



Unified Data Analytics: Depth and Breadth of Advanced Capabilities

OWL Intelligence Platform: A Comprehensive Technical Overview



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Please Note: Certain features and functionality are not completed or currently under development.

The OWL Intelligence Platform

The OWL Intelligence Platform is a Unified Data Analytics Platform that offers significant benefits to law enforcement agencies by providing advanced tools and capabilities to handle and analyze large volumes of data. Here are several ways in which the OWL platform can assist law enforcement agencies:

Data Integration and Centralization:

Law enforcement agencies deal with data from various sources such as crime reports, surveillance footage, social media, private and public records. A Unified Data Analytics Platform can integrate these disparate data sources, centralizing information for a comprehensive view.

Crime Pattern Analysis:

Predictive analytics tools can help identify patterns and trends in historical crime data. This allows law enforcement to allocate resources more effectively, anticipate potential hotspots, and proactively address emerging issues.

Real-time Data Analysis:

The platform's ability to handle real-time data allows law enforcement to respond promptly to developing situations. Monitoring social media, emergency calls, and other live data sources can aid in situational awareness and crisis response.

Investigation Support:

Data exploration and visualization tools assist investigators in analyzing complex relationships between individuals, locations, and events. This can be crucial for solving cases, identifying suspects, and building evidence.

Information Sharing and Collaboration:

The platform facilitates collaboration between different law enforcement agencies by providing a centralized platform for sharing insights, updates, and critical information. This can enhance coordination and improve overall public safety.

Compliance and Data Governance:

Adherence to regulatory requirements, such as CJIS (Criminal Justice Information Services) security policies, is crucial for law enforcement. The platform ensures data governance, security, and compliance with legal standards, safeguarding sensitive information.

Record Management:

Efficient record management capabilities help law enforcement maintain accurate and organized records. This is essential for tracking criminal histories, managing evidence, and ensuring the integrity of case-related information.

Deconfliction:

As new data is imported into the OWL platform the OWL autoDeconfliction AI module will analyze the data attributes imported and commence various routines to compare the newly imported source data with existing data attributes (stored in structured or unstructured formats) in cases, subjects, all record types and within documents in OWLdocs and all data within OWLvault. A detailed report indicating the newly imported information, files, data, and the connections/links it has found within OWL will be available for the user.

Data Retention and Retrieval:

The platform's data retention policies ensure that information is stored appropriately, meeting legal requirements. This aids in maintaining an auditable trail and simplifies the retrieval of historical data when needed.

Data Collaboration with Other Agencies:

Integration with other government databases and agencies fosters cross-agency collaboration. This can be crucial in addressing complex cases that span jurisdictions or involve multiple law enforcement entities.

Customized Reporting:

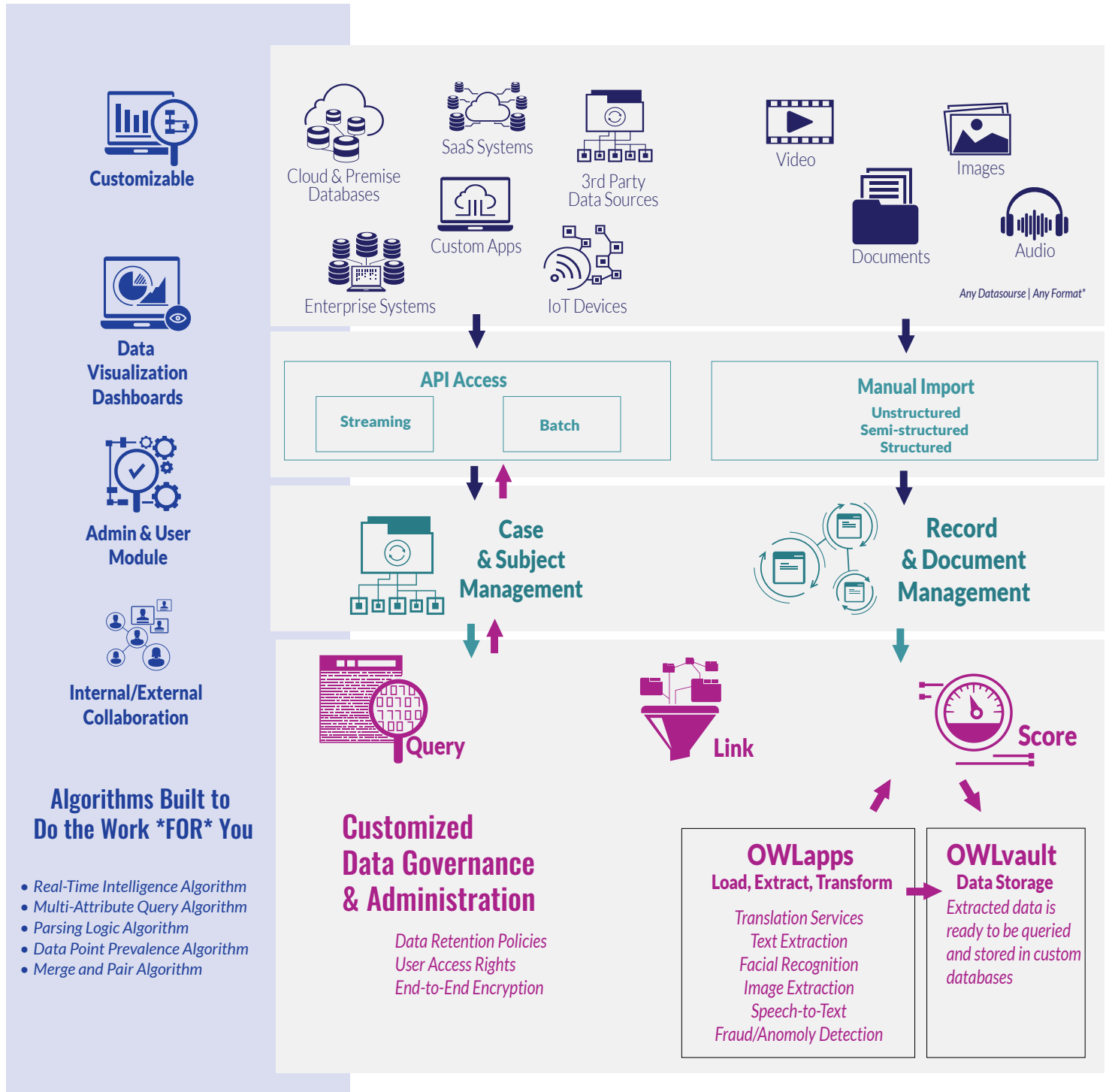
Law enforcement agencies can generate customized reports to suit their specific needs. This flexibility enables the creation of reports tailored to different types of investigations, crime analyses, or regulatory reporting requirements.

Security Measures:

Advanced security features, such as IP authentication and multi-factor authentication, help protect sensitive data, ensuring that only authorized personnel have access to critical information.

By leveraging the capabilities of the OWL Intelligence Unified Data Analytics Platform, law enforcement agencies can enhance their operational efficiency, improve decision-making processes, and ultimately contribute to more effective crime prevention and public safety initiatives.

The OWL Intelligence Platform



Case Management

OWL provides a robust platform for managing the lifecycle of cases and investigations. This section details how OWL supports law enforcement and government agencies in their crucial work.

Case Management

Inside OWL, cases and subjects, entities, and object details are centrally organized, allowing for the comprehensive management of cases. The platform supports the addition of various file types to case records, including documents, images, and videos, alongside the capability to maintain detailed notes and organize data pertinent to subjects within a case.

Subject, Entity and Object Management

OWL facilitates the management of subjects, entities, and objects that are the focus of investigations, streamlining the process of handling information on individuals or groups under scrutiny for various reasons.

Data Queries

OWL supports non-coding required data queries, allowing users to gather essential information for investigations directly. Queries are adaptable to the specifics of the case, drawing from a range of data sources available through OWL, including both internally hosted databases and those accessible via external APIs.

