



# PlaneTracker App

**Automated video system for aircraft tracking**

Presentation for airports, January 2026

# What is **PlaneTracker App**?

- ✔ PlaneTracker App is an **embedded camera application** designed for PTZ cameras made by **Axis Communications**, world leader in IP video and a popular supplier for airports
- ✔ The system was developed in collaboration with **Flightradar24**, the world leader in air traffic monitoring
- ✔ The system provides airports with **detailed video footage** of monitored aircraft, particularly **during take-off, landing, and movement on the airport apron**
- ✔ Precise tracking of aircraft even in poor weather conditions, day and night, is based on **ADS-B data** from a local receiver



<b>BCN</b> Barcelona	+	<b>PMI</b> Palma de Maiorca
12:00	14:00	16:00

# CAMSTREAMER PlaneTracker App



# Who is CamStreamer?

- ✓ European, Czech Republic, **Prague based 35+ people team**
- ✓ **Axis Technology Integration Partner** for over 19 years
- ✓ **Developer of embedded ACAP apps** for live streaming, dynamic graphics, video switching and automations & video cloud services
- ✓ Thousands of licenses sold **around the globe** & growing



# Who is Flightradar24?

- ✓ Flightradar24 is a **Swedish** Internet-based **service provider**
- ✓ Founded in 2006 by two aviation enthusiasts
- ✓ Flightradar24 shows **real-time aircraft flight tracking information** on a map
- ✓ **The largest ADS-B network** in the world with over 40,000 connected receivers
- ✓ Over **200,000 flights tracked per day**, with over **4 million users per day**



# Who is **Axis Communications**?



- ✓ **Network video pioneer** – invented the first network camera in 1996
- ✓ **IP security solutions** – offers network cameras, access control and audio systems
- ✓ **Innovation focused** – known for advanced tech like Lightfinder & Zipstream
- ✓ **Global operations** – worldwide presence with a strong partner network
- ✓ **Canon subsidiary** – operates independently under Canon Inc. since 2015



# Who is PlaneTracker App intended for?

## ✓ Airports

- ✓ **Security departments** – investigation of security incidents and accidents
- ✓ **Operations departments** – better situational awareness
- ✓ **Marketing departments** – exceptionally interesting video content for a better customer experience and monetization

## ✓ Air navigation services

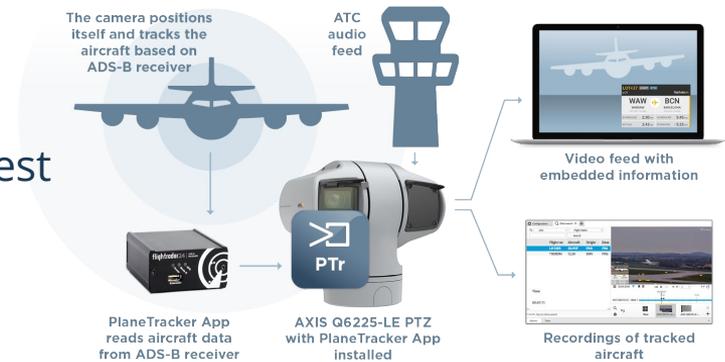
- ✓ Additional smart surveillance cameras on **remote towers**

# What are its **main benefits**?

- ✓ **Fully automatic operation** with optional manual control
- ✓ **Application runs directly in-camera** – fast, reliable, secure, and needs no extra computer hardware
- ✓ Tracks aircraft in **all weather conditions, day and night**
- ✓ **VMS integration** (e.g., PlaneTracker App **Plugin for Genetec Security Center**)
  - ⊙ **Quick search** in video recordings via metadata (ICAO or Flightradar24 data)
  - ⊙ **Visualize** aircraft tracking and **manually control** tracking in the VMS

# How does it work?

- ✓ The application in the camera **reads and decodes data from the ADS-B receiver**
- ✓ The PTZ **camera tracks aircraft** with the highest possible zoom according to the set priorities
- ✓ The application optionally **inserts graphics** generated based on data from Flightradar24
- ✓ Sends **metadata to VMS** for easy video search
- ✓ Sends **events to VMS** (tracking started, distress / urgency tracking)



