

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

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Background

- Over the past five years, we have developed the AIL project¹ 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/>

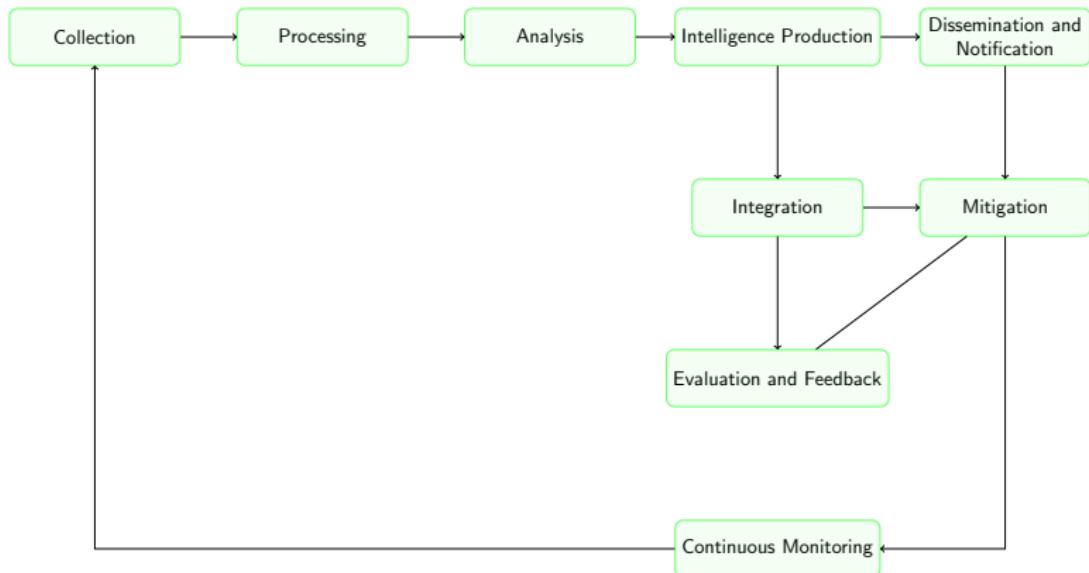
²Including those working in SOCs, CSIRTs, or any organizations dealing with threat intelligence.

AIL overview

- The AIL Project is an open-source framework³ 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:

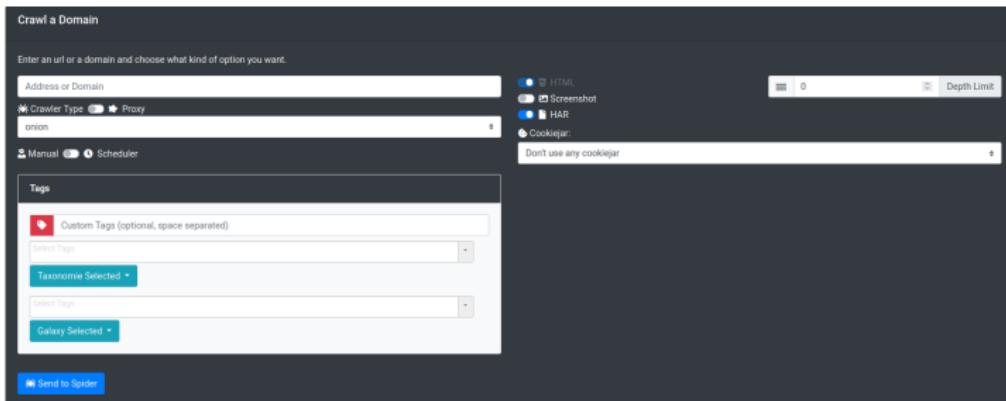
Show 10

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 groups⁴, which can be demanding for an analyst.
- AIL offers a crawling feature that can **initiate regular crawls using a standard spawned browser**.



