



Argos Platform

**A Modular Data Analytics Platform To Build
Secured And Customized Investigation Solutions**

Introduction

Nowadays, any investigation, such as criminal inquiry, counter-terrorism, or secret service operations, struggles with vast amounts of evidence data collected. Scanned documents, photos, voice recordings, camera recordings, pictures from phones, social media posts and profiles, etc., need to be collected and analysed. In any investigation, time and evidence's quality are crucial, and decisions need to be done based on the information available.

Creating a comprehensive solution that would cover digital evidence processing and all the analytical tools needed for an investigation is very demanding in terms of human resources, knowledge, finances and time.

The Argos platform facilitates the creation of a tailor-made investigative and analytical solution for Law Enforcement, Defense or Intelligence.

Argos is an end-to-end data analysis platform used by non-tech users who investigate dangerous, criminal or illicit time/geo activities, transactions or human relationships from digital evidence (video, image, textual content, audio recordings and structured data).

Artificial intelligence and machine learning embedded

The capabilities of Argos are made possible by machine learning and deep learning. You can leverage pre-trained Cogniware models for face recognition, gender and age estimation, person appearance characteristics (clothing), object color and type detection and more. We can also train your own AI models both for people and objects. To be able to prepare custom models, the Neural networks require large training datasets. The time needed for data preparation is lowered by up to 60% thanks to the annotation module that cuts up to 60% of the training time traditionally needed to implement any computer vision software.

From Data To Analytics

Processing of different types of input data in one system

Argos architecture is designed to process large volumes of text, image, video, and audio data from customer databases, document management systems, media archives, Web sites, or other external data sources.

Collect

- Actively fetch data from internal/external systems
- Passively receive data using exposed API (REST, MQ)
- All types of structured and unstructured content
- From various data sources (DBs, Web services, REST APIs, Websites, Filesystem etc.)
- Online and offline data

Process

- Face & Voice Recognition
- Appearance Detection
- Entity Extraction
- Text To Speech
- OCR, ANPR

Analyze

- Allow powerful searching
- Preview content with highlights
- Focus on key information quickly
- Correlate all information together

Analytical Capabilities

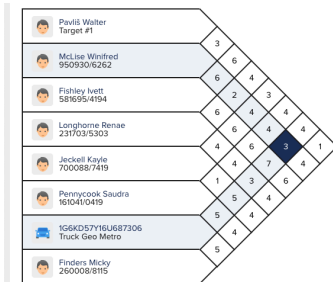
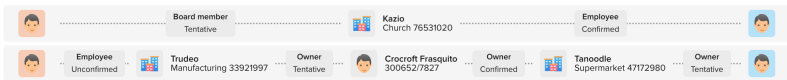
Data Catalog

All information in Argos is organized in a Catalog by entity types. The system comes with a pre-defined catalog schema (e.g., contains most common attributes for Person entity etc.), but the data model can be easily customized to specific use case needs.

Audio File	0	Bank Account	100	Case	0	Cell	0
Communicatio...	0	Credit card	0	Criminal group	0	Document	0
Email address	0	Email message	0	Event	0	Financial trans...	300
Identification d...	0	Image File	0	Insurance Claim	50	Insurance Policy	150
Jail workplace	0	Location	502	Organization	45	Person	200
Phone Call	1882	Physical Eviden...	0	Point of sale	0	Property	0
Restriction of F...	0	SIM Card	193	SMS	0	SND list	0
Social media p...	0	Social media pr...	0	Suspicious tran...	0	Travel manifest	100
Vehicle	100	Video File	0				

Uncover Hidden Connections

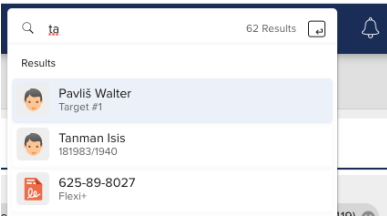
Argos can find all possible links between two selected entities or group of entities (watchlists). The results are prioritized either by the length of the path or its calculated importance.



