AIL Project

How to Improve and Support Your Threat Intelligence Process

CIRCL
Computer Incident
Response Center
Luxembourg

Alexandre Dulaunoy
alexandre.dulaunoy@circl.lu

info@circl.lu

September 11, 2024

Background

- Over the past five years, we have developed the AIL project[1] to meet the intelligence gathering and analysis needs at CIRCL.
- As AIL gained popularity, an increasing number of users have integrated it into their **threat intelligence processes and workflows**.
- In this presentation, we will outline several processes where AIL can be a valuable tool, **facilitating and enhancing the work of intelligence analysts**[2].

[1] `https://www.ail-project.org/`

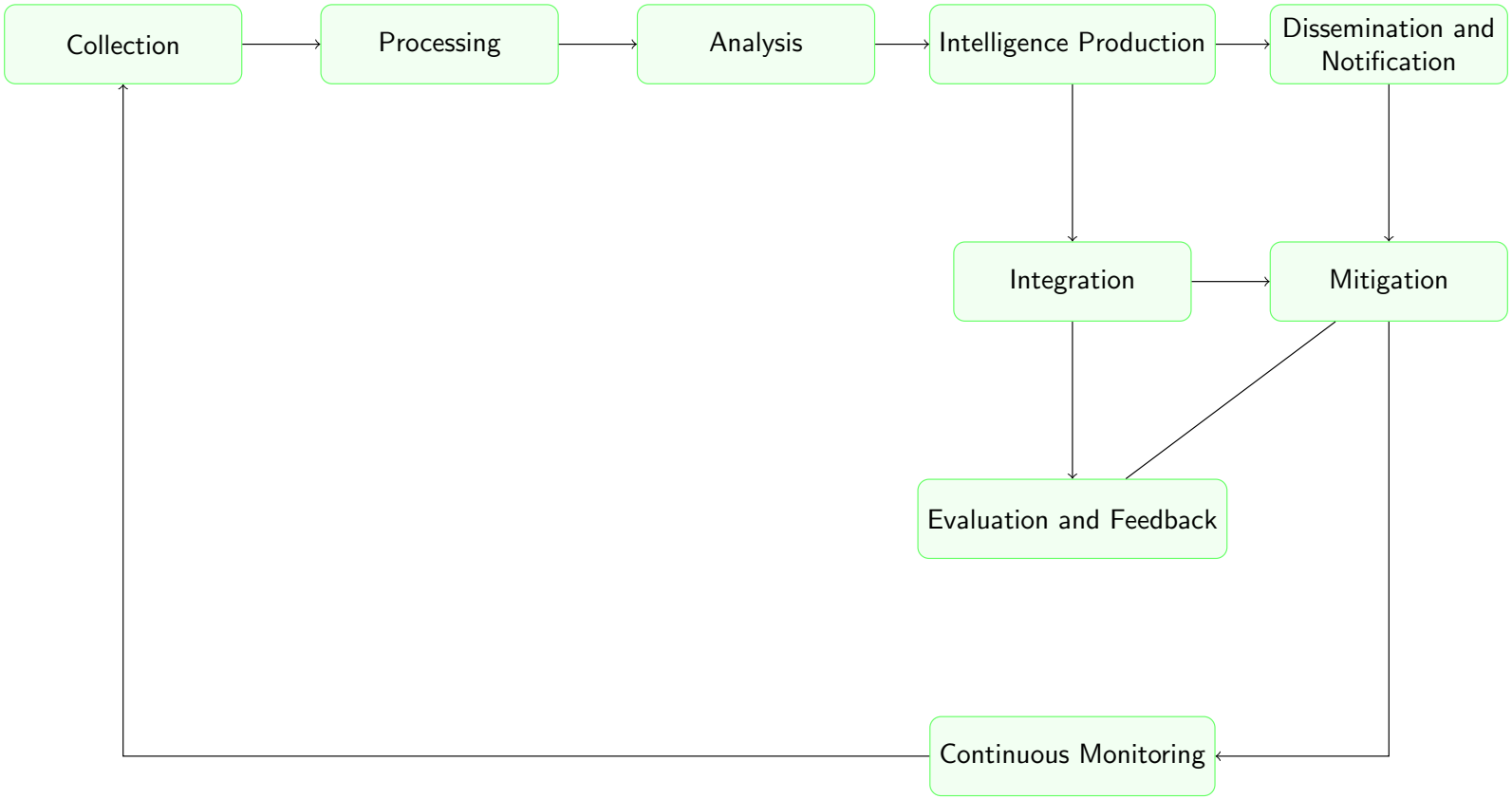
[2] Including those working in SOCs, CSIRTs, or any organizations dealing with threat intelligence.

