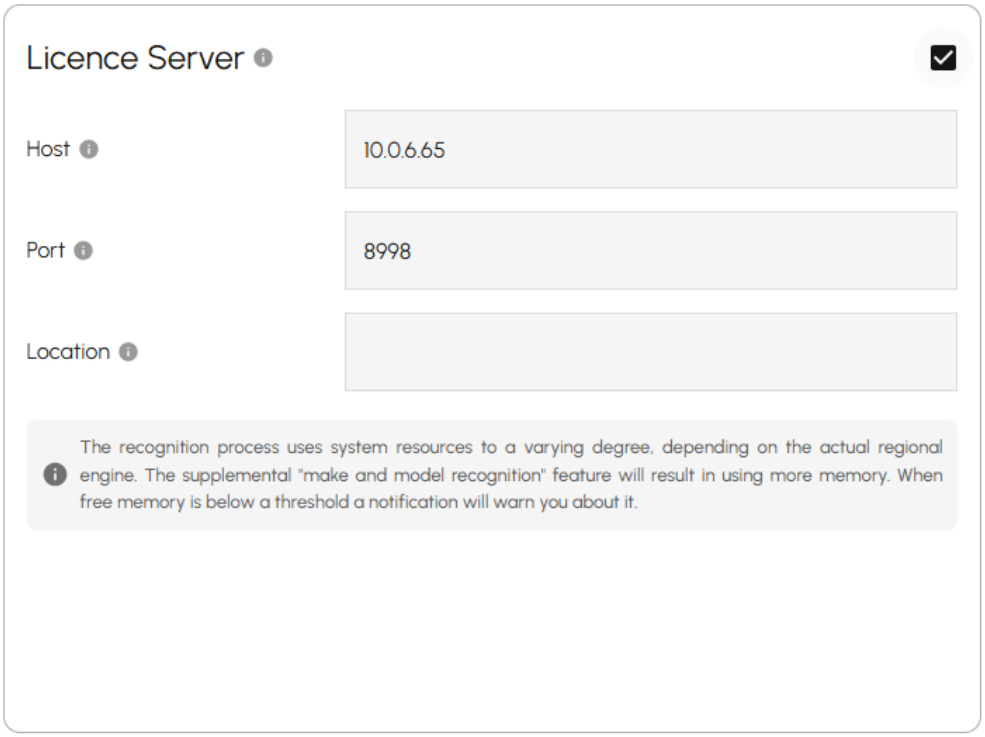
**Operational Steps:**

1. **Local Image Processing** – The camera or local server directly comply the license plate recognition.
2. **License Verification** – The only online operation is the validation of the license through a dedicated license server.
3. **Data Transmission** – License plate data can be forwarded directly to internal systems.

This model consists of a customer network with three main hosts:

- A machine running customer software and the recognition engine.
- A camera that also runs the engine.
- A License Server application that serves both the machine and the camera, hosting the hardware key(s) for them.

1. Navigate to the **Settings** menu and **Carmen** within the application.
2. Enter the correct IP address, port, and location.
3. Save the settings by clicking the **Save button**.

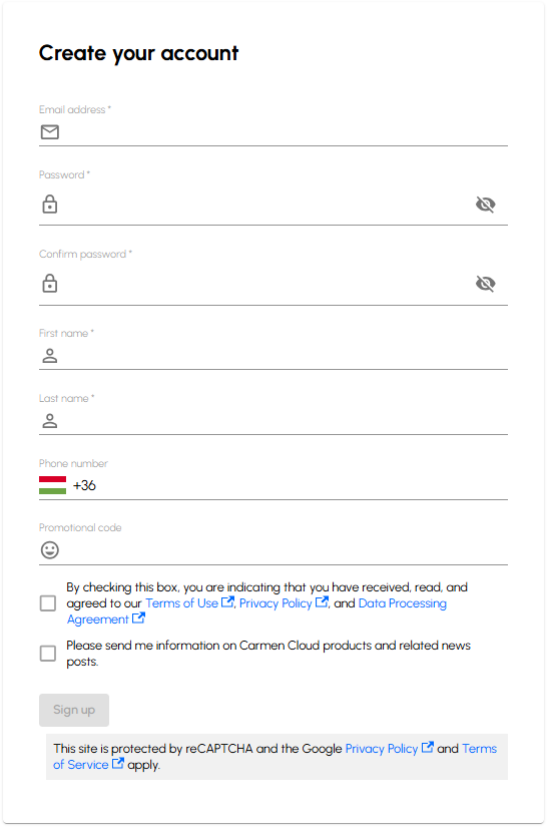


### 6.1.2. CARMEN CLOUD API KEY

With Carmen Cloud, customers are not required to purchase a hardware key or license. Instead, they must register on the Carmen Cloud website and subscribe to the Carmen® License Key Rental service. After that, you will get an API key which is essential to use the service.

