TURNING DATA INTO ACTIONABLE INTELLIGENCE

ADVANCED FEATURES IN MISP SUPPORTING YOUR ANALYSTS AND TOOLS

CIRCL / TEAM MISP PROJECT

CIISI-IE

ABOUT CIRCL

circl.lu
Computer Incident
Response Center
LUXEMBOURG

- The Computer Incident Response Center Luxembourg (CIRCL) is a government-driven initiative designed to provide a systematic response facility to computer security threats and incidents. CIRCL is the CERT for the private sector, communes and non-governmental entities in Luxembourg and is operated by securitymadein.lu g.i.e.

MISP AND CIRCL

- CIRCL is mandated by the Ministry of Economy and acting as the Luxembourg National CERT for private sector.
- CIRCL leads the development of the Open Source MISP threat intelligence platform which is used by many military or intelligence communities, private companies, financial sector, National CERTs and LEAs globally.
- **CIRCL runs multiple large MISP communities performing active daily threat-intelligence sharing**.

THE AIM OF THIS PRESENTATION

- To give some insight into what sort of an evolution of our various communities' have gone through as observed over the past 8 years
- Show the importance of **strong contextualisation**...
- ...and how that can be leveraged when trying to make our data **actionable**

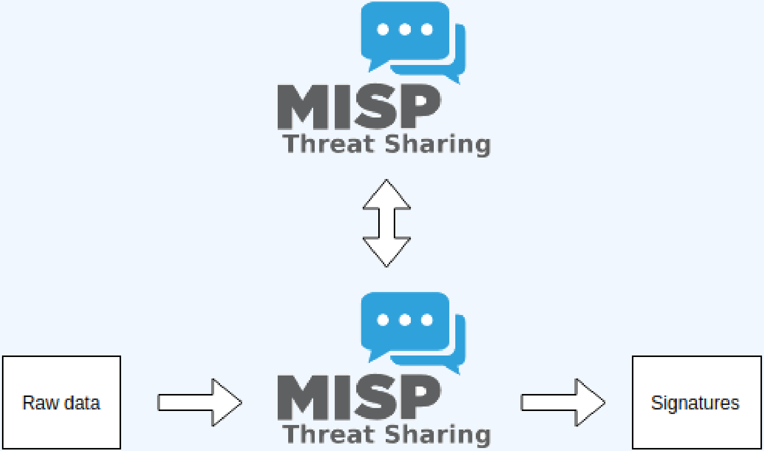
DEVELOPMENT BASED ON PRACTICAL USER FEEDBACK

- There are many different types of users of an information sharing platform like MISP:
    - **Malware reversers** willing to share indicators of analysis with respective colleagues.
    - **Security analysts** searching, validating and using indicators in operational security.
    - **Intelligence analysts** gathering information about specific adversary groups.
    - **Law-enforcement** relying on indicators to support or bootstrap their DFIR cases.
    - **Risk analysis teams** willing to know about the new threats, likelyhood and occurences.
    - **Fraud analysts** willing to share financial indicators to detect financial frauds.

THE INITIAL SCOPE OF MISP

- **Extract information** during the analysis process
- Store and **correlate** these datapoints
- **Share** the data with partners
- Focus on technical indicators: IP, domain, hostname, hashes, filename, pattern in file/memory/traffic
- Generate protective signatures out of the data: snort, suricata, OpenIOC

INITIAL WORKFLOW



MISP
Threat Sharing
Raw data
MISP
Threat Sharing
Signatures

WHY WAS IT SO SIMPLISTIC?

