



sentinel

SOFTWARE GROUP

VIRTUAL ANALYST INTELLIGENCE LOGIC

- *Proactive Pattern recognition.*
- *Find patterns by crime type (Burglary, Robbery, Assault, Etc.)*
- *Find complex patterns that elude standard data mining tools.*
- *Patterns can be detected by time of day, location, distance, Modus Operandi, pedigree, and much more.*
- *Rich Public Safety Ontology identifies key terms in documents and correlates to databases.*
- *Data Sharing features provide a means to connect patterns between various installations.*
- *Map and compare patterns historically.*
- *Collaboration tools allow users to organize and blog patterns of interest.*

The VAIL (Virtual Analyst Intelligence Logic) software product is an engine that proactively finds patterns across many data sources. VAIL sits on top of existing systems and inspects data in real-time to report patterns and non-obvious relationships to key stakeholders.

Because VAIL operates in real-time, it can help organizations make tactical decisions relative to trends and patterns as they evolve. Users of this analytical tool can deploy personnel based upon these identified patterns in order to prevent or abate crime. The VAIL product provides integrated mapping and visualization tools which serve as a Decision Support System for users. Patterns are displayed and explained graphically and can be filtered based on time and type.



VAIL provides value for investigations as well. The engine identifies non-obvious relationships between victims, suspects and other roles across an organization's full spectrum of data. It can find associations and patterns based on vehicles, property, modus-operandi and other factors that go into identifying crime patterns using investigative best practices. The engine can match telephone numbers, names and a multitude of other identifiers in order to expose these relationships. VAIL goes beyond the simple comparison of data. Using Natural Language Processing, VAIL can extract the Modus Operandi (M.O.) from a written narrative and use that M.O. to find other similar incidents with a high degree of accuracy.

KEY FEATURES

- Detects patterns by inspecting databases and/or systems 24 X 7.
- Identifies correlations and patterns in data sourced from different systems.
- Generates real-time alerts when patterns are detected so that action can be taken to stop crime before it occurs.
- Leverages and correlates structured and un-structured sources together.
- Provides intelligent 'fuzzy search' capabilities that can reveal 'close or related matches'.
- Provides rich and informative delivery and visualization of information including link analysis, mapping and synopsis of the pattern.



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Notifications | Saved | Map | Details (1 items displayed)

[60.00%] 'IncidentMatcher' - Matched Complaint #Pattern 15-1 [offense: ROBBERY date: 02/06/2007]

View Summary Digests Comments Explanation

[60.00%] Correlation between Incident and Incident [rule used: IncidentMatcher] Incident 60.00%

100% offenseType ROBBERY

100% dateOfIncident 2007-02-06

60% firearms Firearm - silver gun

Pattern 15-1

narrative the st...

locationOfIncident 46 AVENUE X 156 STREET, QUEENS, NY (Location)

modus-operandi M.O. - [Weapon-threat Firearm] (ModusOperandi)

modus-operandi M.O. - [Theft Cash or equivalent] (ModusOperandi)

modus-operandi M.O. - [Method-of-flight Foot] (ModusOperandi)

modus-operandi M.O. - [Robbery Street] (ModusOperandi)

victim JONES, KIM ASIAN FEMALE DOB: 01/18/1975 (Person)

reporter JONES, KIM (Person)

suspect WHITE MALE (Person)

property Property [bag/bag] purse (Property) ***extracted***

firearms Firearm - silver gun (Firearm) ***extracted***

name silver gun

type gun

Our technology is non-invasive and highly complementary to existing systems. It is able to leverage emerging data exchange standards and existing data-sources to deliver real return on investment very quickly.

The VAIL engine condenses data it is fed by creating a 'data fingerprint' that represents the key identifiers and properties for each object (a person, incident, property location etc). Disparate

data feeds are mapped to a common model that describes properties which are relevant for matching or correlating data. Information extracted from unstructured text is also represented in this same model, unifying a rich data set that forms a basis for pattern matching, governance and data sharing.

By applying pattern matching and correlation rules, the VAIL engine relates objects from potentially any source system or format (structured or unstructured) to others that are similar or 'connected' in some fashion.

Starting with best-practice models and correlation rules 'out of the box', VAIL can be extended, customized and evolved to identify and score complex patterns and correlations based upon:

- Temporal proximity (date / time, time of day, day of week, etc)
- Spatial proximity
- Complex comparison (phonetic and distance algorithms etc.)
- The existence of key concepts or terms in narratives (M.O.)
- Complex aggregation rules (i.e. rules can build on other rules)

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