Forms

The OWL Form Module, accessible through the OWL template manager, allows for the customization of forms, catering to the specific needs of law enforcement and government agencies. This feature ensures data collection is standardized, accurate, and consistent. Example form templates include;

- Incident Report Form
- Arrest Report Form
- Search Warrant Application
- Affidavit
- Witness Statement Form
- Complaint Form
- Use of Force Report
- Freedom of Information Act (FOIA) Request Form
- Citizen Survey Forms
- Missing Person Report Form
- Firearms Transfer Record (ATF Form 4473)

Information Sharing

OWL supports multiple methods for information sharing and collaboration. Administrators have the flexibility to tailor external sharing settings, and can also manage internal sharing permissions across departments and teams, ensuring controlled access and distribution of information. [Read More Here](#)

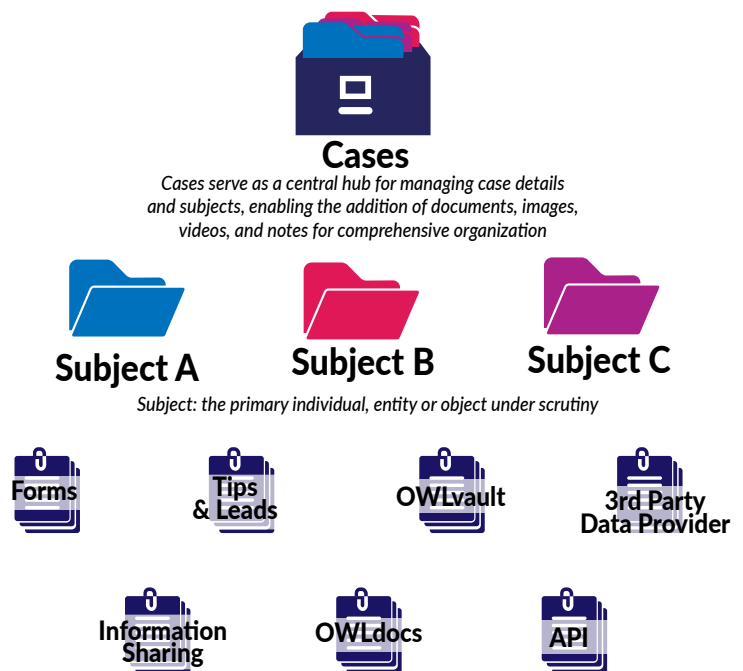
Tips & Leads

This feature enables administrators and organizations to establish their own “Tips & Information Program” by providing a tool that facilitates the integration of a user-facing webform via embedding/iframe into any website. This allows agencies to receive submissions from their community members or constituents. Agency administrators can configure the form to accept submissions anonymously or require the submission of a name and contact information.

Audit Logs

OWL maintains comprehensive audit logs, capturing a detailed record of user activities, system changes, and security events, enhancing platform security and accountability. Logged activity includes, but is not limited to;

- User Activity
- Data Access and Modifications
- Configuration Changes
- Security Events
- Compliance Tracking
- Integration Events
- Error and Exception
- Audit Trail Retention
- Administrator Activities
- Time Stamps
- Access Control Changes
- Policy Violations



Data Queries & Data Sources

Data queries play a vital role in investigations, extracting needed information from diverse sources linked to OWL, including APIs and the OWLvault, and can be directly associated with a specific subject or the entire case.

Case Management Features

This section details how the OWL Case Management Module supports case management processes, data security, and operational workflows.

User Access and Permissions

The module offers configurable user access and permissions, utilizing role-based access controls (RBAC) and license types. This allows administrators to tailor user access to data, modules, and functionalities according to individual roles or licenses, safeguarding sensitive information and enabling appropriate collaboration levels.

Workflow Automation

OWL's Intelligent Process Automation (IPA) module streamlines and automates workflows within all modules within the OWL platform, ensuring that tasks are assigned, monitored, and completed in a systematic manner. [Read More Here](#)

Communication and Collaboration Tools

OWL integrates advanced Communication and Collaboration Tools that enable teams to work together more effectively, regardless of their physical locations. Secure messaging, document sharing, and real-time collaboration features ensure that everyone is on the same page, enhancing the collective ability to respond to challenges swiftly.

Analytics and Reporting

OWL transforms data into actionable insights with powerful Analytics and Reporting tools. Leveraging advanced algorithms and data visualization techniques, users can uncover patterns, trends, and correlations across vast datasets. Customizable reports support a wide range of strategic and operational needs, from tactical decision-making to strategic planning.

Integration with External Systems

Understanding the diverse ecosystem of tools and databases in use today, OWL offers seamless Integration with External Systems.

Whether it's leveraging pre-built cloud connectors, integrating with proprietary systems, or connecting to federated databases, OWL ensures that all your data sources can be unified within the platform for enriched intelligence gathering and analysis.

Audit Trails

Ensuring integrity and compliance, OWL maintains detailed Audit Trails for all data interactions. This not only supports forensic investigations but also underpins compliance with regulatory requirements. Every data access, modification, or deletion is recorded, providing a transparent record that supports accountability and governance.

Compliance and Security

At the core of OWL's design is a profound commitment to Compliance and Security. Adhering to the highest standards, including NIST 800-053, CJIS, and ISO-27001, OWL ensures that data is protected through end-to-end encryption, access controls, and comprehensive compliance frameworks. Regular updates and vulnerability assessments keep the platform secure against evolving threats.

Case Management Tools

OWL offers a suite of tools designed to optimize case management processes, enhancing the usability and functionality of the platform.

- **View and Filtering** View and filter all record types within the Case Management module by a host of data attributes including case types, status, record owner, dates, and unique data attributes.
- **Attach and Detach Records** Attach and detach any document to Cases, Subjects, Forms, Information Sharing records as well as TIPS & Leads and identities.
- **Template Builder** Customize templates for Cases, Subjects, Forms, Information Sharing records as well as TIPS & Leads using the OWL template builder.
- **Case Dossier** View, print and collaborate complete case dossiers with outside third parties in PDF, XLS and CSV formats.
- **Customized Reporting** Customize reports by moving or hiding data containers to your specifications. Delivered in PDF, XLS and CSV formats.

Records & Document Management

Data Integration & Ingestion Capabilities

The OWL Intelligence Platform streamlines data integration and ingestion, allowing the merging of diverse data sources, whether internal or external, into one system. It enables building databases from various files and integrating all types of data systems, simplifying data management across the organization.

Data Integration Options

- **Pre-Built Cloud Connectors:** Offers an array of pre-configured cloud connectors, reducing the overhead associated with the management and maintenance of critical cloud data sources. This feature simplifies access to essential cloud-based information, enhancing the platform's integration capabilities.
- **Integration with Organizational Databases and Systems:** Enables connection to and querying of internal data, regardless of its location within the organization, via custom APIs developed by the OWLtech Team. This ensures seamless data flow and accessibility across different segments of the organization.
- **Data Writeback Functionality:** Facilitates the bidirectional flow of data, allowing for the exportation of processed information back into internal technological systems, either manually or automatically. This integration leverages OWL's bidirectional architecture to enhance data utility within the organization's existing IT infrastructure.
- **IoT Device Integration:** Provides capabilities to connect with and act upon data from IoT devices within the network, such as traffic cameras or utility systems. This includes sending commands back to those devices, leveraging write-back capabilities to interact with the physical environment based on analyzed data.
- **Manual Upload and Import Options:** Allows for the manual importation of a diverse array of file types into OWL, including but not limited to documents, images, audio and video files, flat files, spreadsheets, workbooks, and emails, accommodating a wide range of data ingestion needs.
- **Real-Time Data Streaming:** Supports the ingestion of real-time data streams, including video, audio, and application logs, as well as data from website clickstreams and IoT devices. This capability enables immediate data processing and analysis, allowing users to act on incoming data without delay.