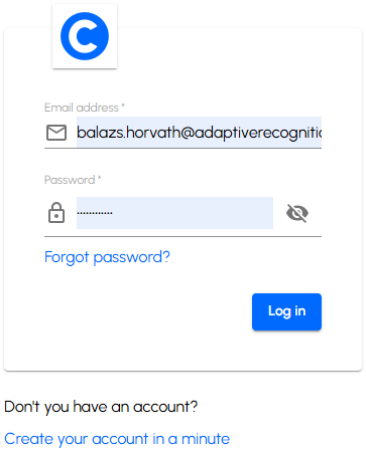
**Register on Carmen Cloud website:**

1. **Visit the Registration Page:** Go to the Carmen Cloud Registration page.
2. **Create an Account:** If you do not already have an account, follow the on-screen instructions to sign up.

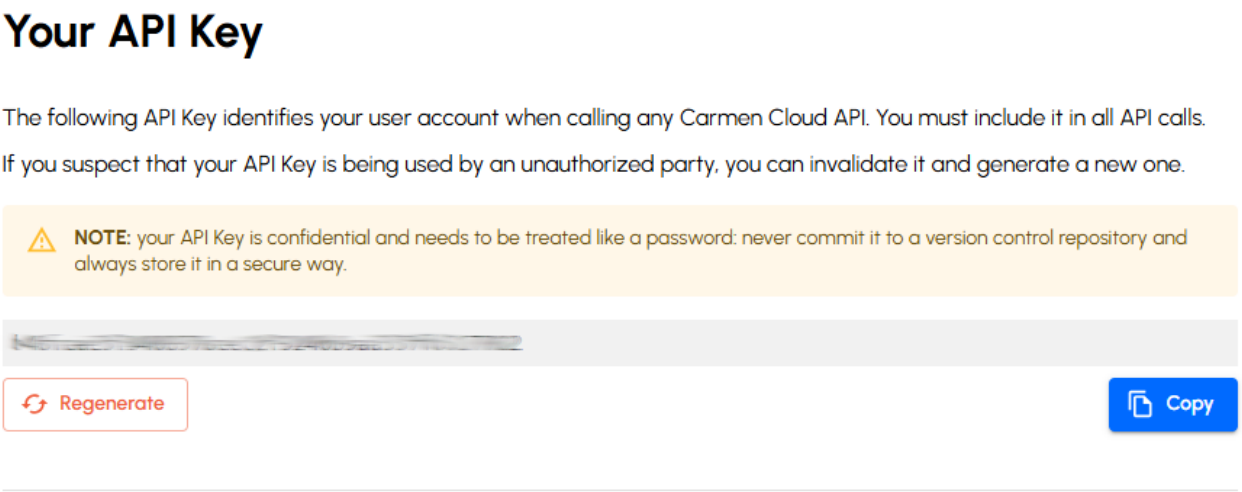



3. **Confirm My Account:** You will receive a confirmation email, where you can either enter the provided code in the console or click on the **"Confirm My Account"** link to complete the verification.

4. **Log in to the Dashboard:** Once registered, log in to access your user dashboard.