- This was both a reflection of our maturity as a community
    - Capabilities for **extracting** information
    - Capabilities for **utilising** the information
    - Lack of **willingness** to share context
    - Lack of **co-operation** between teams doing technical analysis/monitoring and threat-intel
- The more growth we saw in maturity, the more we tried to match it with our data-model, often against pushback

THE GROWING NEED TO CONTEXTUALISE DATA

- There were separate factors that made our data-sets less and less useful for detection/defense in general
  - **Growth of our communities**
  - Distinguish between information of interest and raw data
  - **False-positive** management
  - TTPs and aggregate information may be prevalent compared to raw data (risk assessment)
  - **Increased data volumes** leads to be able to prioritise

OUR INITIAL SOLUTION

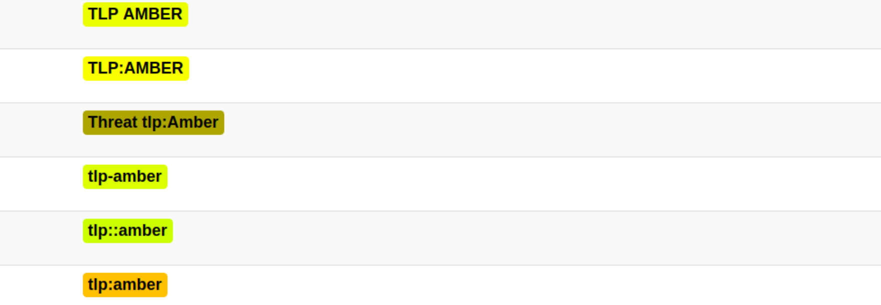
- Allow users to **tag any information** created in MISP
- We wanted to be **lax with what we accept** in terms of data, but be **strict on what we fed to our tools**, with strong filter options
- We had some ideas on how to potentially move forward...

OUR INITIAL FAILURES

- Try to capture different aspects of contextualisation into **normalised values** (threat level, source reliability, etc)
    - Didn't scale with needs other than our own
    - Incorporating new types of contextualisation would mean **the modification of the software**
    - Getting communities with **established naming conventions** to use anything but their go-to vocabularies was a pipe-dream
    - Heated arguments over numeric conversions

Human creativity

- We tried an alternate approach instead: Free tagging
    - Result was spectacularly painful, at least 7 different ways to spell tlp:amber
    - No canonisation for common terms lead to tagging ultimately becoming a highly flawed tool for filtering within a sharing community



TLP AMBER

TLP:AMBER

Threat tlp:Amber

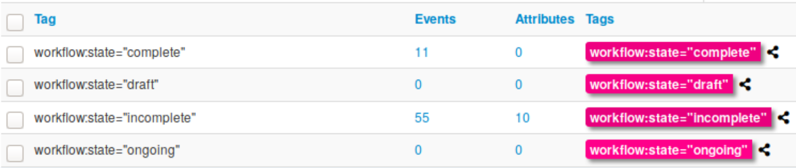
tlp-amber

tlp::amber

tlp:amber

HOW WE ENDED UP TACKLING THE ISSUE MORE SUCCESSFULY

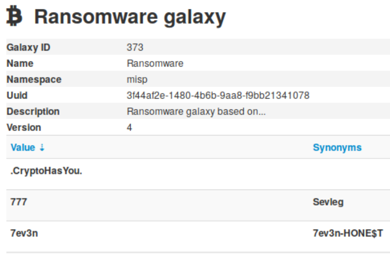
- We ended up with a mixed approach, currently implemented by the MISP-taxonomy system
  - Taxonomies are **vocabularies** of known tags
  - Tags would be in a **triple tag format**
    `namespace:predicate=”value”`
  - Create your own taxonomies, recipients should be able to use data you tag with them without knowing it at the first place
  - Avoid any coding, stick to **JSON**
- Massive success, approaching 100 taxonomies
- Organisations can solve their own issues without having to rely on us



☐	Tag	Events	Attributes	Tags
☐	workflow:state="complete"	11	0	workflow:state="complete"
☐	workflow:state="draft"	0	0	workflow:state="draft"
☐	workflow:state="incomplete"	55	10	workflow:state="incomplete"
☐	workflow:state="ongoing"	0	0	workflow:state="ongoing"

WE WERE STILL MISSING SOMETHING...