Custom API Development for Data Integration:

For organizations looking to enhance their data integration capabilities, OWL offers custom API development services tailored to connect disparate or third-party databases efficiently. Managed by our technical development team, this service streamlines data exchange and communication between systems, tailored to meet the specific requirements of your organization.

Requirement Analysis

Our initial step involves a collaborative analysis with your team to pinpoint the exact needs for database integration. This process assesses the data exchange requirements, including the types and frequencies of data updates, alongside critical security and compliance considerations.

Data Mapping and Schema Design

We conduct a comprehensive examination of the data structures in both source and target databases to identify and map common data fields. This crucial phase ensures that data remains consistent and compatible across different systems, facilitating smooth data exchange.

API Design and Implementation

Our technical architects then proceed to design the API with a focus on robustness and efficiency. The design includes defining the API endpoints, data exchange protocols, authentication methods, and strategies for handling potential errors. The aim is to create an API that not only meets the functional requirements but is also secure and easily maintainable.

Performance Optimization

In the final stage, we focus on optimizing the API for performance, reducing latency, and streamlining data transfer processes. By minimizing unnecessary data exchanges and enhancing data processing efficiency, we ensure that the API performs optimally under all conditions.

Data Processing and Extraction with OWLapps

With the data now centralized, the OWL Intelligence Platform offers a suite of OWLapps, including advanced ETL tools, to optimize this data for analysis and action.

OWLimport – Structured Data Integration

OWLimport facilitates the integration of structured data into OWLvault, enabling the creation of tailored databases for comprehensive querying and analysis within the OWL platform. By mapping data attributes from CSV, XLS, or JSON files to corresponding OWL data fields, users can efficiently populate OWLvault with their organizational data, ensuring seamless access and visualization across OWL's analytical tools.

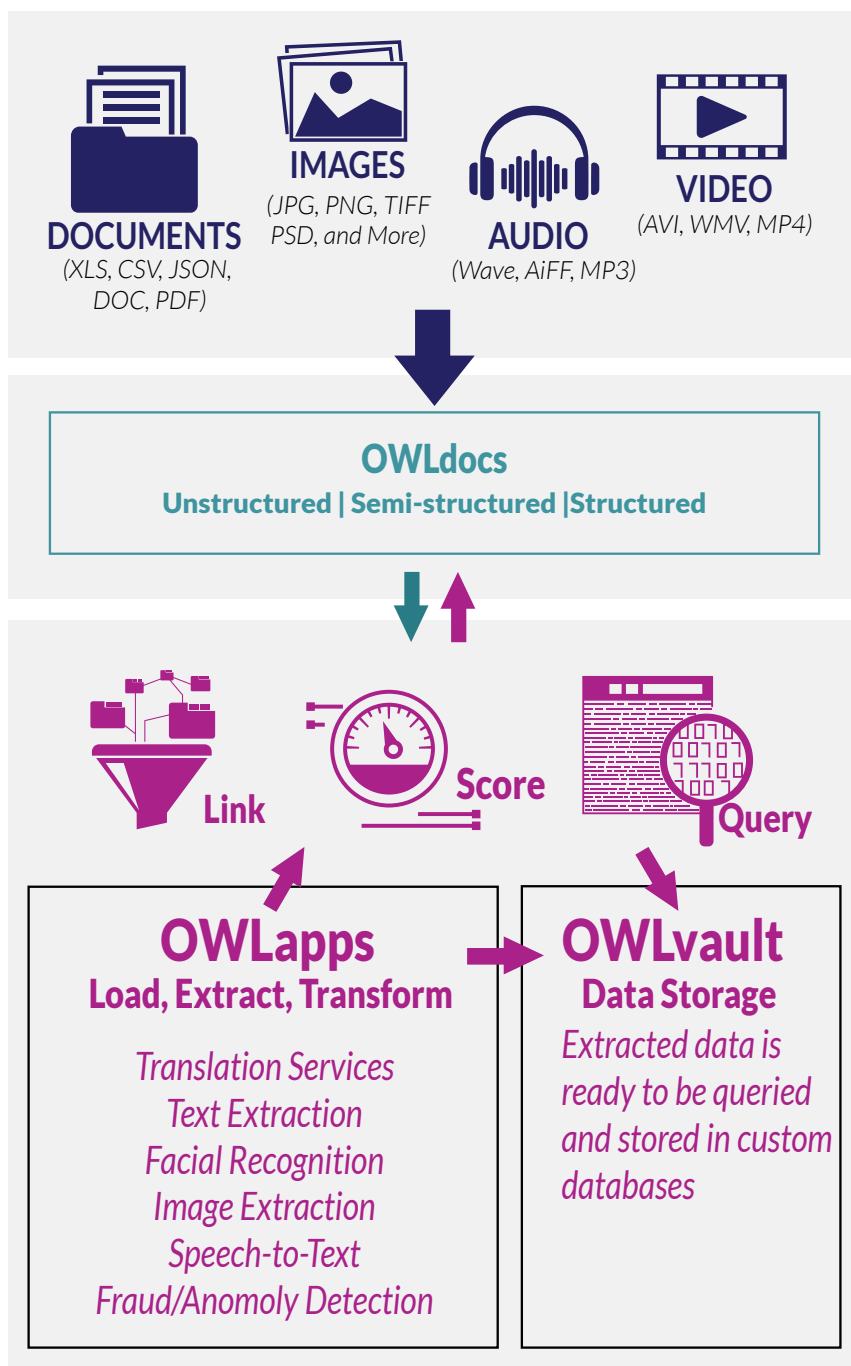
Users can create customized databases, continually import records into the databases and have fully searching immediately via the OWL Query module.

OWLextract – Document Extraction:

OWLextract is a service embedded in OWLdocs for extracting text and data from documents. OWLextract uses machine learning algorithms to analyze and extract content such as text, forms, and tables from scanned documents, PDFs, and images. Here are key features and aspects of OWLextract:

- **Text Extraction:** OWLextract extracts text from scanned images, PDFs, and other document formats, making every word searchable and accessible.
- **Structured Data Extraction:** Beyond mere text extraction, it can discern and extract structured data like forms and tables, turning them into organized, analyzable datasets.
- **Form and Table Parsing:** With the capability to parse detailed information from forms and tables, OWLextract delivers structured data outputs, ready for further analysis.
- **Automatic Document Classification:** It automatically categorizes documents into predefined categories, streamlining the organization and processing of vast document collections.
- **Support for Multiple Document Formats:** Versatility is a hallmark of OWLextract, supporting various document formats including PDFs and common image files, catering to diverse documentation needs.

Language extraction and search capabilities extend to English, French, Italian, Portuguese, German, Spanish, including handwritten English.



Data Processing and Extraction with OWLapps

OWLIdentify – Visual Content Analysis:

OWLIdentify is OWL's image and video analysis service embedded inside OWLdocs. OWLIdentify uses machine learning and computer vision to analyze and interpret visual content. Here are key features and aspects of OWLIdentify:

- **Facial Recognition:** This tool accurately identifies and analyzes faces within visual content, detecting nuances like facial landmarks, emotions, and demographic attributes such as age and gender.
- **Object and Scene Detection:** Beyond faces, OWLIdentify can recognize objects, scenes, and activities, providing detailed insights about the visual content.
- **Text Detection:** Employing OCR technology, it detects and extracts text from images and videos, further enhancing data extraction capabilities.
- **Celebrity Recognition:** Connected to external databases, OWLIdentify can identify celebrities within visual content, adding another layer of data interpretation.
- **Pathing and Analysis:** This feature tracks the movement and paths of objects or individuals in videos, offering insights into the temporal dynamics of the visual content.
- **Custom Labels:** Users can train OWLIdentify to recognize specific labels to their use case, enhancing its applicability to industry-specific needs.
- **Face Comparison and Similarity:** It analyses faces to determine similarity or compare identities, useful in various security and analytical applications.
- **Content Moderation:** With content moderation capabilities, OWLIdentify helps filter out inappropriate or unsafe content in images and videos.
- **Streaming Video Analysis:** Supporting real-time video analysis, this feature is indispensable for live monitoring and data extraction.