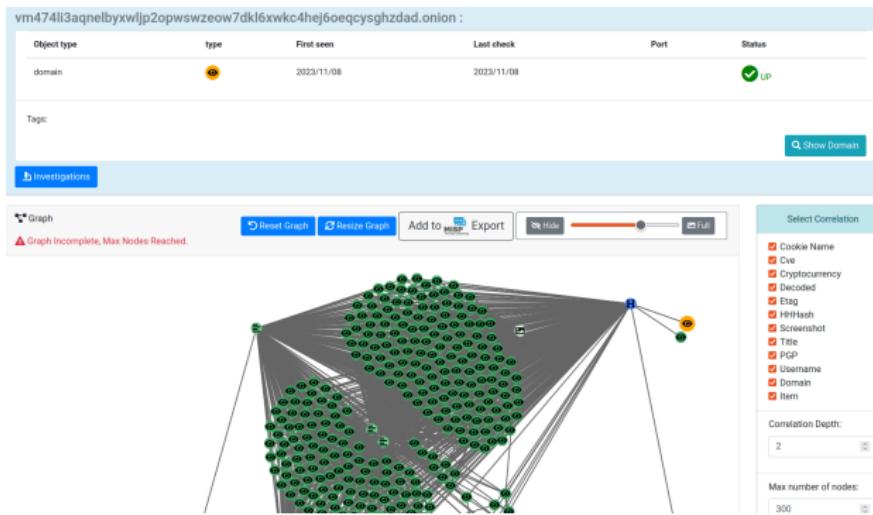
⁴<https://www.ransomlook.io/>

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.

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**.

Don't change password or email...

[infodeck-automatic-detections?next=1](#) [infodeck-automatic-detections?next=2](#)

10

1427620096

Carry

5472928888338xxx

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).

CVE-2023-46604 :

Object type	First seen	Last seen	Nb seen
cve	2023/11/04	2023/11/04	2

Summary Apache ActiveMQ is vulnerable to Remote Code Execution. The vulnerability may allow a remote attacker with network access to a broker to run arbitrary shell commands by manipulating serialized class types in the OpenWire protocol to cause the broker to instantiate any class on the classpath. Users are recommended to upgrade to version 5.15.16, 5.16.7, 5.17.6, or 5.18.3, which fixes this issue.

Published 2023-10-27T15:15:00

Modified 2023-10-29T01:44:00

Last modified 2023-10-29T01:44:00

References 1

Tags 0

Investigations

Graph Graph Incomplete, Max Nodes Reached.

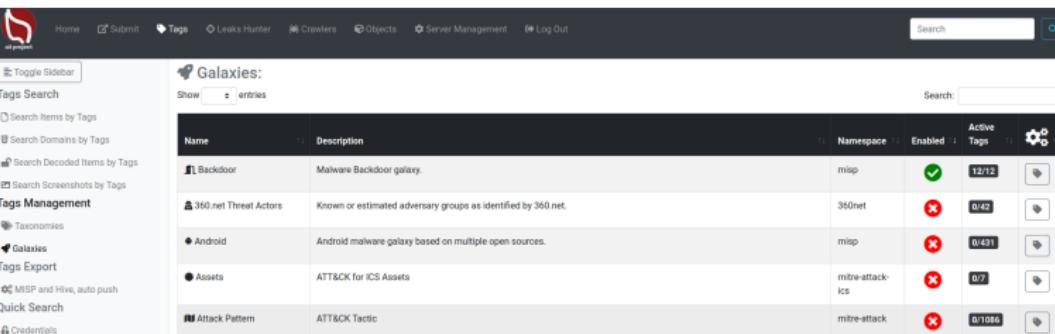
Select Correlation

- Cookie
- CV
- Cryptocurrency
- Decoded
- Elap
- HHash
- Screenshot
- Title
- PGP
- Username
- Domain
- Item

Correlation Depth: 2

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.**



The screenshot shows the AIL interface with a sidebar on the left and a main content area on the right.

Left Sidebar:

- Home
- Submit
- Tags
- Leaks Hunter
- Crawlers
- Objects
- Server Management
- Log Out

Buttons:

- Toggle Sidebar
- Tags Search
- Search Items by Tags
- Search Domains by Tags
- Search Decoded Items by Tags
- Search Screenshots by Tags
- Tags Management
- Taxonomies
- Galaxies
- Tags Export
- MISP and Hive, auto push
- Quick Search
- Credentials

Main Content Area:

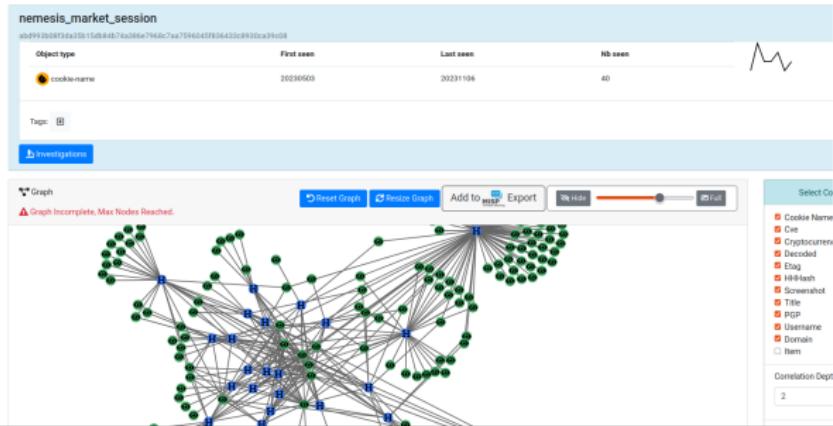
Galaxies:

Show 10 entries

Name	Description	Namespace	Enabled	Active Tags	Actions
Backdoor	Malware Backdoor galaxy.	misp	✓	12/12	
360.net Threat Actors	Known or estimated adversary groups as identified by 360.net.	360net	✗	0/42	
Android	Android malware galaxy based on multiple open sources.	misp	✗	0/431	
Assets	ATT&CK for ICS Assets	mitre-attack-ics	✗	0/7	
Attack Pattern	ATT&CK Tactic	mitre-attack	✗	0/1086	

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**.

CSSF entities name search (mammouth)

Type **yara**

Tracked **custom-rules/2e9cbbb8-d093-49f4-9459-17138e38cae2.yar**

Date **2023/09/12**

Level **Global**

NATO

Date **2023/06/06**

Description **None**

Tags **None**

Creator **odulux@irc.lk**

Filters **[{"item": {}}]**

Objects Match **None**

Yara Rule:

```
rule mammouth_CSSF {  
    meta:  
        description = "detect CSSF entities names"  
        author = "gallypette"  
  
    strings:  
        $x1 = "ALTRÒ LINK" nocase  
        $x2 = "ARVIRA S.à r.l." nocase  
        $x3 = "Alisages S.à r.l." nocase  
        $x4 = "DBZ CONSULT" nocase  
        $x5 = "DOORNBOS LAGERVELD & PARTNERS S.À R.L." nocase  
        $x6 = "EW Wealth Office S.À." nocase  
        $x7 = "FC Consult S.À." nocase  
        $x8 = "FINANCE ET PATRIMOINE S.À." nocase
```

Show Objects

rule ratio {
 meta:
 author = "odulux"
 info = "Part of all-yara-rules"
 reference = "https://github.com/ail-project/ail-yara-rules"

 strings:
 \$a1 = "CONFIDENTIAL" fullword wide ascii nocase
 \$a2 = "CLASSIFIED TOP SECRET" fullword wide ascii nocase
 \$a3 = "NATO SECRET" fullword wide ascii nocase
 \$a4 = "NATO INTERNAL" fullword wide ascii nocase
 \$a5 = "NATO CONFIDENTIAL" fullword wide ascii nocase
 \$a6 = "NATO RESTRICTED" fullword wide ascii nocase
 \$a7 = "THIS DOCUMENT CONTAINS NATO CLASSIFIED INFORMATION" fullword wide ascii nocase
 \$a8 = "NATO INTERNAL INFORMATION" fullword wide ascii nocase
 \$a9 = "Secret OTAN" fullword wide ascii nocase
 \$a10 = "Confidential OTAN" fullword wide ascii nocase
 \$a11 = "Diffusion restreinte OTAN" fullword wide ascii nocase

 condition:
 1 of (\$a*)

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**.

Father: crawled/2023/10/01/zerodayhukmtc56zualcmvtto5xfz7gytgt7poxgkmgegnq34p3xycd.onion 139a3549-5892-4dc1-91b3-4016e9b2c931

[Add to MISP](#) [Export](#) [Investigations](#) [Correlations Graph](#)

Crawler

Last Origin: [crawled/2023/10/01/zerodayhukmtc56zualcmvtto5xfz7gytgt7poxgkmgegnq34p3xycd.onion](#)

[Full resolution](#)

url <http://zerodayhukmtc56zualcmvtto5xfz7gytgt7poxgkmgegnq34p3xycd.onion/politics-military-technology-intelligence-well-paid?pid=1468609#pid1>

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.