- Taxonomy tags often **non self-explanatory**
- Example: universal understanding of tlp:green vs APT 28
- For the latter, a single string was ill-suited
- So we needed something new in addition to taxonomies - **Galaxies**
  - Community driven **knowledge-base libraries used as tags**
  - Including descriptions, links, synonyms, meta information, etc.
  - Goal was to keep it **simple and make it reusable**
  - Internally it works the exact same way as taxonomies (stick to **JSON**)



Ransomware galaxy

Galaxy ID	373
Name	Ransomware
Namespace	misp
Uuid	3f44af2e-1480-4b6b-9aa8-f9bb21341078
Description	Ransomware galaxy based on...
Version	4

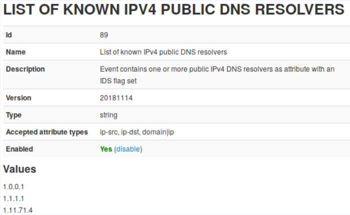
Value ↓	Synonyms
.CryptoHasYou.	
777	Sevleg
7ev3n	7ev3n-HONE$T

BROADENING THE SCOPE OF WHAT SORT OF CONTEXT WE ARE INTERESTED IN

- **Who** can receive our data? **What** can they do with it?
- **Data accuracy, source reliability**
- **Why** is this data relevant to us?
- **Who** do we think is behind it, **what tools** were used?
- What sort of **motivations** are we dealing with? Who are the **targets**?
- How can we **block/detect/remediate** the attack?
- What sort of **impact** are we dealing with?

PARALLEL TO THE CONTEXTUALISATION EFFORTS: FALSE POSITIVE HANDLING

- Low quality / false positive prone information being shared
- Lead to **alert-fatigue**
- Exclude organisation xy out of the community?
- False positives are often obvious - **can be encoded**
- **Warninglist system**[1] aims to do that
- Lists of well-known indicators which are often false-positives like RFC1918 networks, ...

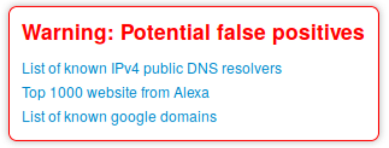


LIST OF KNOWN IPV4 PUBLIC DNS RESOLVERS

Id	89
Name	List of known IPv4 public DNS resolvers
Description	Event contains one or more public IPv4 DNS resolvers as attribute with an IDS flag set
Version	20181114
Type	string
Accepted attribute types	ip-src, ip-dst, domain|ip
Enabled	Yes (disable)

Values

1.0.0.1
1.1.1.1
1.11.71.4



Warning: Potential false positives

List of known IPv4 public DNS resolvers
Top 1000 website from Alexa
List of known google domains

---

[1] https://github.com/MISP/misp-warninglists

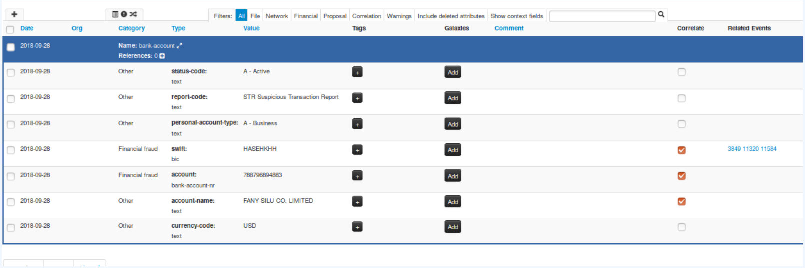
MORE COMPLEX DATA-STRUCTURES FOR A MODERN AGE

- Atomic attributes were a great starting point, but lacking in many aspects
- **MISP objects**[2] system
  - Simple **templating** approach
  - Use templating to build more complex structures
  - Decouple it from the core, allow users to **define their own** structures
  - MISP should understand the data without knowing the templates
  - Massive caveat: **Building blocks have to be MISP attribute types**
  - Allow **relationships** to be built between objects

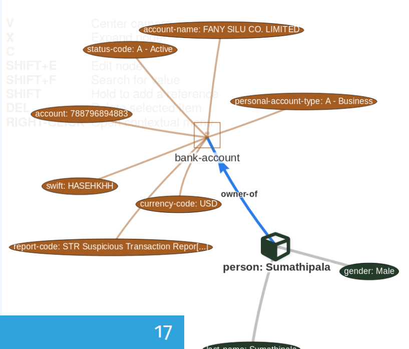
---

[2] `https://github.com/MISP/misp-objects`

SUPPORTING SPECIFIC DATAMODEL


+
Filters: All File Network Financial Proposal Correlation Warnings Include deleted attributes Show context fields