Additional OWLapps for Enhanced Data Insight

- **OWLspeech:** Transforms spoken language into text in over 103 languages and dialects, aiding transcription and analytics.
- **OWLdiscover:** Applies natural language processing to extract deep insights from text data.
- **OWLdetect:** Identifies anomalies and patterns, crucial for fraud detection and trend analysis.
- **OWLtranslate:** Breaks language barriers with translation services across 75 languages, supporting 5550 translation combinations.

OWLtranslate Supported Languages and Dialects

- | | | | |
|-------------------------|-------------------|-------------------------|--------------------|
| • Afrikaans | • Finnish | • Korean | • Sinhala |
| • Albanian | • French | • Latvian | • Slovak |
| • Amharic | • French (Canada) | • Lithuanian | • Slovenian |
| • Arabic | • Georgian | • Macedonian | • Somali |
| • Armenian | • German | • Malay | • Spanish |
| • Azerbaijani | • Greek | • Malayalam | • Spanish (Mexico) |
| • Bengali | • Gujarati | • Maltese | • Swahili |
| • Bosnian | • Haitian Creole | • Mongolian | • Swedish |
| • Bulgarian | • Hausa | • Marathi | • Filipino Tagalog |
| • Chinese (Simplified) | • Hebrew | • Norwegian | • Tamil |
| • Catalan | • Hindi | • Farsi (Persian) | • Telugu |
| • Chinese (Traditional) | • Hungarian | • Pashto | • Thai |
| • Croatian | • Icelandic | • Polish | • Turkish |
| • Czech | • Indonesian | • Portuguese | • Ukrainian |
| • Danish | • Irish | • Portuguese (Portugal) | • Urdu |
| • Dari | • Italian | • Punjabi | • Uzbek |
| • Dutch | • Japanese | • Romanian | • Vietnamese |
| • English | • Kannada | • Russian | • Welsh |
| • Estonian | • Kazakh | • Serbian | |

Regulatory, Data Access, Policies, Retention

Data Classification & Access Rights

OWL's Classification & Access Rights module allows for the classification of data and setting up hierarchy access rights which involves organizing and categorizing data based on its sensitivity or importance and establishing levels of access rights according to a hierarchical structure. This process is critical for ensuring that information is appropriately protected, and access is granted only to authorized individuals based on their roles and responsibilities.

Juvenile Compliance

Managing law enforcement records of a minor involves handling sensitive information with special consideration for the minor's age, privacy rights, and legal protections. Law enforcement agencies need to adhere to relevant laws and regulations to ensure the proper handling, storage, and access to records involving minors. OWL juvenile compliance module allows users to classify all records within OWL to meet these requirements. The Age Out function processes when the juvenile becomes an adult and commences classification accordingly.

Access Rights

OWLdocs offers sophisticated access rights controls, allowing precise management over data interaction. This critical feature ensures the security of sensitive information and the integrity of your data ecosystem.

Retention Policies:

Complying with legal and regulatory requirements, OWLdocs enables organizations to set and automate data retention policies. This crucial functionality supports legal compliance while optimizing data storage practices.

Compliance Frameworks

Meeting standards for data access in compliance with various regulations, including PII (Personally Identifiable Information), GLBA (Gramm-Leach-Bliley Act), DPPA (Driver's Privacy Protection Act), HIPAA (Health Insurance Portability and Accountability Act), HITECH (Health Information Technology for Economic and Clinical Health Act), FERTECG (Federal Employee and Contractor Trust Act) and other US or global compliance frameworks involves implementing robust security measures and ensuring strict adherence to privacy and data protection requirements as well as the access to data attributes based on role types within the OWL platform.

28 CFR Part 23 Compliance

Title 28 of the Code of Federal Regulations (CFR) Part 23 sets forth the regulations regarding criminal intelligence systems maintained by criminal justice agencies. Compliance with 28 CFR Part 23 is crucial for maintaining the integrity, privacy, and security of criminal intelligence data. The OWL platform allows agencies to develop and adhere to data retention policies that align with the requirements of 28 CFR Part 23. Agencies can define the duration for which criminal intelligence data will be retained and implement secure and irreversible methods for the disposal of criminal intelligence data when it reaches the end of its retention period. Digital certifications of collaborators acceptance of 28 CFR Part 23 regulations is required before collaboration can be granted.

Advanced Query Capabilities

With OWL's proprietary data fusion technology, powered by the OWLgorithm suite, complex queries can be completed quickly and without the need for custom code

By Data Source

OWL's query by data source allows the user to select any and all data sources from the OWL marketplace as well as all cases and record types within OWL including OWLdocs and OWLvault. The process includes specifying the attributes you are interested in, setting conditions for filtering the data, and retrieving the matching records.

Geospatial

Leveraging ESRI arcGIS users can select individual structures, geographic ranges and polymorphic shapes to geofence an area and identify all addresses within the geofence. All data sources connected to the user account, as well as all cases, subjects, forms, TIPS, Information Sharing and OWLdocs and OWLvault records that have an address and allow for querying will do so.

Keyword Search – Structured & Unstructured

OWL's keyword database search allows for the searching for specific keywords within any of the cases, subjects, data queries, forms, Information sharing records, TIPS & Leads records, documents within OWLdocs or extracted data in OWLvault's structured and unstructured database to retrieve relevant information as well as connected databases allow for keyword search capabilities.

Specify Search Fields:

Specify the fields or attributes within the database where you want to search for the keywords. This helps narrow down the search and retrieve more accurate results.

Boolean Operators:

Employ Boolean operators (AND, OR, NOT) to refine your search. For example, use "AND" to find records containing both keywords, "OR" to find records containing either keyword, and "NOT" to exclude specific keywords.

Wildcard Characters:

Utilize wildcard characters, such as asterisks (*) or question marks (?), to represent partial or unknown portions of words. This is useful for broader searches.

Quotation Marks:

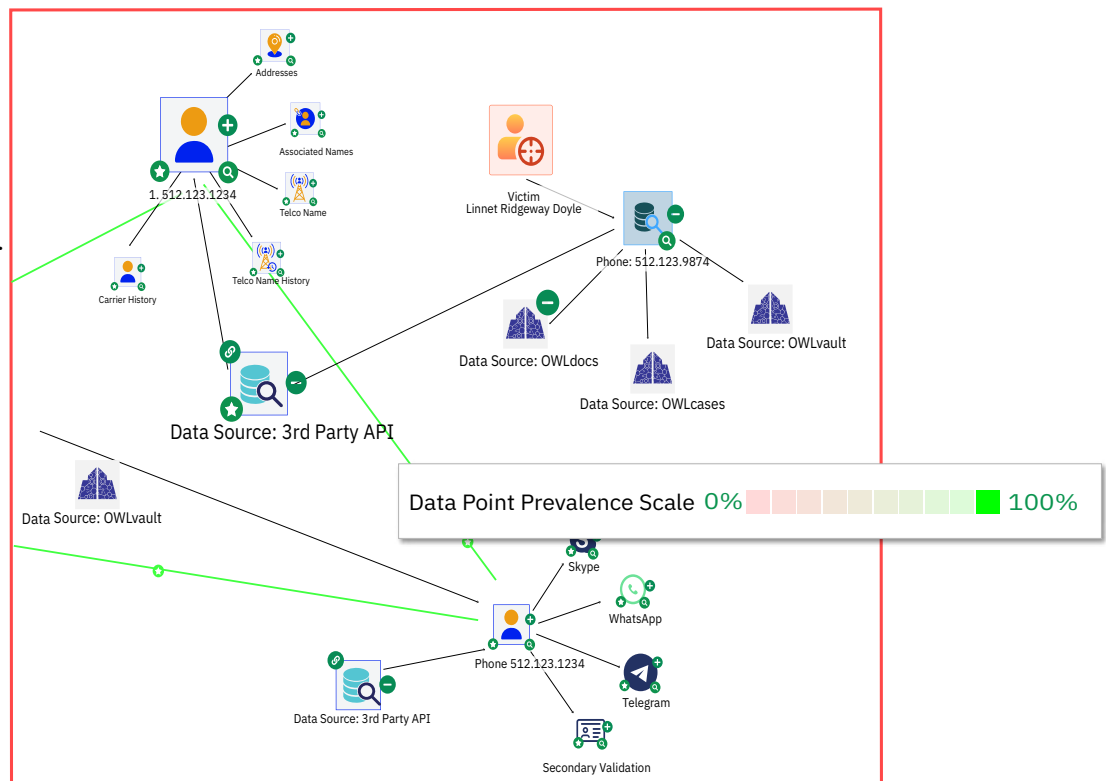
Use quotation marks to search for exact phrases. For example, searching for "data science" within quotation marks ensures that the two words appear together in the specified order.