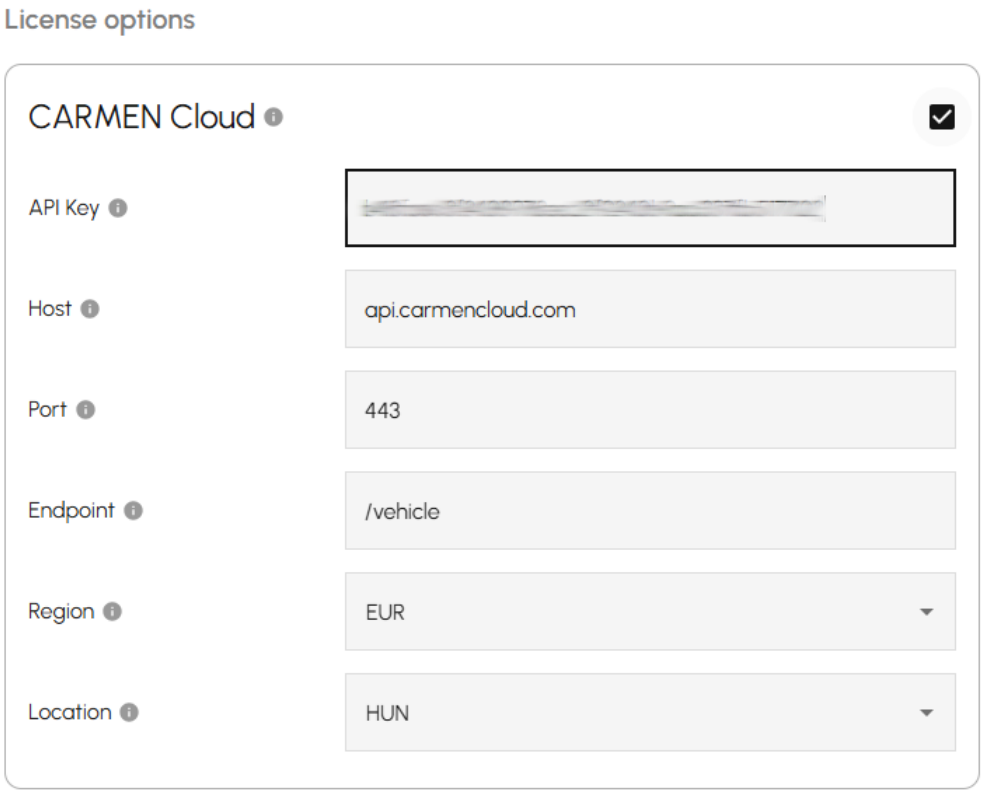

5. **Generate a new API Key**: In the API Key Management section, create a new API key for your specific deployment.




6. **Copy the API Key:** Make sure to store the key securely, as you will need it for the next steps.

**Configuring Carmen Cloud:**

1. **Access the Axis camera interface:** Open the Axis camera's web interface and select the Carmen Axis Video Application.
2. **Navigate to Cloud configuration:** Go to Settings > Cloud Configuration.
3. **Enter your API Key:** Paste the previously generated API key into the Carmen Cloud API Key field.
4. **Choose your region:** Select the appropriate region for cloud processing (e.g., EU, US, or Global).
5. **Enable Cloud processing:** Check the box on the right side.




Click **Save** to confirm your configuration.

This solution communicates with the cloud service using an API key. In this mode, the image captured on the device (e.g., IP camera or computer) is transmitted to the Carmen servers in the cloud, where the processing takes place.

**Operational Steps:**

1. **Image transmission** – The device captures the image and sends it to the Carmen Cloud service via the API.
2. **Cloud-based processing** – Server-side artificial algorithms analyse the image and identify the license plate.
3. **MMR (Make & Model Recognition)** – In this version, the basic package include vehicle make and model recognition as well.

> Note
>
> Multiple credits may be deducted per event for MMR video processing due to the video analysis.

4. **Response return** – The API returns the processed data back to the client system.
5. **Cost accounting** – Each image processing event is billed on a credit basis,

    - The **free 5000-credit package** is an ideal solution for anyone interested in trying out or evaluating the capabilities of Carmen Cloud in a short-term pilot project. Under typical usage, each event (e.g., license plate detection or recording) consumes around **4–5 credits**, meaning that a 5000-credit allocation could support **over 1000** (approximately 1000–1250) vehicle detections or recorded events.

    - Once the initial 5000 free credits are used up, you have the option to purchase additional credit packages, ensuring uninterrupted access to the service. The credit system offers flexibility, with pricing tiers suited for both lower- and higher-volume applications.

Carmen Cloud can be easily integrated into various systems using an API key. The device does not require high computational power since the processing occurs in the cloud. Continuous internet access is necessary because the image processing takes place in the cloud.