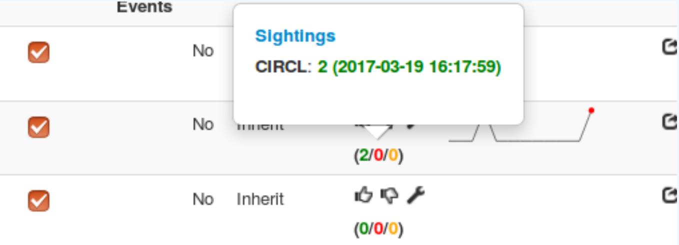
☐	Date	Org	Category	Type	Value	Tags	Galaxies	Comment	Correlate	Related Events
☐	2018-09-28		**Name:** bank-account **References:** 0							
☐	2018-09-28		Other	**status-code:** text	A - Active	+	Add		☐	
☐	2018-09-28		Other	**report-code:** text	STR Suspicious Transaction Report	+	Add		☐	
☐	2018-09-28		Other	**personal-account-type:** text	A - Business	+	Add		☐	
☐	2018-09-28		Financial fraud	**swift:** bic	HASEHKHH	+	Add		☑	3849 11320 11584
☐	2018-09-28		Financial fraud	**account:** bank-account-nr	788796894883	+	Add		☑	
☐	2018-09-28		Other	**account-name:** text	FANY SILU CO. LIMITED	+	Add		☑	
☐	2018-09-28		Other	**currency-code:** text	USD	+	Add		☐	


V Center camera
X Expand node
C
SHIFT+E Edit node
SHIFT+F Search for value
SHIFT Hold to add a reference
DEL Delete selected item
RIGHT-CLICK Open contextual menu
account-name: FANY SILU CO. LIMITED
status-code: A - Active
personal-account-type: A - Business
account: 788796894883
bank-account
swift: HASEHKHH
owner-of
currency-code: USD
report-code: STR Suspicious Transaction Repor[...]
person: Sumathipala
gender: Male
last-name: Sumathipala

CONTINUOUS FEEDBACK LOOP

- Data ingested by MISP was in a sense frozen in time
- We had a creation data, but lacked a way to use the output of our detection
- Lead to the introduction of the **Sighting system**
- The community could sight indicators and convey the time of sighting
- Potentially powerful tool for IoC lifecycle management, clumsy query implementation default

SUPPORTING SPECIFIC DATAMODEL

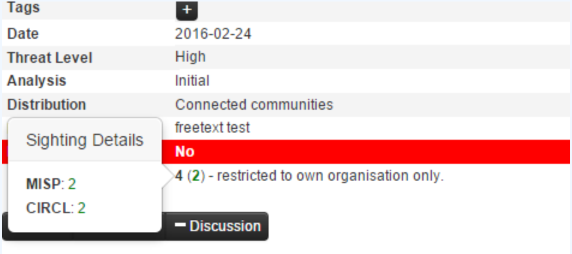


Events

Sightings

CIRCL: 2 (2017-03-19 16:17:59)

☑	No			
☑	No	Inherit	(2/0/0)	
☑	No	Inherit	(0/0/0)	



Tags	+
Date	2016-02-24
Threat Level	High
Analysis	Initial
Distribution	Connected communities
	freetext test
	No
	4 (2) - restricted to own organisation only.