**Real-time visual  
monitoring of aircraft**

# Supported cameras

- ✓ **AXIS Q6225-LE (ARTPEC-7)**
  - ✓ Resolution 1080p @ 60 fps, 31 x optical zoom
  - ✓ Pan range 360° endless / **Tilt range -90° to +90°**
  - ✓ [www.axis.com/products/axis-q6225-le](http://www.axis.com/products/axis-q6225-le)
- ✓ **AXIS Q6355-LE / Q6358-LE (ARTPEC-9)**
  - ✓ Resolution 1080p / 4K @ 60 fps, 31 x optical zoom
  - ✓ Pan range 360° endless / **Tilt range -90° to +20°**
  - ✓ [www.axis.com/products/axis-q63-series](http://www.axis.com/products/axis-q63-series)



Plus any other  
ARTPEC-7/8/9 PTZ camera

# Supported ADS-B receivers

- ✔ **Flightradar24 ADS-B receiver**
  - ✔ Provided free of charge upon Flightradar24's decision (in exchange for ADS-B data sharing via Internet)
  - ✔ [www.flightradar24.com/apply-for-receiver](http://www.flightradar24.com/apply-for-receiver)
- ✔ **Jetvision Radarcape ADS-B receiver**
  - ✔ For closed installations (does not need to be connected to Internet)
  - ✔ [jetvision.de/radarcape-ads-b-receiver](http://jetvision.de/radarcape-ads-b-receiver)



# Supported VMSs

- ✓ **PlaneTracker App is VMS agnostic ...**
  - ✓ Video generated by the camera (including overlay graphics) is a **standard RTSP video stream ...**
  - ✓ And as such will be **accepted by any VMS system**
- ✓ **... but selected VMSs provide some extra features**
  - ✓ **Metadata and events** for Axis Camera Station, Genetec SC and Milestone XProtect
  - ✓ **Plugin for Genetec Security Center** (see further)



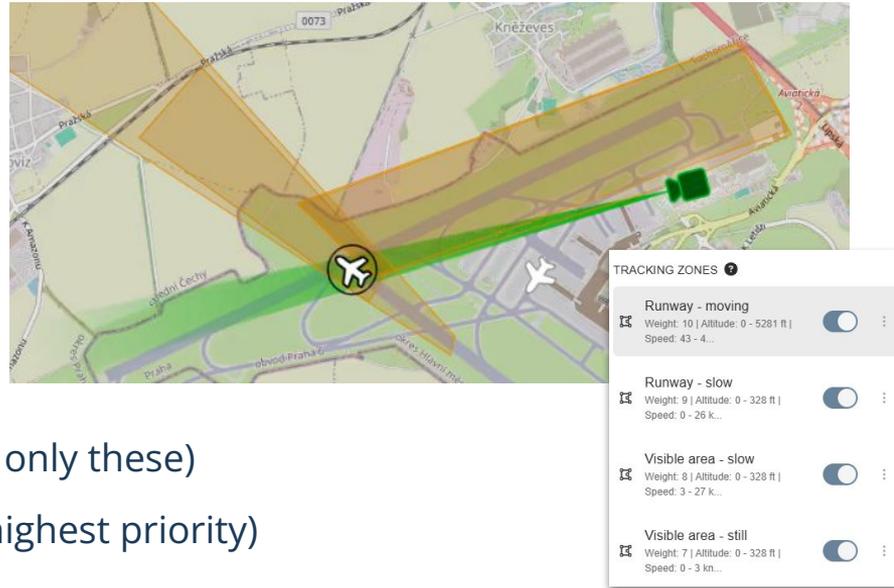
# Features: Aircraft selection algorithm

## ✓ Zones of interest

- ✓ 2D polygon drawn on a map
- ✓ Min and max altitude
- ✓ Minimum aircraft speed
- ✓ Priority 1 (low) to 10 (high)

## ✓ Aircraft lists (ICAOs)

- ✓ Black (ignored) & White (we track only these)
- ✓ Priority (we track these with the highest priority)