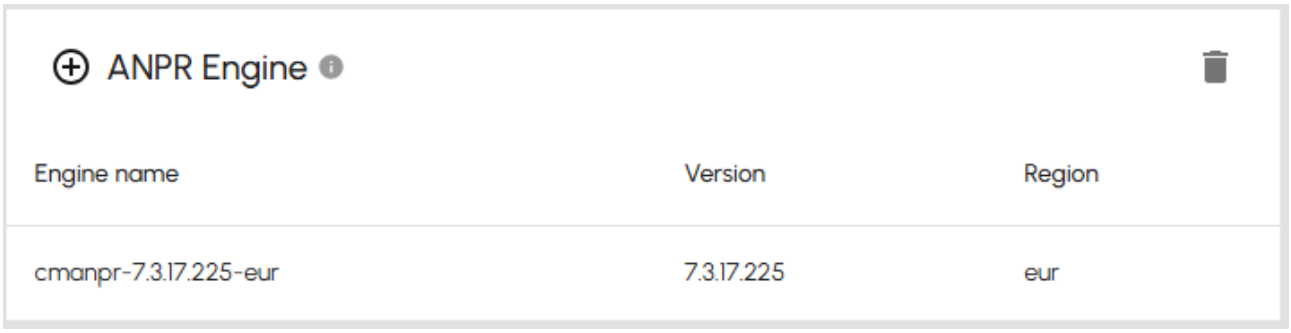
### 6.1.3. ANPR ENGINES

This tool allows for installing or removing Carmen ANPR engines used in the system. It is recommended to select and install the appropriate ANPR engine based on the monitored location.

For country and state recognition, install the regional engine purchased. Select the desired region in ANPR settings.

> **Note**
>
> The World engine returns typed ANPR results, recognizing the most common license plate types from every country and region. It is slightly slower than specific engines.

Add ANPR Engine with the + sign and delete it with the bin icon.



### 6.1.4. MMR ENGINES

The Make and Model Recognition (MMR) module enables its users to retrieve additional information regarding the passing vehicles from a digital image after a successful ANPR. It is important to have the same regional MMR and ANPR engine and license. The MMR engines are offering the following properties of the vehicle:

- Make (VW, Isuzu, Toyota, etc ...)
- Model (Passat, D-Max, Corolla, etc ...)
- Category
- Color
- Body Type
- Viewpoint

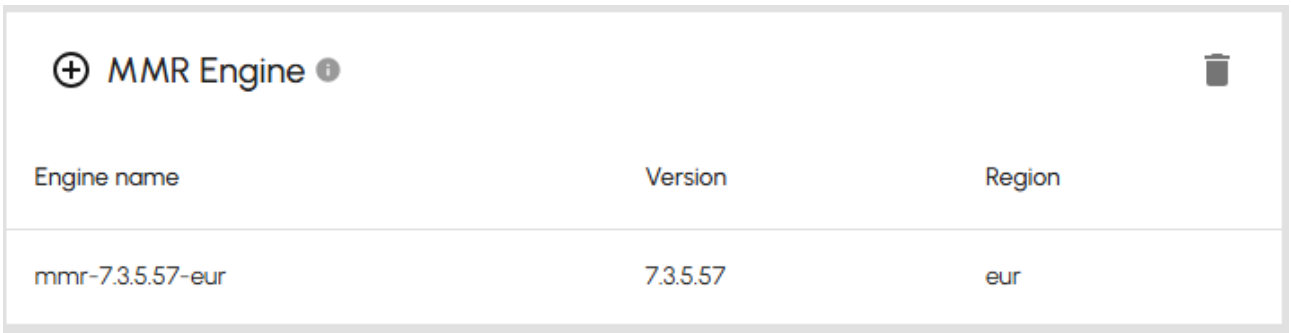
The engines for both MMR and ANPR can be downloaded from here: https://adaptiverecognition.com/doc/license-plate-recognition-traffic-analytics/carmen-go/#software

If you need more information about what our MMR engines are capable, please visit the following **link**.

**Important!**

This feature is available only on **64-bit** cameras. Since it's memory usage is high and loads slowly, it is crucial to test it on the target camera in the given scenario before deploying it.

Add MMR Engine with the + sign and delete it with the bin icon.




Additional Notes

- Restart the system after making any changes to apply the new configurations.