Sighting Details

MISP: 2

CIRCL: 2

MAKING USE OF ALL THIS CONTEXT

- Most obvious goal: Improve the way we query data
  - Unified all export APIs
  - Incorporate all contextualisation options into **API filters**
  - Allow for an **on-demand** way of **excluding potential false positives**
  - Allow users to easily **build their own** export modules feed their various tools

EXAMPLE QUERY

```
/attributes/restSearch
{
    "returnFormat": "netfilter",
    "enforceWarninglist": 1,
    "tags": {
      "NOT": [
        "tlp:white",
        "type:OSINT"
      ],
      "OR": [
        "misp-galaxy:threat-actor=\"Sofacy\"",
        "misp-galaxy:sector=\"Chemical\""
      ],
    }
}
```

SYNCHRONISATION FILTERS

- Make decisions on whom to share data with based on context
    - MISP by default decides based on the information creator's decision who data gets shared with
    - Community hosts should be able to **act as a safety net** for sharing
        - **Push filters** - what can I push?
        - **Pull filters** - what am I interested in?
        - **Local tags** allow for information flow control

THE EMERGENCE OF ATT&CK AND SIMILAR GALAXIES

- Standardising on high-level **TTPs** was a solution to a long list of issues
- Adoption was rapid, tools producing ATT&CK data, familiar interface for users
- A much better take on kill-chain phases in general
- Feeds into our **filtering** and **situational awareness** needs extremely well
- Gave rise to other, ATT&CK-like systems tackling other concerns
  - **attck4fraud** [3] by Francesco Bigarella from ING
  - **Election guidelines** [4] by NIS Cooperation Group

---

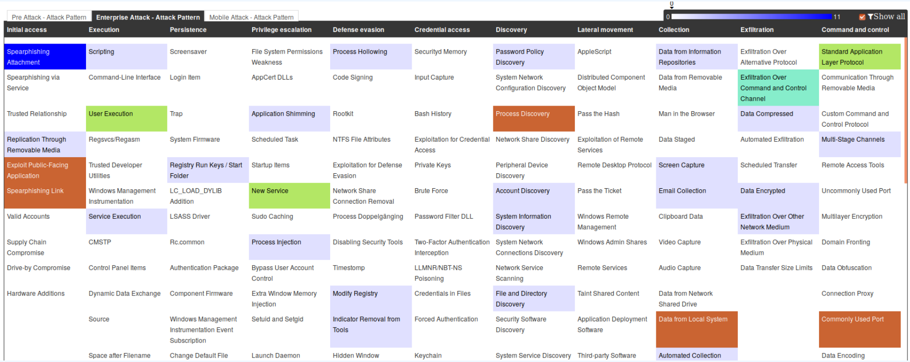
[3] https://www.misp-project.org/galaxy.html#_attck4fraud

[4] https://www.misp-project.org/galaxy.html#_election_guidelines

EXAMPLE QUERY TO GENERATE ATT&CK HEATMAPS

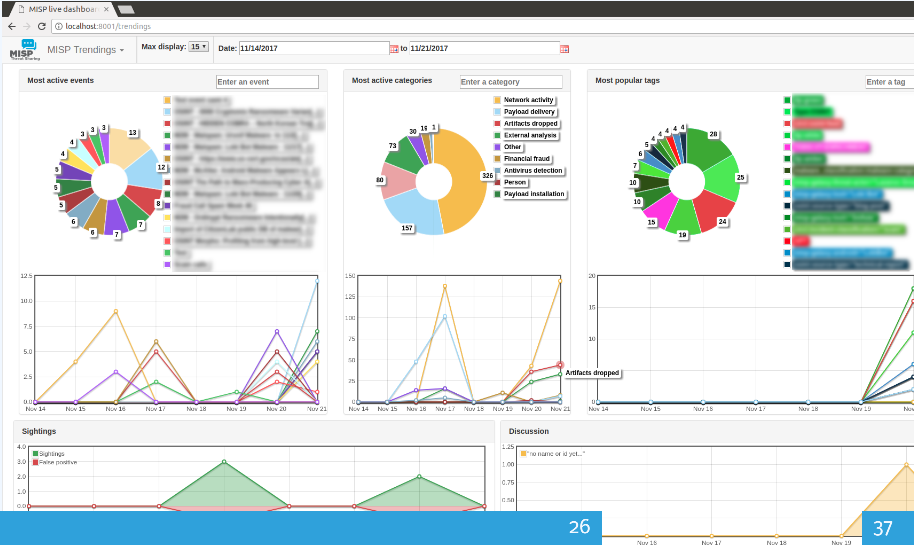
```
/events/restSearch
{
    "returnFormat": "attack",
    "tags": [
        "misp-galaxy:sector=\"Chemical\""
    ],
    "timestamp": "365d"
}
```