AIL overview

- The AIL Project is an open-source framework[3] comprising various modules designed for the **collection, crawling, digging, and analysis of unstructured data**.
- AIL features an extensible Python-based framework for the **analysis of unstructured information**, collected either through an advanced Crawler manager or from various feeders, including social networks and custom feeders.
- AIL also provides support for actively **crawling Tor** hidden services, as well as crawling protected websites and forums by utilizing pre-recorded session cookies.

[3] `https://github.com/ail-project`

Threat Intelligence Process at CIRCL



Common questions from constituents

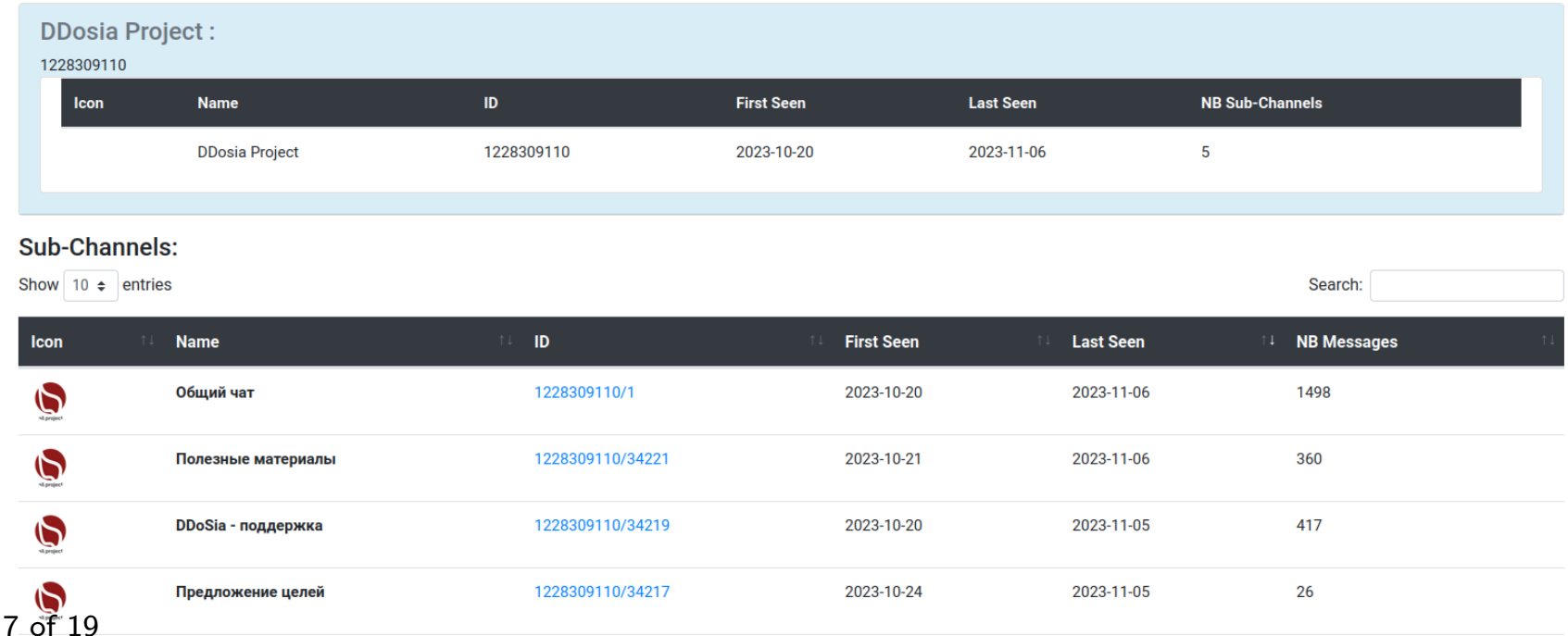
- Do you **know if we are a target** of this adversary group?
- We have **observed a partnering company experiencing a ransomware incident**, and we are concerned about the impact on our organization.
- Can you determine if our **sector is a target** of this threat actor?
- Have you come across phishing kits targeting our bank/service or any instances of our **data being stolen** on the "dark web"?

Challenges and opportunity

- **Reducing repetitive tasks** for the analysts.
- **Preparing factual intelligence evidence** for intelligence production, including human-readable reports and MISP structured intelligence.
- **Correlating information** from multiple sources, especially when different analysts are working with different sources on their end.
- **Facilitating the integration** of "intelligence requests" from our constituents.

Collection - automate collection

- Collecting data from various chat sources can be a **tedious task for analysts**.
- AIL offers a set of feeders (e.g., Telegram, Discord, etc.) that can be used to subscribe to chat channels.
- All the **collected messages are then processed and analyzed** within the AIL's *processing* and *analysis* stages.