## 6.2. PROCESSING TAB

This configuration panel contains key settings for enabling and customizing the processing of ANPR (Automatic Number Plate Recognition) operations. Below is a summary of the options provided:

- **Enable Processing:** This setting allows the user to toggle the ANPR engine on or off for processing vehicle data.
- **Source Name:** Specifies the name of the data source, which could be a camera or stream, for the ANPR processing.
- **Axis Stream:** Data stream input, presumably the video feed from a connected Axis camera.
- **Duplication Timeout (ms):** Sets a timeout period (in this case, 20,000 milliseconds or 20 seconds) to prevent duplicate detections of the same license plate within a short timeframe.
- **Number of ROI Points:** Displays the number of defined points in the Region of Interest (ROI). Currently, it is set to 0, meaning no specific region is selected for processing. Set the ROI by dragging the corner points of the trigger area.

  You can select an area on the image where you want to concentrate processing, practically the most frequent place for license plate occurrence (passing through a short a movement path). This way you can optimize the motion detector and object tracker to focus on relevant (vehicle) movements, instead of environmental noise on the image (tree branches moving in the wind, etc.).

  Also prefer the part of the image where vehicles are in the closer perspective, regardless of movement direction (approaching or leaving). This assures that the license plate characters' size will be more suitable for ANPR.

  Additionally, the full front or back of the vehicles are also recommended to be visible on the full image, outside of the ROI. Having the full front or back of passing vehicles helps the efficiency of the MMR (make and model recognition) process.

These settings allow for the fine-tuning of ANPR functionality, offering flexibility for various use cases and environments.

## 6.3. OUTPUTS TAB

There are three types of external data storage that Carmen supports: FTP server, GDS and HTTP Post.

**GDS (Globessey Data Server):**

GDS is a universal traffic data collection and visualization middleware for backend system providers and/or ANPR camera users. GDS effortlessly manages, analyzes, and shares large volumes of traffic data regardless of the number of connected endpoints. With the single-click device registration option, GDS can be fully up and ready in mere minutes.

GDS is scalable to store large amounts of records (meta data and associated attachments) in a high availability system that natively supports load balancing over network. Data collection is completely autonomous, while the standardized (acknowledgement-based) data package flow is rapidly managed through IP-based communication and transmitted between multiple endpoints and the server. The software can also share endpoint data with specific business applications.

The condition for this data storage method is to have a license required for GDS application. You can find more information here: https://adaptiverecognition.com/products/gds-globessey-data-server-for-traffic-data/

- **Host:** The server address or IP where the camera connects to upload data.
- **Port:** The GDS Port is a specific network port number that the speed camera uses to communicate with the GDS server. It acts as a gateway for data transmission, allowing the camera to send reports and receive responses from the server.
- **Username:** Any name given to the device assigned by the user.
- **Table name:** the "multi_event" table contains traffic data.
- **Device ID:** The Device ID uniquely identifies the specific hardware of device.
- **Device Type:** Type of the camera.
- **Gate:** The file directory or network address used to store, transmit, or access data on GDS.

**FTP server:**

You can upload the output data directly to an FTP server (including images).
Type in all details (Host, Port, Username, Password, and Remote path) in the required fields, check "Enable" and press the "Save" button.
With the Test button, you can test an output if it is enabled and has been saved.

**HTTP POST**

The Carmen Axis Video Application includes an HTTP POST output feature that allows the system to transmit real-time event data and images directly to an HTTP server. This functionality is especially useful for integrating with external systems such as databases, monitoring dashboards, and third-party applications.

**Configuring HTTP POST:**

- **Enable** HTTP POST. Activate the feature by checking the "Enabled" box.
- **Host:** Enter the target server's IP address or domain (e.g., 192.168.1.100 or api.example.com).
- **Port:** Specify the port number (typically 80 for HTTP or 443 for HTTPS).
- **Path:** Input the API endpoint for data submission (e.g., /api/vehicle-events).
- **Headers:** If the target server requires additional headers (e.g., authentication tokens or content types), add them here (e.g., Authorization: Bearer <token>).

Click **Save HTTP POST Settings** to finalize and apply your changes.

### Data Format

- **Multipart Transmission:** The output is sent in a multipart format, comprising:
  - **JSON Metadata:** Provides key event details.
  - **Captured Image:** Shows the vehicle and/or its license plate.