Analytical Capabilities

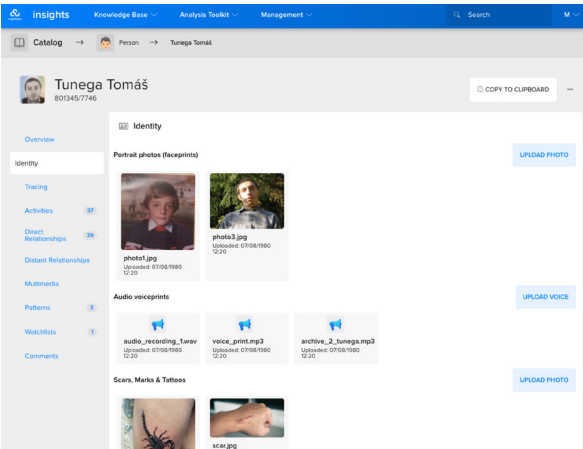
Search

Search entities in the knowledge graph using smart full-text functionality, geospatial queries facet filters, or visual query builder for complex analytical pattern queries of relationships and behavior. Search queries can be saved for later or shared with others to access relevant data quickly.



Biometrics Management

Upload and manage multiple biometric features for people in database. Their occurrence in multimedia files is automatically analyzed and displayed.



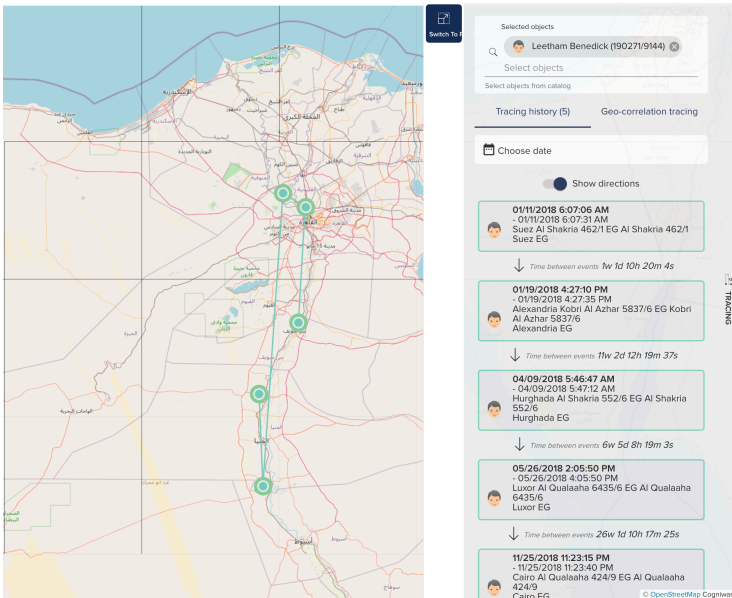
Secured Data

At the data level, fine-grained access can be controlled up to an object's attributes, and only users with specific authorizations can access the data. If a user is not able to view details of a particular entity or entity type, the object will appear cloaked, without any other information provided to find out its identity, until the user is granted with permissions

Analytical Capabilities

Maps

Data processed in Argos are geocoded and can be searched and visualized in a map. Integration to various WMTS including ESRI ArcGIS.



Behavior Patterns and Alerting

The system allows you to present the data formulas that describe any unusual or suspicious transaction or association. The system compares the data with this formula, and if it finds a match, it alerts the user.

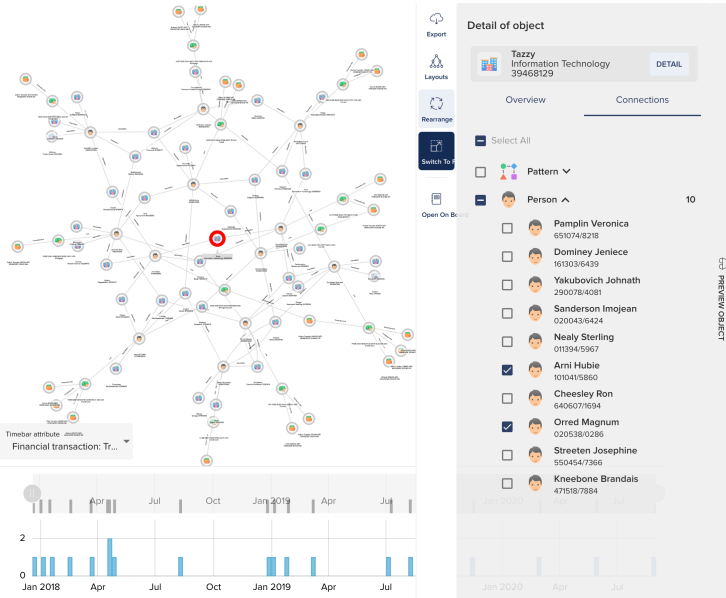
The list of findings is available to the analyst for further investigation. Each user can subscribe to one or more of the available insight patterns. Argos automatically sends the user an email when a new match is found in the incoming data.