A SAMPLE RESULT FOR THE ABOVE QUERY


Pre Attack - Attack Pattern
Enterprise Attack - Attack Pattern
Mobile Attack - Attack Pattern
0
0
11
Show all

Initial access	Execution	Persistence	Privilege escalation	Defense evasion	Credential access	Discovery	Lateral movement	Collection	Exfiltration	Command and control
Spearphishing Attachment	Scripting	Screensaver	File System Permissions Weakness	Process Hollowing	Securityd Memory	Password Policy Discovery	AppleScript	Data from Information Repositories	Exfiltration Over Alternative Protocol	Standard Application Layer Protocol
Spearphishing via Service	Command-Line Interface	Login Item	AppCert DLLs	Code Signing	Input Capture	System Network Configuration Discovery	Distributed Component Object Model	Data from Removable Media	Exfiltration Over Command and Control Channel	Communication Through Removable Media
Trusted Relationship	User Execution	Trap	Application Shimming	Rootkit	Bash History	Process Discovery	Pass the Hash	Man in the Browser	Data Compressed	Custom Command and Control Protocol
Replication Through Removable Media	Regsvcs/Regasm	System Firmware	Scheduled Task	NTFS File Attributes	Exploitation for Credential Access	Network Share Discovery	Exploitation of Remote Services	Data Staged	Automated Exfiltration	Multi-Stage Channels
Exploit Public-Facing Application	Trusted Developer Utilities	Registry Run Keys / Start Folder	Startup Items	Exploitation for Defense Evasion	Private Keys	Peripheral Device Discovery	Remote Desktop Protocol	Screen Capture	Scheduled Transfer	Remote Access Tools
Spearphishing Link	Windows Management Instrumentation	LC_LOAD_DYLIB Addition	New Service	Network Share Connection Removal	Brute Force	Account Discovery	Pass the Ticket	Email Collection	Data Encrypted	Uncommonly Used Port
Valid Accounts	Service Execution	LSASS Driver	Sudo Caching	Process Doppelgänging	Password Filter DLL	System Information Discovery	Windows Remote Management	Clipboard Data	Exfiltration Over Other Network Medium	Multilayer Encryption
Supply Chain Compromise	CMSTP	Rc.common	Process Injection	Disabling Security Tools	Two-Factor Authentication Interception	System Network Connections Discovery	Windows Admin Shares	Video Capture	Exfiltration Over Physical Medium	Domain Fronting
Drive-by Compromise	Control Panel Items	Authentication Package	Bypass User Account Control	Timestomp	LLMNR/NBT-NS Poisoning	Network Service Scanning	Remote Services	Audio Capture	Data Transfer Size Limits	Data Obfuscation
Hardware Additions	Dynamic Data Exchange	Component Firmware	Extra Window Memory Injection	Modify Registry	Credentials in Files	File and Directory Discovery	Taint Shared Content	Data from Network Shared Drive		Connection Proxy
	Source	Windows Management Instrumentation Event Subscription	Setuid and Setgid	Indicator Removal from Tools	Forced Authentication	Security Software Discovery	Application Deployment Software	Data from Local System		Commonly Used Port
	Space after Filename	Change Default File	Launch Daemon	Hidden Window	Keychain	System Service Discovery	Third-party Software	Automated Collection		Data Encoding

MONITOR TRENDS OUTSIDE OF MISP (EXAMPLE: DASHBOARD)



localhost:8001/trendings

Max display: 15

Date: 11/14/2017 to 11/21/2017

MISP live dashboard
MISP Threat Sharing
MISP Trendings
Most active events
Enter an event
Most active categories
Enter a category
Network activity
Payload delivery
Artifacts dropped
External analysis
Other
Financial fraud
Antivirus detection
Person
Payload installation
326
157
80
73
30
1
Most popular tags
Enter a tag
Artifacts dropped
Sightings
False positive
Discussion
"no name or id yet..."
Nov 14
Nov 15
Nov 16
Nov 17
Nov 18
Nov 19
Nov 20
Nov 21