### Event Data

- **License Plate Details:** For example, "ABC-123."
- **Recognition Confidence:** A percentage indicating the detection's accuracy (e.g., 98%).
- **Timestamp:** When the event occurred.
- **Optional MMR Information:** If MMR (Make, Model, and Recognition) is enabled, additional data includes vehicle make, model, color, and category.
- **Location (Optional):** If configured, the system can include GPS or other location-based information.

### Image Data

- **Image Attachment:** An image of the detected vehicle is sent with the JSON metadata, typically highlighting the license plate and possibly the front or rear view of the vehicle.

# 7. MONITORING

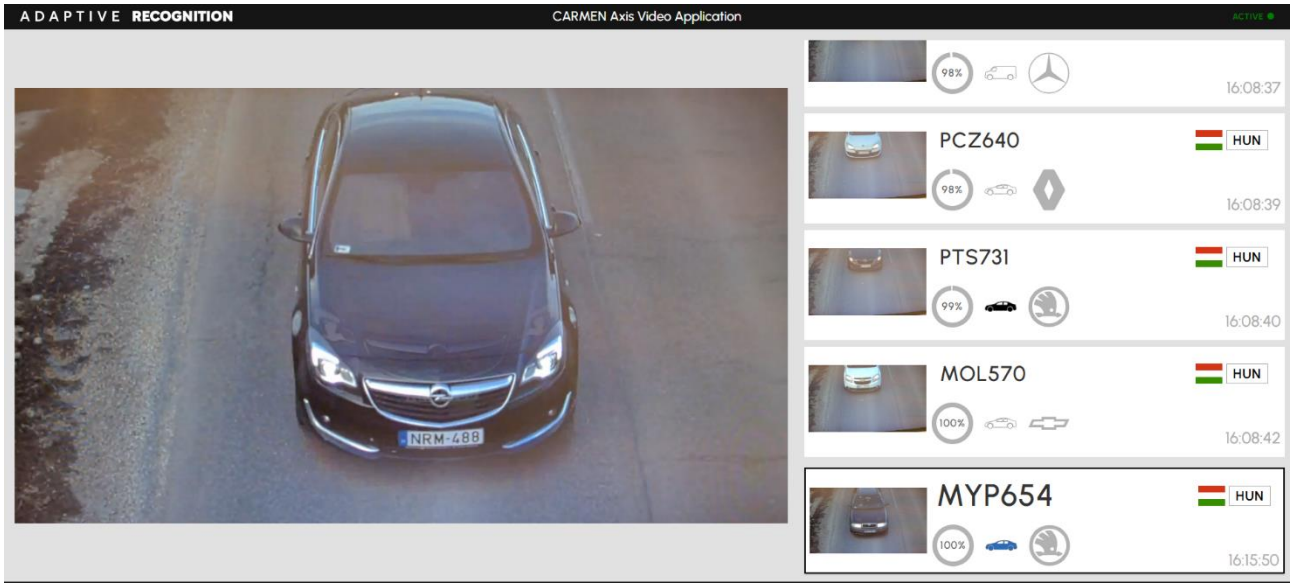
The Stream menu enables the live view of the selected Axis camera or Video file stream and the ANPR data captured.

**Left side – Live camera feed**

- Displays a **real-time video stream** from an Axis camera.
- Shows detected vehicles in the camera's **field of view**.

**Right side – Detected events**

- Picture of the detected event
- License plate of the vehicle
- Event confidence
- Category of the vehicle: CAR, BUS, MOTORCYCLE…
- Make and Model recognition
- Origin country of the license plate
- Time of the captured event



The right area shows the last detected number plate with country, MMR data, confidence, date and time. Result data based on the event. Information can vary due to installed/not installed MMR engines.

**Left side – Detected vehicle**

- A snapshot of the detected vehicle from the camera.