# Features: Tracking algorithm – other

- ✓ **How long is each aircraft tracked?**
  - ✓ At least for a pre-set period of time (e.g. 10 secs to avoid jumping among aircraft on busy airports)
  - ✓ As long as the aircraft has the highest priority
- ✓ **What happens if there no aircraft to be tracked?**
  - ✓ We either go to a Preset Position (e.g. Home) or we let it run a Guard Tour
- ✓ **How many cameras are needed to cover an airport?**
  - ✓ One or two cameras per runway

# Features: Zoom level and sharp focus

## ✓ Zoom level

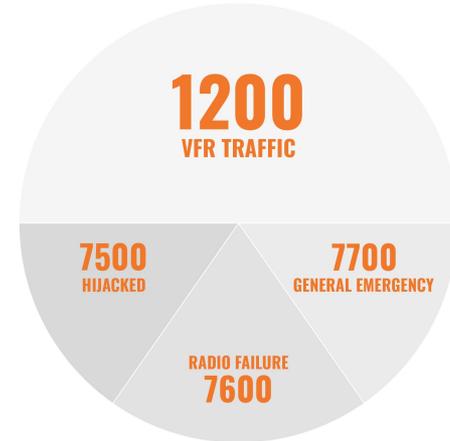
- ✓ We **maximize the zoom** level depending on the aircraft being tracked (small Cessna vs Airbus A380)
- ✓ We take into account the **offset of the GPS antenna** on the aircraft relative to its center (aircraft centered in the image)

## ✓ Sharp focus

- ✓ **Distance based focus** (calibration matrix)
- ✓ As a result the tracked aircraft is always in **sharp focus!**

# Features: Distress or urgency override

- ✓ Aircraft in **distress or urgency** tracked with the **highest priority**
  - ✓ Based on SQUAWK codes 7500, 7600 & 7700
  - ✓ **Distress event** for the VMS is generated
  - ✓ This feature can be switched ON / OFF



# Features: Sun avoidance function

- ✓ **Zoom level and aperture adjusted**
  - ✓ Camera image sensor sun protection function implemented
  - ✓ When the aircraft is 20° or less from the sun, **we zoom out and close the aperture**
  - ✓ We switch to normal mode when we move away from the sun



# Features: Overlay graphics and metadata

## ✓ Overlay graphics

- ✓ Based on Flightradar24 data and [jetphotos.com](https://www.jetphotos.com) images
- ✓ Internet connection required (CamStreamer servers)
- ✓ Graphics become part of the video stream!

## ✓ Searchable metadata for the VMS

- ✓ Based on Flightradar24 data (aircraft ICAO)
- ✓ Aircraft call sign, aircraft type, flight number, operating airline, departure and destination airports