DDosia Project :

1228309110

Icon	Name	ID	First Seen	Last Seen	NB Sub-Channels
	DDosia Project	1228309110	2023-10-20	2023-11-06	5

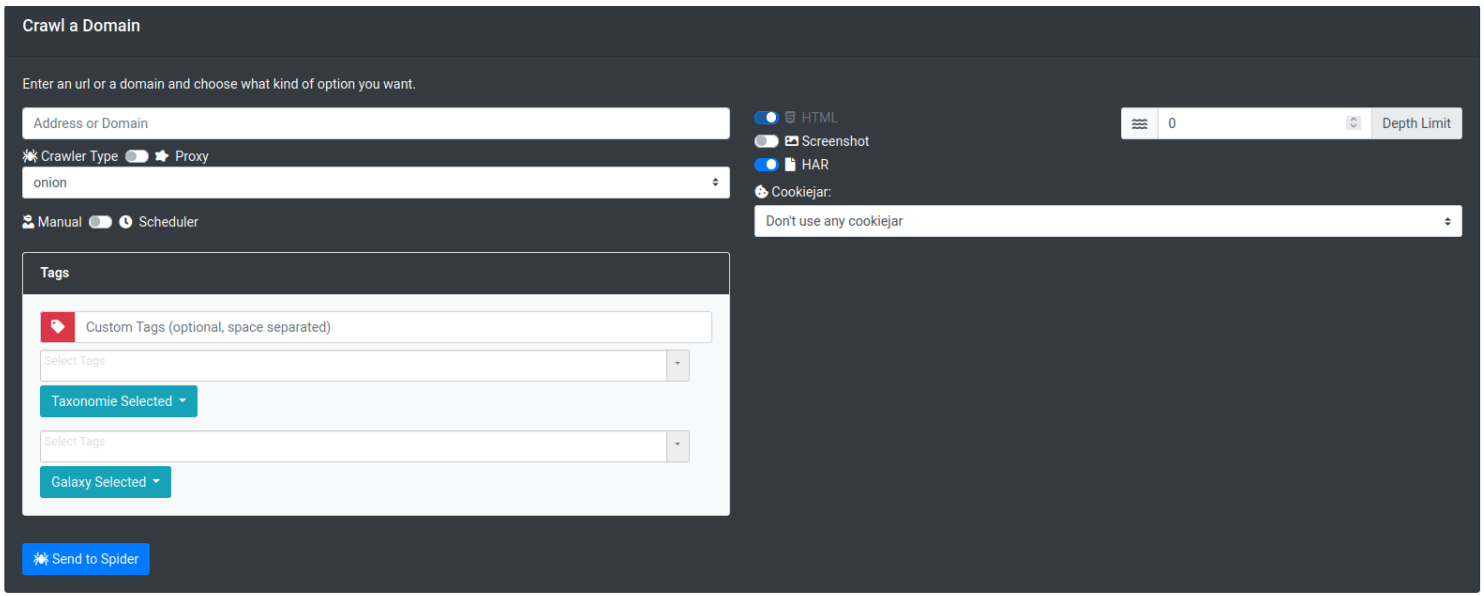
Sub-Channels:

Show 10 entries Search:

Icon	Name	ID	First Seen	Last Seen	NB Messages
	Общий чат	1228309110/1	2023-10-20	2023-11-06	1498
	Полезные материалы	1228309110/34221	2023-10-21	2023-11-06	360
	DDoSia - поддержка	1228309110/34219	2023-10-20	2023-11-05	417
	Предложение целей	1228309110/34217	2023-10-24	2023-11-05	26

Collection - automate crawling

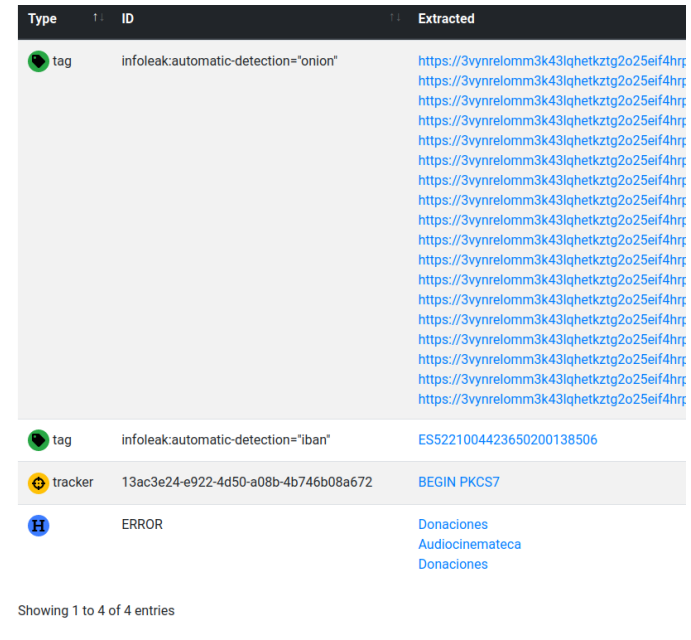
- Crawling can be a challenging task, for example, gathering all the blog posts from ransomware groups[4], which can be demanding for an analyst.
- AIL offers a crawling feature that can **initiate regular crawls using a standard spawned browser**.