**Upper right side – Event data**

- **Pictograms** displays the same data like in the live feed

**Event Data**

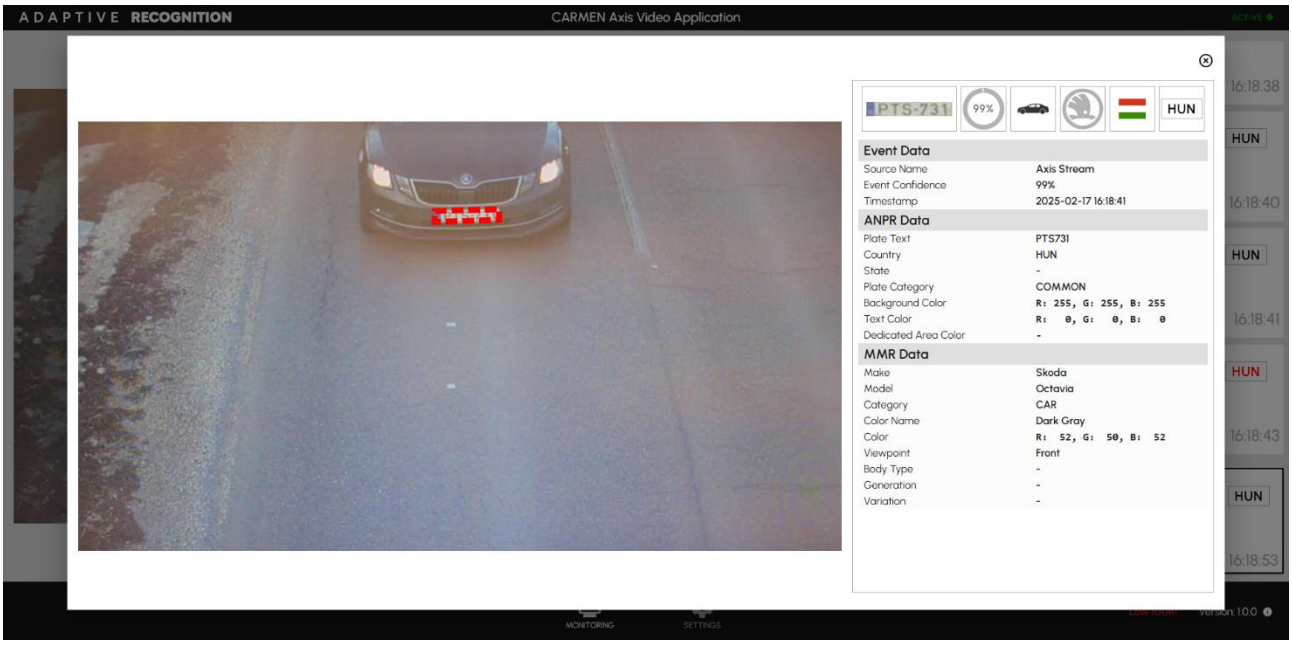
- **Source Name:** The camera feed name (Axis Stream).
- **Event Confidence:** 99%, indicating a highly reliable recognition.
- **Timestamp:** 2025-01-23 21:16:01, showing the date and time of detection.

**ANPR Data**

- **Plate Text:** the detected license plate number.
- **Country:** confirming Hungary as the issuing country.
- **State:** specific regional information was extracted.
- **Plate Category:** a standard civilian plate (not special categories like diplomatic or military).
- **Background Color:** R: 255, G: 255, B: 255 – meaning a white background.
- **Text Color:** R: 0, G: 0, B: 0 – meaning black characters on the plate.
- **Dedicated Area Color:** special color strip detected on the plate.

### MMR Data

- **Make:** the detected car manufacturer.
- **Model:** the recognized model of the vehicle.
- **Category:** the type of the vehicle.
- **Color Name:** the recognized vehicle color.
- **Color:** color of the vehicle.
- **Viewpoint:** it refers to the camera's angle or perspective when capturing an image of a vehicle (front or rear).
- **Body type:** it refers to the structural design and shape of a vehicle, determining its size, purpose, and passenger/cargo capacity. (sedan, coupe, hatchback…)
- **Generation:** the generation of a vehicle refers to the specific model revision or version within a production cycle.
- **Variation:** variation refers to submodels, trims, or specific editions of a vehicle within a generation.



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Adaptive Recognition Hungary Technical Support System (ATSS) is designed to provide you the fastest and most proficient assistance, so you can quickly get back to business.

Information regarding your hardware, latest software updates and manuals are easily accessible for customers via our Documents Site (www.adaptiverecognition.com/doc ) after a quick registration.

New User

If this is your first online support request, please contact your sales representative to register you in our Support System. More help here (www.adaptiverecognition.com/support)!

Returning User

All registered ATSS customers receive a personal access link via e-mail. If you previously received a confirmation message from ATSS, it contains the embedded link that allows you to securely enter the support site.