Case Sensitivity:

Check whether the database search is case-sensitive. Some systems differentiate between uppercase and lowercase letters in search queries.

Large Language Model

OWL's LLM is a deep learning algorithm specifically designed for handling natural language. It can tackle tasks such as language generation, classification, and more.



Advanced Query Capabilities

Video and/or Picture

Both video and picture queries leverage OWLvault and OWLidentify applications. Whether you want to run a video clip or a singular image, this query will run the uploaded file across all images and videos in your stored databases or attached to any case, subject or other document or record within the OWL Intelligence Platform.

Monitoring – Changes to Data Results and Queries at the Source

Setting up AI monitoring for changes in data sets and automating the process to return information without human intervention involves utilizing OWL's data monitoring tools, AI algorithms, and scheduling mechanisms all within the OWL Intelligence Platform. By configuring the OWL monitoring feature you can establish an automated AI-based data monitoring system that detects changes in your datasets at scheduled intervals, alerts relevant stakeholders, and facilitates timely decision-making without the need for human intervention.

Monitoring

Below is selected search parameter and product for for automatic re-run execution

First Name:	Last Name:	Product
Simon	Doyle	Whooster-Person

Automatically re-run the search

From Date

Last Date

First Name:

- Daily
- Twice Daily
- Weekly
- Monthly**

Data Verified returned matched to existing all new data highlighted in OWL

Notification to User (team/dept) via text message or email.

OWL autoDeconfliction

OWL autoDeconfliction (AI), As new data is imported into the OWL platform the OWL autoDeconfliction AI module will analyze the data attributes imported and commence various routines to compare the newly imported source data with existing data attributes (stored in structured or unstructured formats) in cases, subjects, all record types and within documents in OWLdocs and all data within OWLvault. A detailed report indicating the newly imported information, files, data, and the connections/links it has found within OWL will be available for the user.

OWLgorithms: Data Point Prevalence

The OWL Data Point Prevalence Algorithm is a comprehensive scoring system designed to assess the credibility and relationships of data within the OWL Intelligence Platform.

Key Components:

Credibility of the Data Returned:

Definition: This component assesses the reliability and accuracy of the data associated with a specific record or attribute.
Scoring: Assign scores based on the quality and consistency of the data. Higher scores indicate more credible information.

Credibility of the Data Source:

Definition: Evaluates the trustworthiness of the entity or system providing the data.
Scoring: Assign scores based on the reputation, accuracy, and historical reliability of the data source.

Degree of Closeness:

Definition: Measures the proximity or relationship strength between different records or data attributes.
Scoring: Higher scores may be assigned for records that are closely related, indicating a strong connection.

Weight:

Definition: Assigns significance or importance to certain attributes or records based on predefined criteria.
Scoring: Higher weights indicate that specific attributes or records carry more importance in the overall analysis.

Algorithm Operation:

User-Defined Settings:

Definition: Users can pre-define settings that influence how the algorithm scores and evaluates data.
Examples: Setting thresholds, defining criteria for data credibility, specifying weightage for different attributes, etc.

User Manual Scoring Intervention:

Definition: Users have the ability to manually intervene and assign scores to records or attributes.
Purpose: Provides users with the flexibility to incorporate their domain knowledge and confidence levels into the scoring process.

Data Point Prevalence Scale:

Definition: A scale that visualizes the results of the algorithm, incorporating scores from credibility, closeness, and weight.
Purpose: Offers a quick and intuitive way for users to interpret the prevalence and significance of data points within various visualization views.

Data Point Prevalence & Visualization Views

The algorithm's insights are seamlessly displayed across OWL's visualization tools, such as graphs, charts, and network diagrams, showing data point prevalence and relationships for enhanced analysis.

Data Point Prevalence Scale in Views:

This scale within visualization views quantifies the significance of data points, aiding in the interpretation of their importance and relevance.

Data Point Prevalence Scale 0%  100%

User Confidence in Data and Links:

Users can adjust the algorithm's confidence levels through manual scoring, adding a personalized layer of evaluation, particularly beneficial where automated scoring requires additional context. The algorithm evaluates the strength of connections between records, allowing for a deeper understanding of data point relationships.

Overall Benefits:

Customization and Flexibility: Users have the autonomy to adjust algorithm settings and scoring, ensuring adaptability to various analysis scenarios.

Holistic Data Assessment: Evaluating multiple dimensions such as data and source credibility, the algorithm offers a comprehensive view of the data landscape.

Visual Interpretation: Enhanced by visualization tools and the Prevalence Scale, the algorithm simplifies the assessment of complex data relationships, supporting efficient decision-making.

OWLgorithms: Real-time Intelligence

OWL's record linking technology, often referred to as record linkage or entity resolution, is a process that involves identifying and linking related records, entities and data attributes from different datasets. The goal is to recognize instances that represent the same real-world entity, even if they have variations, discrepancies, or errors in the data. Record linking is crucial in various domains, including data integration, data quality improvement, and the creation of comprehensive datasets.

Several techniques and technologies are commonly used in OWL for record linking:

Deterministic Matching

Deterministic matching involves using exact or rule-based criteria to link records with a high degree of certainty. For example, matching records based on a unique identifier like a social security number.

Blocking

Blocking is a technique where records are first divided into smaller groups or blocks based on specific criteria. This reduces the number of record pairs to compare during the linking process, improving efficiency.

Tokenization and Token-based Matching

Tokenization involves breaking strings of text (names, addresses) into smaller units (tokens) for comparison. Token-based matching compares these tokens to identify matches.

Fuzzy Matching

Fuzzy matching techniques allow for linking records that are similar but not identical. This is particularly useful for handling typographical errors, abbreviations, or variations in data.

Machine Learning Models

OWL's machine learning models, such as clustering algorithms or deep learning models, can be trained to recognize patterns and similarities between records for linking purposes.

Data Quality Rules

Applying data quality rules helps identify and resolve issues such as missing values, inconsistencies, or outliers that may affect the accuracy of record linking.

Semantic Matching

Semantic matching considers the meaning or context of data elements, linking records based on their semantic similarity. This can involve the use of ontologies, knowledge graphs, or natural language processing.

Cross-Referencing

Cross-referencing involves comparing records across different datasets by referencing external sources or using unique identifiers.

Identity Resolution

Identity resolution, OWL created tools and algorithms for accurate record linking across diverse datasets.

Privacy-Preserving Techniques

Privacy-preserving record linking techniques aim to link records while protecting sensitive information. This is crucial in scenarios where privacy and data security are top priorities.

Parallel Processing

OWL has deployed parallel processing techniques, across distributed computing frameworks, enabling efficient record linkage by dividing the task into smaller parallelizable units.