[4] `https://www.ransomlook.io/`

Processing - extracting selector/patterns

- Detecting specific search patterns in a large dataset, such as a significant ransomware leak, can be challenging for analysts.
- AIL includes a **rich set of existing search patterns** (e.g. IBAN) along with default YARA rules, and you have the ability to create custom ones.

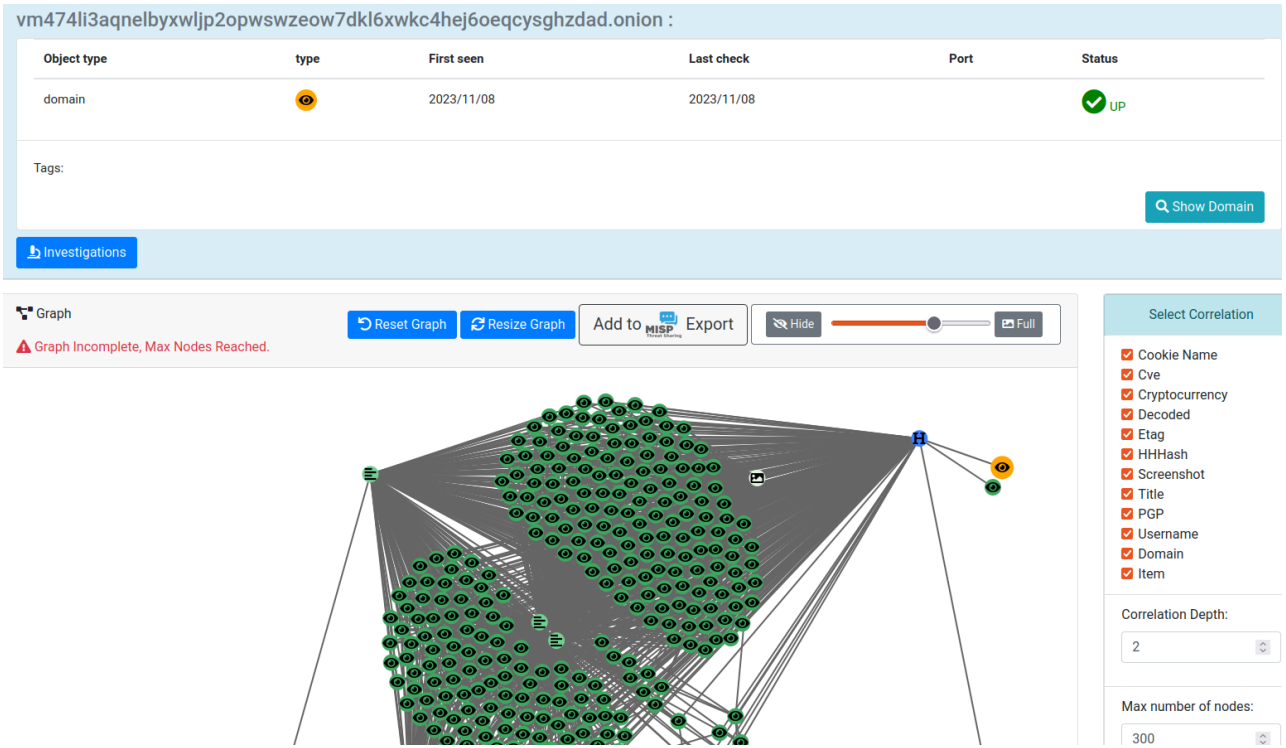


Type	ID	Extracted
tag	infoleak:automatic-detection="onion"	https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr https://3vynrelomm3k43lqhetkztg2o25eif4hr
tag	infoleak:automatic-detection="iban"	ES5221004423650200138506
tracker	13ac3e24-e922-4d50-a08b-4b746b08a672	BEGIN PKCS7
H	ERROR	Donaciones Audiocinemateca Donaciones