Analytical Capabilities

Interactive Visualizations

Explore data and produce visually appealing outputs of investigation. Filter data using timeline, or highlight data using conditional formatting or SNA metrics.



Watchlists

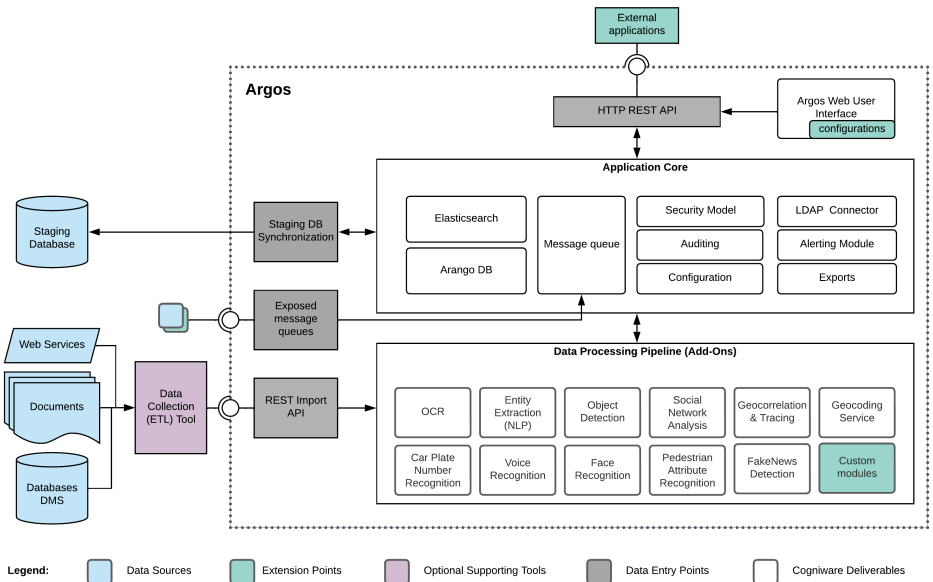
Organize entities into a list of interest. Find connections between members of different watchlists.

Audit Trail

Argos audits the actions taken by users or other external systems via API. Audit data can be reviewed by administrators, command staff or potentially data auditors.

Architecture

Argos brings automation and artificial intelligence to help solve the most significant issues in this process - the analysis's speed and quality. All evidence from all sources, regardless of the media type, is stored in one central repository. Multimedia files stored in Argos are organized and processed by Artificial Intelligence to recognize individuals on pictures, speakers in recordings, topics in documents and more.



Detail Technical Architecture is available in the official product documentation

Modularity

The system is based on modern modular architecture (Investigation, Face, Voice and Object detection modules). The individual functions of the modules can be used independently or combined to fit the requirements.

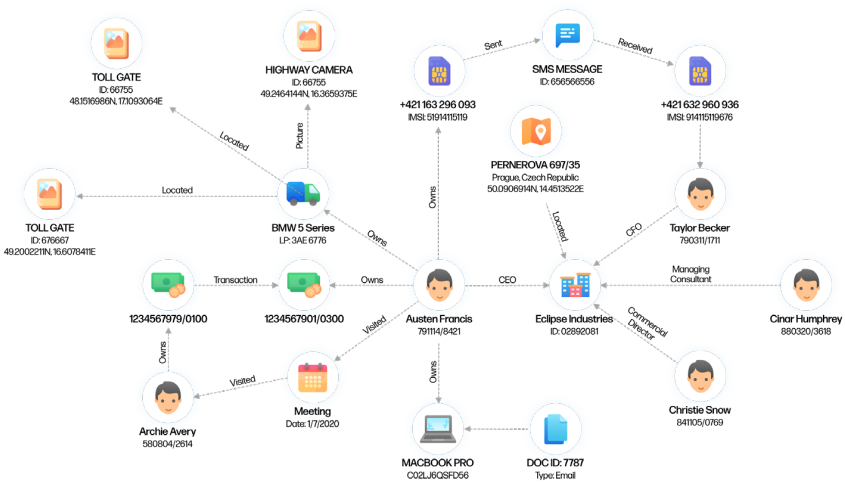
Argos for Vetting

Vetting or KYC is the process of performing a background check on someone before making any decision.

Gathering the actual but also historical information about the person of interest (or a company) in one place is the critical part of the whole process. Having various data from internal and external databases, documents, OSINT or any other data sources centralized in a unified data model helps the analyst or investigator to better, faster and easier understand the nature of the checked person.