OWLgorithms: Parsing Logic

The OWL Parsing Logic Algorithm reviews and analyzes query variables and terms parsing this information to create relationships to one or multiple data sources working in tandem with the OWL Data Source / Data Attribute Selector Algorithm which provides the user a granular ability to select one or multiple databases to be queried in real-time.

- Tokenization and Segmentation
- Pattern Matching and Regular Expression
- Rule-based Parsing
- Natural Language Processing (NLP)
- Machine Learning and Classification
- Feature Extraction and Contextual Analysis
- Probabilistic Methods
- Domain-specific Knowledge and Heuristics

OWLgorithms: Multi-Attribute Query

The OWL Multi-Attribute Query Algorithm works inside the Keyword search integrated into the OWL query module to search a keyword or combination of keywords inside of all data sources and records within OWL.

- The ability to select multiple search terms or keywords.
- Support for searching across multiple data sources simultaneously.
- Real-time search functionality with minimal latency.
- Scalability to handle large datasets and high search volumes.
- Aggregates and merges search results from multiple data sources into a unified view for easy analysis and comparison.
- UI features include filters and search results query builders, based on various criteria, such as relevance, date, source, etc.

OWLgorithms: Merge and Pair

Challenged with redundant or irrelevant data, the OWL Merge Algorithm allows users to merge results from one data set and further merge from multiple datasets to efficiently manage results. OWL's Merge and Pair algorithm allows users to manually merge multiple similar identities from the same or different data sources in the link analysis chart enhancing flexibility and control over data consolidation.

It allows users:

- To visually identify similar identities and manually merge them.
- Provide options to select and highlight multiple nodes representing similar identities.
- Provides a side-by-side comparison of attributes for the nodes being merged, allowing users to review and validate the merging decision.
- Includes intuitive controls for initiating the manual merging process.
- Provides a confirmation mechanism to prevent accidental merges. When users attempt to merge nodes, OWL prompts users to confirm their action before proceeding.
- Includes an option to undo merges or revert changes in case users make mistakes.

Identity Relationship

Merge Identity ✕

Identities	#1 SIMON Q DOYLE, SIMON QUINCY DOYLE <input type="checkbox"/> Select Identity	#2 SIMON DOYLE <input type="checkbox"/> Select Identity	#3 SAMUEL DOYLE <input type="checkbox"/> Select Identity
Names	DOYLE, SIMON Q	DOYLE, SIMON	DOYLE, SAMUEL Q
	DOYLE, SIMON QUINCY		DOYLE, SAMUEL
	DOYLE, SIMON QUINCY		DOYLE, SAMUEL
Dob & Age	DoB: NA Age: 45yrs	DoB: NA Age: 65yrs	DoB: NA Age: 85yrs

Intelligent Process Automation

By leveraging the OWL IPA module organizations can automate routine tasks, streamline workflows, improve productivity, and enhance decision-making capabilities while ensuring compliance and delivering superior customer experiences.

OWL's Intelligent Process Automation (IPA) harnesses artificial intelligence (AI) and machine learning (ML) to automate complex processes across its platform. This suite of tools is designed to automate tasks, orchestrate workflows, manage schedules, and seamlessly integrate with external systems through web hooks, while also employing scoring mechanisms to prioritize and optimize processes.

Workflow Design and Automation:

Visual Workflow Design:

OWL's IPA provides visual editors and workflow designers, enabling the creation and customization of workflows that automate and streamline processes across all OWL modules.

Dynamic Workflow Behavior:

Employing conditional logic and rule-based triggers, workflows adjust in real-time to various inputs such as case attributes or external events, enhancing process efficiency and adaptability.

Task Management and Assignments:

Efficient Task Allocation:

IPA tools automate the assignment of tasks to individuals or groups based on predefined criteria, optimizing workload distribution and operational efficiency.

Automated Scheduling:

Features for schedule management allow for the setting of deadlines and milestones, with automated alerts ensuring tasks are completed timely. Integration with OWL's calendar and third-party systems ensures schedules are synchronized across devices and platforms.

Web Hooks and System Integration:

Seamless System Integration:

Utilizing web hooks, APIs, or connectors, OWL's IPA facilitates real-time data exchange and event triggering with external applications, enhancing the platform's interoperability and responsiveness.

Monitoring and Analytics:

Process Insights:

Monitoring dashboards and analytics reports within OWL offer valuable insights into the performance of automated processes, resource utilization, and adherence to compliance standards.

Visualizing Your Data Query

The OWL Intelligence Platform grants users unparalleled control over how data from investigations is displayed, empowering them to either showcase the entirety of their data or focus on specific attributes for detailed analysis. This versatility is crucial for tailoring data presentation to the needs of each investigation, enhancing both understanding and strategic decision-making.

Link Analysis:

OWL's Link analysis visualization is a method of visually representing relationships and connections between parent, child, grandchild etc. nodes of data attributes of all record types displayed on the link analysis canvas selected by the user. Used with OWL linking and matching algorithms all connections are displayed and scored using the OWL Data Prevalence Score. OWL's technology links all the data attributes requiring the users to re-score connections and links based on their individual rules.

Timeline

OWL's timeline view is a visualization technique to represent information chronologically. The timeline view is effective for understanding patterns, trends, and events over time.

Tabular Report

The tabular report view in OWL is the presentation of data in a structured, table-based format, offering a clear and organized representation of data. It is a versatile and foundational component, providing users with an organized and accessible way to interact with and analyze data.

Card View

Displaying data in a card view format organizes information into individual cards. Each card represents a distinct case, subject or record, inside of OWL and the information is presented in a visually appealing and concise manner.

Relationship Matrix

The relationship matrix view displays all the linked attributes from the link analysis view in an organized presentation of the linked data in a tabular format that is easy to read and analyze.

Geospatial Views:

OWL's geospatial view uses the ESRI arcGIS mapping and analysis tool. All data attributes with address or LAT/LONG data will be displayed within and allow users to efficiently work with these data attributes.

Integrating data with maps, the platform's geospatial view transforms data analysis with powerful spatial insights. From Satellite View's detailed geography to Map View's cleaner visual representation and Street View's panoramic imagery, these tools allow users to visualize data distribution and movements, unlocking new levels of insight.

Heat Map

Displaying data within the OWL heat map view involves representing information in a visual grid format where values are represented by different colors. This type of visualization is effective for highlighting patterns, trends, or variations in data, especially when dealing with large datasets. The benefits of this view include Pattern Recognition - Visual Patterns - Data Comparison - Relative Comparisons - Data Density - Visual Impact. The use of colors makes the visualization engaging and easier to interpret and allows users to quickly grasp the distribution and concentration of values for Multidimensional Analysis.



Data Visualization Tools & OWLgorithms

Record Merge

OWL allows users to merge data visualization nodes to combine or aggregate data attributes, or any record type returned or displayed in a graphical representation, often in the context of network or graph visualizations. Functionality includes Grouping Nodes - Aggregating Attributes - Hierarchical Representations - Dynamic Clustering - Custom Visual Indicators - Link Strengths - Dynamic Filtering - Community Detection Algorithms - Weighted Averaging - Size and Color Encoding.

Data Point Prevalence Score

The OWL Data Point Prevalence Algorithm is a comprehensive scoring system designed to assess the credibility and relationships of data within the OWL Intelligence Platform.

Exact or Phonetic Match

When viewing data results within OWL's various data visualization views using exact or phonetic matches, it involves searching for and displaying the records that are either an exact match or a phonetic equivalent of a specified term based on the users requirements. OWL's algorithms utilize functions and methods in your query that apply the OWL's phonetic algorithm to both the search term and the data in the database. The goal is to find records with similar phonetic representations.

Data Visualization Manager

The Data Visualization Manager further refines the data filtering process, allowing for filtering and sorting by record type or attribute, ensuring that users can easily navigate and analyze their data.