Showing 1 to 4 of 4 entries

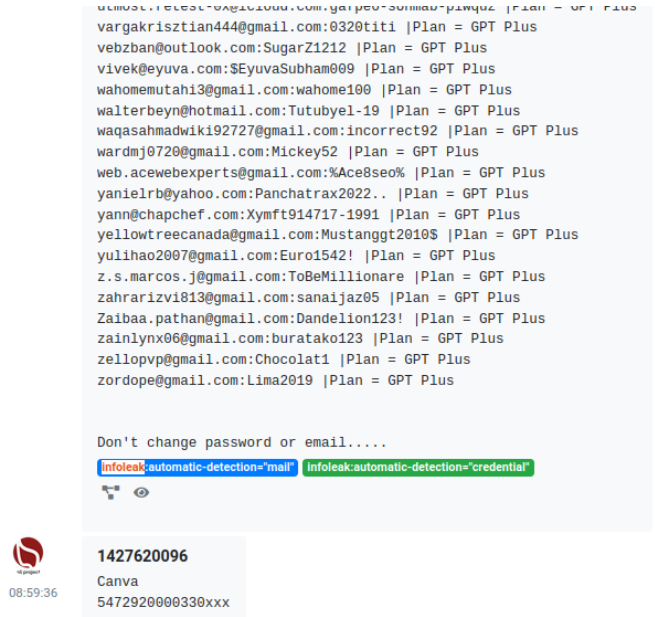
Processing - deduplicating source/information

- When collecting data from numerous sources, encountering duplicate information is common, and distinguishing between them can be challenging.
- AIL's correlation between page titles, screenshots, and HTTP headers matching helps **identify copy-cat sources**.



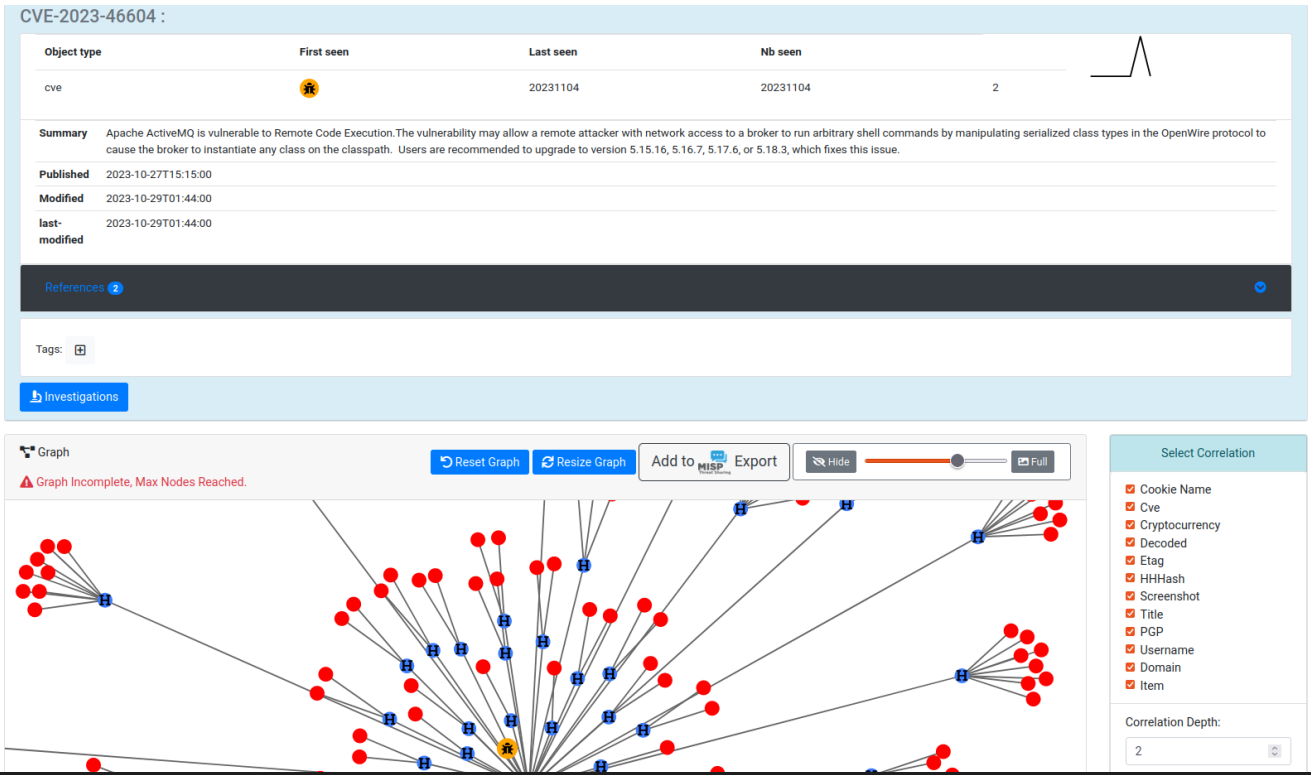
Analysis - automatic detection from collection

- Processing automatically collected information can be a challenging task.
- AIL processes all the collected items for any **hunting rules and utilizes MISP taxonomies to tag the matching information**.