Prague Vaclav Havel Airport  
2025-03-25 2:56 PM PRG/LKPR

RYR596P Boeing 737-800 flightradar24  
FR1530 Airstream CAMSTREAMER

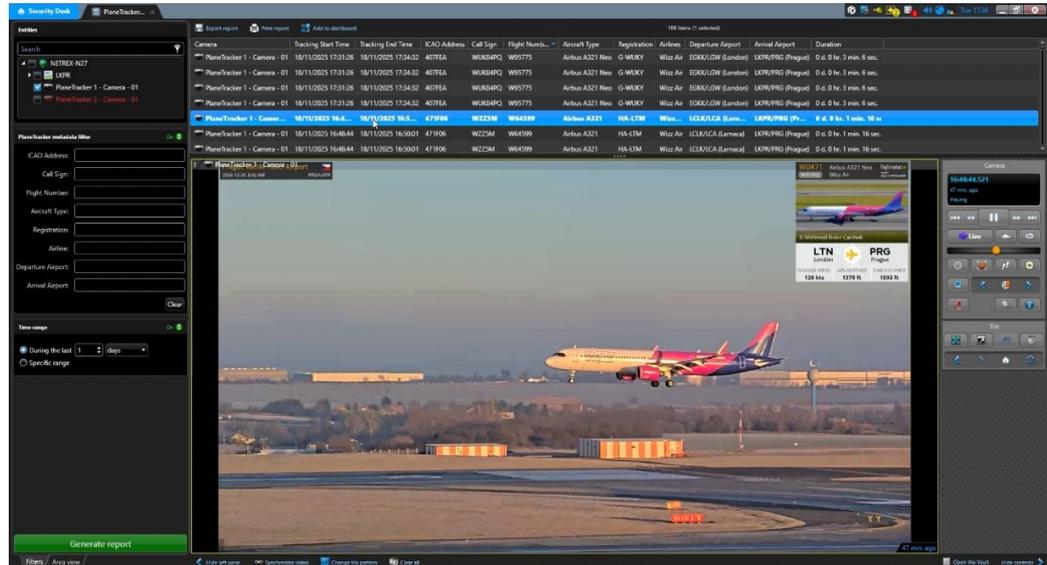
© Martin Nimmervoll

<b>PRG</b> Prague		<b>TSF</b> Venice
GROUND SPEED <b>18 kts</b>	GPS ALTITUDE <b>1178 ft</b>	CAM DISTANCE <b>1428 ft</b>

# VMS Genetec Plugin 1/2



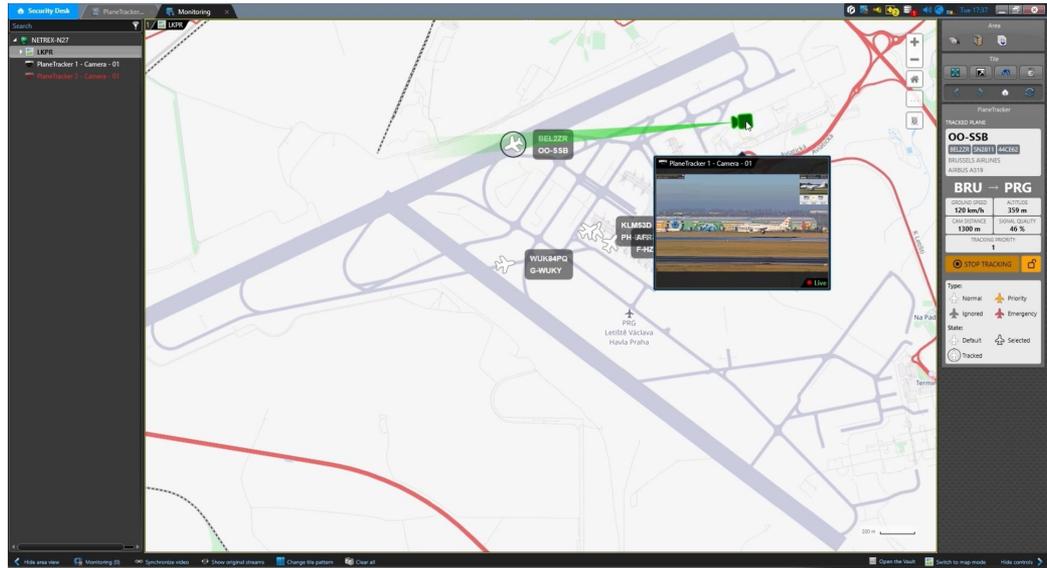
- ✔ **Metadata based aircraft search**
  - ✔ Aircraft ICAO, call sign, aircraft type, flight number, operating airline, departure and destination airports
  - ✔ Video clips can be extracted from continuous recordings



# VMS Genetec Plugin 2/2



- ✓ Tracked aircraft visualisation and manual tracking control



# Would you like to **give it a try?**

This is what it takes to run a Proof Of Concept (POC)

- ✓ **Contact us** at [planetracker@camstreamer.com](mailto:planetracker@camstreamer.com) or contact the company that takes care of your cameras
- ✓ **Get and install** all the **necessary HW** (PTZ camera and ADS-B receiver)
- ✓ **Install the PlaneTracker App** on your camera
- ✓ **We will calibrate** your camera **and configure** the plane tracking (2 days process)
- ✓ **Test** the system over the next 2 months **and decide**



 CAMSTREAMER

**Thank you for your attention!**

Contact us at [planetracker@camstreamer.com](mailto:planetracker@camstreamer.com)