Advanced Record Linking in OWL

OWL's record linking technology, often referred to as record linkage or entity resolution, is a process that involves identifying and linking related records, entities and data attributes from different datasets. The goal is to recognize instances that represent the same real-world entity, even if they have variations, discrepancies, or errors in the data. Record linking is crucial in various domains, including data integration, data quality improvement, and the creation of comprehensive datasets. Several techniques and technologies are commonly used in OWL for record linking:

Deterministic Matching

Deterministic matching involves using exact or rule-based criteria to link records with a high degree of certainty. For example, matching records based on a unique identifier like a social security number.

Blocking

Blocking is a technique where records are first divided into smaller groups or blocks based on specific criteria. This reduces the number of record pairs to compare during the linking process, improving efficiency.

Tokenization and Token-based Matching

Tokenization involves breaking strings of text (names, addresses) into smaller units (tokens) for comparison. Token-based matching compares these tokens to identify matches.

Fuzzy Matching

Fuzzy matching techniques allow for linking records that are similar but not identical. This is particularly useful for handling typographical errors, abbreviations, or variations in data.

Machine Learning Models

OWL's machine learning models, such as clustering algorithms or deep learning models, can be trained to recognize patterns and similarities between records for linking purposes.

Data Quality Rules

Applying data quality rules helps identify and resolve issues such as missing values, inconsistencies, or outliers that may affect the accuracy of record linking.

Semantic Matching

Semantic matching considers the meaning or context of data elements, linking records based on their semantic similarity. This can involve the use of ontologies, knowledge graphs, or natural language processing.

Cross-referencing

Cross-referencing involves comparing records across different datasets by referencing external sources or using unique identifiers.

Identity Resolution

Identity resolution, OWL created tools and algorithms for accurate record linking across diverse datasets.

Privacy-Preserving Techniques

Privacy-preserving record linking techniques aim to link records while protecting sensitive information. This is crucial in scenarios where privacy and data security are top priorities.

Parallel Processing

OWL has deployed parallel processing techniques, across distributed computing frameworks, enabling efficient record linkage by dividing the task into smaller parallelizable units.

Information Sharing and Collaboration

The OWL Intelligence Platform equips administrators with the tools to define and manage access to records and information, ensuring robust data security and adherence to privacy standards.

Collaboration Configuration

Administrators can set up collaboration permissions as broadly or narrowly as necessary, tailoring access to the specific needs of the organization.

Collaboration Scope Includes

Intra-departmental Collaboration

Enables users within the same department or team to collaborate.

Inter-departmental Collaboration

Facilitates collaboration across different departments or teams within the organization.

External Collaboration

Allows access to external organizations and users, with adjustable permissions including read/write capabilities and time-limited access.

Access Management

Supervisory Controls

Implement supervisor review and approval for critical actions and access requests.

Temporary and Secure Access

Grant temporary access to individuals outside the platform through time-based links or password-protected reports, which can be delivered via email.

Dynamic Collaboration

Users can add collaborators instantly, whether internal or external, from any module or view within the platform.

Collaboration Methods

SMS/Text

For immediate, on-the-go communication, send time-sensitive links containing query results via text, with adjustable expiration settings for access.

Email

Distribute password-protected reports or provide time-based access through secure email links, ensuring controlled dissemination of information.

OWLcity: Elevating Geospatial Intelligence

The OWLcity module revolutionizes the way geospatial data is utilized, leveraging cutting-edge technology to aggregate and stream real-time data from a myriad of sources, including Bi-directional APIs and IoT devices. This advanced module not only links data in real-time but also situates it within the geographical context, unveiling relationships, pinpointing critical locations, optimizing routes, and deciphering patterns for predictive analysis.

Intuitive Geospatial Analysis for Dynamic Insights

OWLcity transforms geospatial analysis, offering users an enriched interactive experience. By superimposing additional layers of information onto the geographical base, such as real-time locations of individuals, criminal activities, flight paths, maritime movements, weather conditions, traffic flows, traffic cams and utility grids. OWLcity unveils a level of data visualization far beyond the capabilities of traditional static maps.

Actionable Location Intelligence for Strategic Operations

This module provides an unparalleled platform for actionable location intelligence, enabling users to:

- **Discover Connections:** Uncover how various data points are interlinked within a geographical context.
- **Identify Concentrations:** Determine where the bulk of activities or events are taking place.
- **Timeline Analysis:** Trace the timing and sequence of events to understand historical trends and anticipate future occurrences.
- **Proximity Insights:** Explore what significant data points or events are in close proximity to key locations.
- **Growth Mapping:** Identify regions exhibiting the most significant growth or decline.
- **Comparative Analysis:** Assess areas to determine which are performing above or below the average in specific metrics.

Leveraging Real-Time Data for Comprehensive Visualization

With OWLcity, users gain access to a dynamic form of data visualization, integrating streaming real-time data with traditional geospatial views. This capability enables not just the visualization of data in the context of location but also the live monitoring of changes and developments as they happen. Whether it's understanding the spatial dynamics of an emerging situation or conducting in-depth analysis for long-term planning, OWLcity equips users with the tools to make informed, geographically-informed decisions.

OWL Administration and Security

User Management Settings

Users

OWL's User Management module is a component within the OWL platform that focuses on the administration, authentication, authorization, and overall management of users and their access to the system. This module is crucial for maintaining security, ensuring compliance, and providing a seamless user experience.

Department / Team Management

OWL's Department/Team modules is a component designed to manage and organize groups of users based on their roles, responsibilities, or project affiliations within an organization. This module is crucial for efficient collaboration, task delegation, and streamlined communication within teams.

Roles

Setting up user roles in the OWL platform is a critical aspect of access management and security. User roles define the level of access, permissions, and responsibilities that different users or groups of users have within the system.

Organization Management

OWL's organization management module controls the Super Administrator and the ability to pre-build role access to the OWL platform.



Super Administrator

Oversees the entire ecosystem, wielding ultimate control and decision-making power.



Team Admin

Team Admins are direct lieutenants of the Super Administrator, each governing a quadrant of departments/teams. This can be configured to be required or not required based on the needs of the organization



Team C



Team C Supervisor



Team A



Team B



Team A Supervisor



Team B Supervisor



Team C Members



Team A Members



Team B Members



External Collaborators

Case Management Settings

Cases

OWLadmin case management module allows admins to customize functions and features for the entire organization or customization at the Dept/Team level. Case creation required, case types, case status, auto generation of case # are some of the features that can be customized.

Template Builder

A robust template builder allowing admins to create custom UI's, forms and other input screens from a global attribute database of thousands of pre-defined fields. Custom list with select, multi-select and other features provided.

OWL Administration and Security

Data Administration Settings

Audit Logs

As an Admin you have access to all users or as a supervisor you have access to all your Dept/Team members audit logs. OWL's audit logs refer to the detailed records or logs of activities and events that occur within the OWL application. These logs capture information about user interactions, system changes, security events, and other activities within the OWL environment. The purpose of maintaining audit logs is to enhance security, compliance, and accountability by providing a comprehensive and chronological record of what happens within the OWL platform.

Record Management

As an Admin you have access to all users or as a Supervisor you have access to all your Dept/Team members cases, subjects, data queries, forms, information sharing records, TIPS & Leads, OWLdocs and OWLvault records.

Trash Bin

All deleted records are transferred to the Trash Bin and will be permanently deleted after a set number of days selected by the administrator of the OWL account.

Export

The OWL Data Export module allows users to extract and download their data from the platform. Users can filter by various modules, data attributes, dates, and users to name a few. This module is crucial for ensuring data portability, compliance with regulations, and providing users with the ability to back up or analyze their information outside of the OWL platform.

Backup

The OWL Backup module creates a complete file of all of an organization's records within OWL on a pre-defined scheduled and allows for downloading the file to another device.

Data Access and Compliance Settings

Account administrators have the ability to configure data access, classification, retention policies, and compliance settings to ensure data integrity and adherence to legal standards.