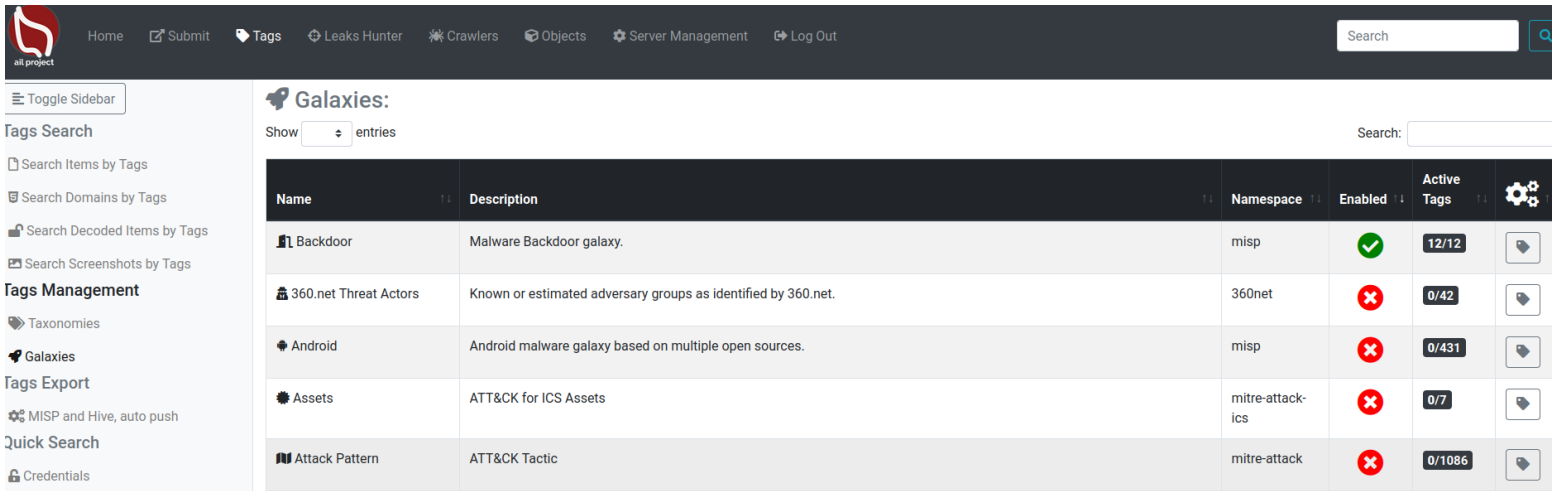
Analysis - evaluating vulnerability severity/risk

- What is the visibility, usage, mentions, or risk of a vulnerability observed in forums, channels, pastes, or websites?
- AIL can assist you in determining the severity/risk level or in **reviewing the usage of a vulnerability** (e.g., the number of PoCs).



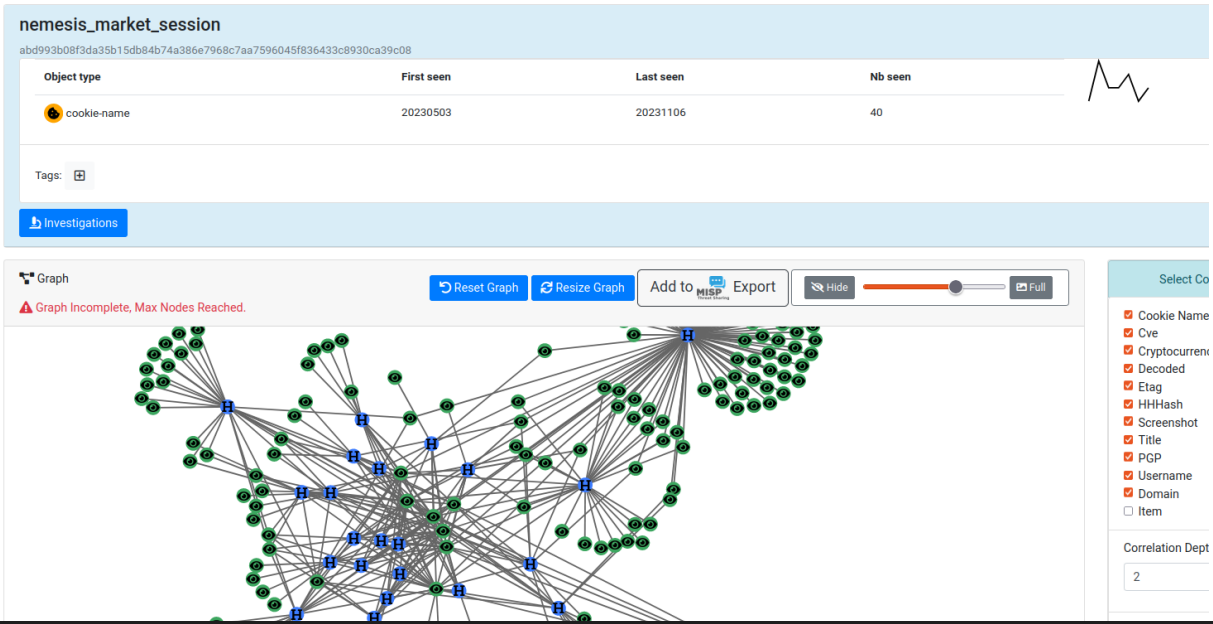
Analysis - Standardising labels and taxonomies