Visualization of close and distant relationships with other objects (like persons, companies, cars) or usage of behaviour pattern search provides deep understanding of obvious and non-obvious connections and thus enables the analyst or investigator to evaluate the person's compliance with company of country regulations.

When all the multimedia are processed, a well-arranged scheme of entities and links between them is presented to be analysed by the police or special ops analysts. It takes the form of a spider-like web of interconnected people, their bank accounts, meetings, phones, messages and such. All media files such as video recordings, pictures or audio files are annotated and easily searchable and discoverable. This means minutes instead of many hours needed without Argos until the evidence is ready for the analyst.



Argos for Video Analytics

Nowadays vast majority of information is buried within tons of multimedia content files – textual documents, images, audio or video file or live streams from CCTV cameras or web sources. Extracting the important information from the multimedia archive is a complex task consisting of many steps including data ingestion and conversion, extraction of key information and storing it in a proper search index. Applying AI and nonAI processing modules like facial recognition, speaker identification, OCR, NLP, object detection or speech to text transcript is used to extract who, when, where, how.

Analyst or investigator can utilize all the extracted information to formulate the proper question like “Show me all people in red shirt and blue cap near a groceries store” or “Show me all green cars with license plate matching expression XXX-4A23 that were on 20.3.2022 in 1982 Grant Branch, Prague, Czech Republic”. The outcome of such search may be further analysed using the link analysis and combine the multimedia content with structured data from databases, Excel sheets or other sources.

The screenshot displays the Argos video analytics interface. The main window shows a video titled 'airport.mp4' with a timestamp of 08:22:2022 12:125 PM. The video player shows a scene with several people, some of whom are highlighted with colored bounding boxes (red, green, orange). Below the video player is a 'Timeline' view showing the duration of various objects (Person 23 through Person 33) over time, represented by colored bars. To the right of the video player is a detailed view of a person (Person 3), showing their biometric features (Gender: Female, Age: 30.754%, Age: 17.30 74.82%, Age: 10.30 45 51.61%, Age: 10.45 60 10.41%) and appearance features (Body accessories: shirt:Bag 0.491%, Upper body clothes: coat: 30.11%, Type: Body/Tri: 88.624%, Type: Body/Fat: 88.624%, Body accessories: bag: 88.532%, person_activity: Pushing 85.534%, Hair: hat:Long 85.529%, Upper body clothes: UpperBody/Other: 64.777%, Upper body clothes: shirt: 61.705%, Hair: bald: 59.274%).

Timeline of objects in a video to show overlaps

Argos Your work Knowledge Base Multimedia Analysis Toolkit Management Search

Browse files → conference.MOV

conference.MOV File type: Video | Created: 08/30/2022 8:00:23 PM SWITCH TO FULL SCREEN

People (24) Objects (55)

Identifier	Identity	First Occurrence	Total Occurrence
<input checked="" type="checkbox"/> Person1		00:00	00:12
<input checked="" type="checkbox"/> Tunega Tomáš 23755@163		00:00	00:10
<input checked="" type="checkbox"/> Person5		00:00	00:02
<input checked="" type="checkbox"/> Fránek Dominik 16102@0425		00:00	00:08
<input checked="" type="checkbox"/> Person6		00:00	00:06
<input checked="" type="checkbox"/> Person3		00:00	00:03
<input type="checkbox"/> Person7		00:02	00:06
<input checked="" type="checkbox"/> Person8		00:03	00:00
<input checked="" type="checkbox"/> Person9		00:05	00:00
<input checked="" type="checkbox"/> Person10		00:06	00:00

0 - 10 from 24

Items per page 10

Detail of a multimedia file including recognized persons in it

Argos Your work Knowledge Base Multimedia Analysis Toolkit Management Search

Search in video

Filter

Choose date

Body accessories

- asperBag
- shoulderBag
- accessoriesOther
- plasticBag
- backpack
- glasses
- handBag
- handThunk

Hair

- hairLong
- bald
- hairBlack

Gender

- Female

Upper body clothes

- shirt
- jacket
- UpperBodyOthers
- cotton
- shirt
- upperBodySweater
- tshirt
- vest
- shortSleeve

Lower body clothes

- TightTrousers
- jeans
- dress
- LongTrousers
- shortskirt
- skirt

person_activity

- Calling
- Pulling

CLEAR FILTERS

98 Results

Items per page 100 0 - 98 from 98

Preview Object

Object Type: person

Object ID: person46

documentName: airport.mp4

OPENINVIDEODetail

Search across all videos using appearance characteristics of people

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