- **Classification & Access Rights:** This module enables the organization and categorization of data based on sensitivity, with hierarchical access rights to ensure data is accessed only by authorized personnel according to their role.
- **Juvenile Compliance:** Special protocols are in place for handling minors' records, aligning with legal protections and privacy rights to ensure sensitive information is appropriately managed.
- **Retention Policies:** Administrators can establish guidelines for data retention, including archiving schedules and deletion protocols, to comply with legal requirements and optimize storage.
- **28 CFR Part 23 Compliance:** Supports the development of policies for criminal intelligence data, ensuring its integrity, privacy, and security in line with regulatory standards.
- **Compliance Frameworks:** OWL adheres to a wide array of regulatory standards, including PII, GLBA, DPPA, HIPAA, HITECH, FERTECG, and more, implementing stringent security measures to protect data and regulate access based on user roles.

Information & Collaboration Settings

Records Collaboration Setup

This is an Administrator module to configure how information is shared between users within a single department/team.

Cross Dept / Teams Collaboration

This is an Administrator module to configure how information is shared between users within different departments/teams within OWL. It also handles the approval process by a supervisor approving or denying a users request to collaborate via read/write with another individual(s) in another department. Time based access can be set as well.

External Collaboration

This is an Administrator module to configure how information is shared between users from an outside organization or agency within OWL. It also handles the approval process by a supervisor approving or denying a users request to collaborate via read/write with another individual(s) in another organization or agency. Time based access can be set as well.

OWL Administration and Security

Deconfliction

This module allows the administrator or supervisors to manage and setup the Deconfliction module. OWL's deconfliction module is a process of identifying and resolving potential conflicts or overlaps between different users working on related cases. The goal is to ensure efficient coordination, avoid duplication of efforts, and maintain the integrity of investigations. Deconfliction can occur when querying data sources, cases, subjects, all other records, OWLdocs and OWLvault records or through autoDeconfliction algorithm which is an automated process when importing new data into the OWL Intelligence Platform.

Intelligent Process Automation

Intelligent Process Automation (IPA) within the OWL platform is designed for automation of routine tasks and optimization of workflow processes, enabling users to focus on higher-value activities. Account administrators can configure IPA to automate workflows, ensuring operational efficiency and enhanced decision-making.

Notification

OWL includes a comprehensive notification system to keep users informed about significant activities or alerts. Administrators can configure notification preferences, choosing between text, email, or in-app notifications, and targeting them to specific users or groups based on roles, departments, or teams.

OWLapp Configuration

Administrators have control over the customization and management of OWLapp features, enabling the tailoring of the platform to meet organizational needs and enhance user experience.

Report Settings

The OWL platform allows for the creation and customization of reports, enabling users to generate insights from data within OWL. Administrators can set up ad-hoc, parameterized, and filtered reports, offering both graphical representations and interactive visuals for in-depth data analysis.

Security Settings

OWL's security framework includes Single Sign-On (SSO), Time-based One-Time Password (TOTP), facial recognition, and IP authentication features. Administrators configure these settings to secure access, protect sensitive data, and comply with relevant security standards like CJIS and NIST 800-053.

OWL Subscription/License Management

This module enables administrators to manage subscriptions, monitor license usage, and gain insights into the application's utilization, ensuring that the platform aligns with the organization's requirements.

OWL Marketplace

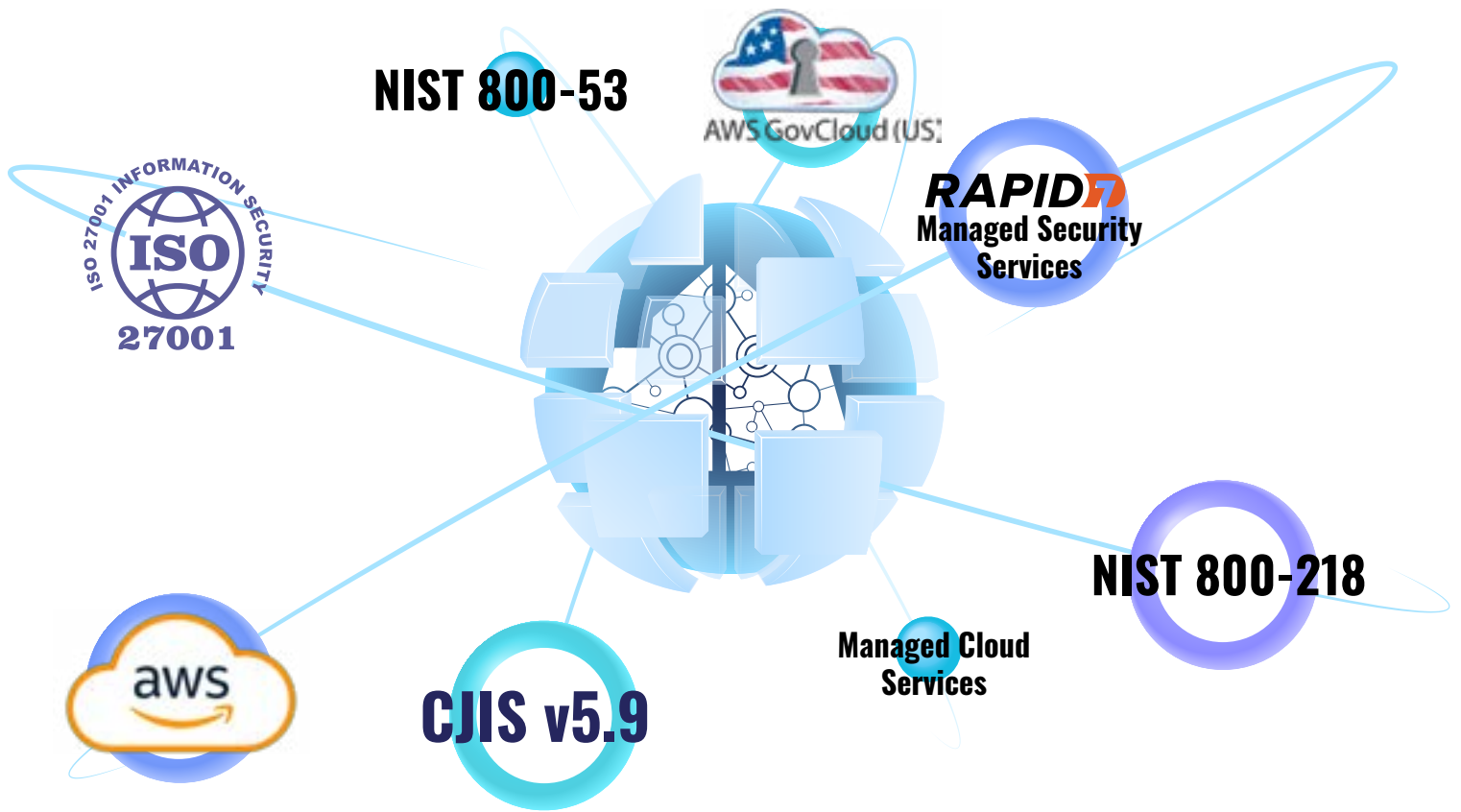
The OWL Marketplace provides access to third-party APIs and connectors. Administrators can integrate these services into OWL, enhancing the platform's capabilities by simply entering login credentials or API keys provided by the vendors.

Business Tools Integration

MS 365 and Gmail Integration:

Integration with MS 365 and Gmail is a testament to OWL's commitment to streamlined, efficient workflows. This deep integration brings the functionalities of MS Teams, Outlook, Calendar, and Gmail directly into the OWL platform, offering a cohesive and powerful collaboration environment. Users can access emails, engage in direct communications, collaborate on documents, and manage their schedules seamlessly within the OWL ecosystem. This eliminates the friction of toggling between different applications, significantly enhancing productivity and ensuring that essential tools and information are readily available in a unified workspace.

Compliance, Frameworks, and Controls





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