- Attribution and classification can be challenging for analysts. Facilitating integration with other tools, processes, and teams.
- AIL **leverages the entire MISP galaxy, including threat actor data, taxonomies**, and the ability to assign tags to every item.



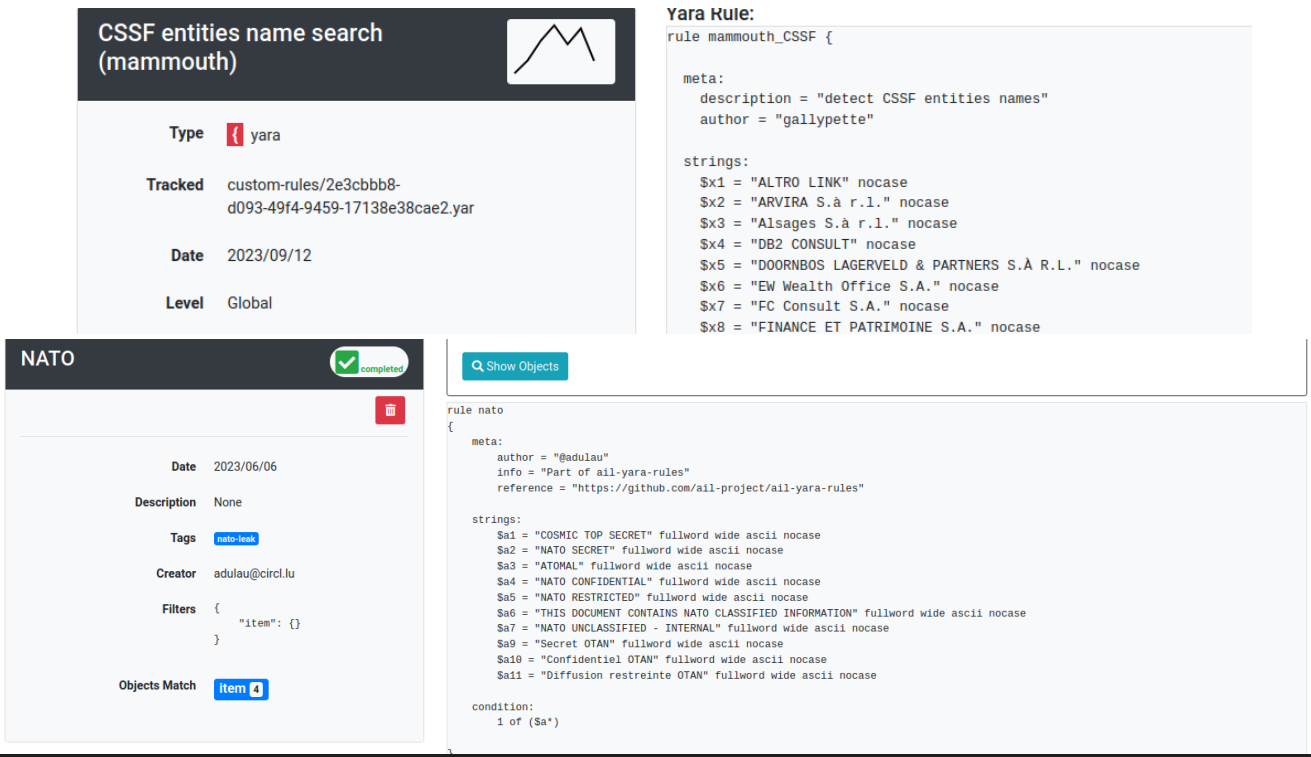
Dissemination - distributing analysis

- AIL exports data using the **MISP standard format** and offers complete integration with MISP to facilitate the dissemination of data.
- All the context within AIL uses the **MISP taxonomies and galaxy**.
- The insights provided by AIL are often used as complementary information for threat intelligence reports and landscapes.



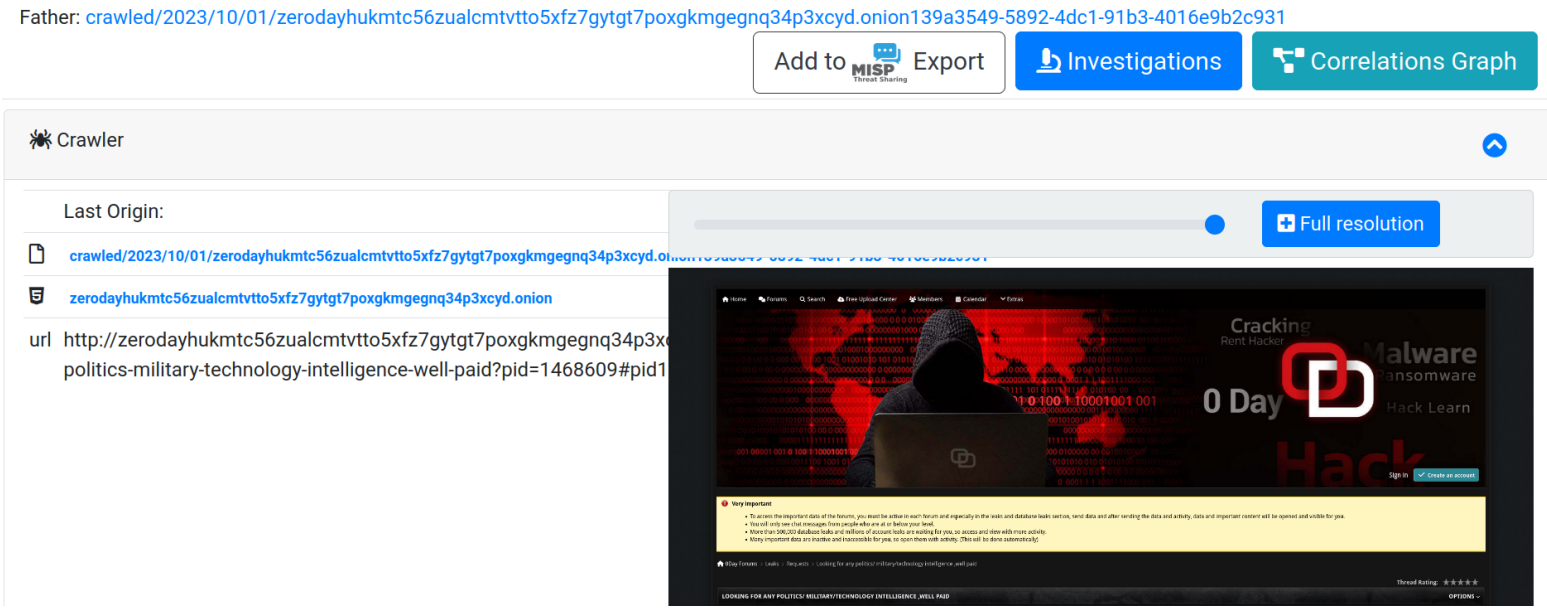
Evaluation/Integration - review search rules on real dataset

- Reviewing matching rules on a large dataset, such as extensive ransomware leaks, can be cumbersome.
- AIL provides a "retro-hunt" functionality to search and **evaluate your YARA rules**.



Production collecting evidences

- Analysts need to gather evidence, insights, and intelligence to produce intelligence reports.
- AIL can support the creation of reports by offering a straightforward method to **organize discoveries for investigation**.



Improving internal capabilities

Whilst buying ready made intelligence is easy, you see here that going from a black box solution of questionable quality to something that you can vet and validate can be easily implemented - the costs will also be **invested in your internal experts rather than an opaque supplier**.

Conclusion

- While AIL can be a valuable tool for **organisations dealing with data leaks and information breaches**, it's important to remember that it is primarily designed for information leak analysis and not for the entire threat intelligence process.
- Organizations should use **AIL in conjunction with other threat intelligence solutions** and processes to establish a comprehensive threat intelligence strategy.
- AIL is an open-source project, and if you discover modules that could assist in your processes, please let us know or contribute directly.
- Establishing **consistent and reproducible intelligence processes** throughout your organization.

Links

- AIL project `https://github.com/ail-project` (**all components including feeders and crawler infrastructure**).
- AIL framework `https://github.com/ail-project/ail-framework` (**analysis framework**).
- Training materials and slide deck `https://github.com/ail-project/ail-training`.
- Co-funded by European Union under joint threat analysis network (JTAN) project and MISP-LEA.