DECAYING OF INDICATORS

- We were still missing a way to use all of these systems in combination to decay indicators
- Move the decision making **from complex filter options to** complex **decay models**
- Decay models would take into account various **taxonomies**, **sightings**, the **type** of each indicator **Sightings** and **Creation date**
- The first iteration of what we have in MISP now took:
    - 2 years of research
    - 3 published research papers
    - A lot of prototyping

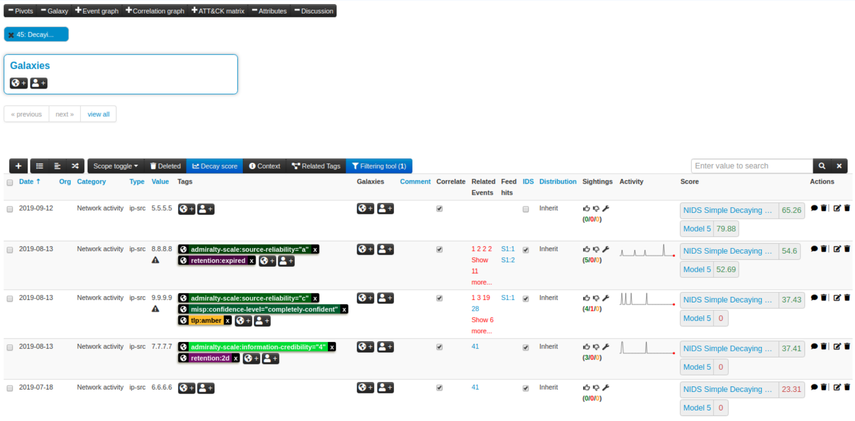
SCORING INDICATORS: OUR SOLUTION

$$\texttt{score}(\texttt{Attribute}) = \texttt{base\_score}(\texttt{Attribute, Model}) \bullet \texttt{decay}(\texttt{Model, time})$$

Where,

- `score` $\in [0, 100]$
- `base_score` $\in [0, 100]$
- `decay` is a function defined by model's parameters controlling decay speed
- `Attribute` Contains *Attribute*'s values and metadata (*Taxonomies*, *Galaxies*, ...)
- `Model` Contains the *Model*'s configuration

IMPLEMENTATION IN MISP: Event/view


Pivots
Galaxy
Event graph
Correlation graph
ATT&CK matrix
Attributes
Discussion
45: Decayi...
Galaxies
« previous
next »
view all
Scope toggle
Deleted
Decay score
Context
Related Tags
Filtering tool (1)
Enter value to search

☐	Date	Org	Category	Type	Value	Tags	Galaxies	Comment	Correlate	Related Events	Feed hits	IDS	Distribution	Sightings	Activity	Score	Actions
☐	2019-09-12		Network activity	ip-src	5.5.5.5				☑			☐	Inherit	(0/0/0)		NIDS Simple Decaying ... 65.26 Model 5 79.88	
☐	2019-08-13		Network activity	ip-src	8.8.8.8 ⚠	admiralty-scale:source-reliability="a" x retention:expired x			☑	1 2 2 2 Show 11 more...	S1:1 S1:2	☑	Inherit	(5/0/0)		NIDS Simple Decaying ... 54.6 Model 5 52.69	
☐	2019-08-13		Network activity	ip-src	9.9.9.9 ⚠	admiralty-scale:source-reliability="c" x misp:confidence-level="completely-confident" x tlp:amber x			☑	1 3 19 28 Show 6 more...	S1:1	☑	Inherit	(4/1/0)		NIDS Simple Decaying ... 37.43 Model 5 0	
☐	2019-08-13		Network activity	ip-src	7.7.7.7	admiralty-scale:information-credibility="4" x retention:2d x			☑	41		☑	Inherit	(3/0/0)		NIDS Simple Decaying ... 37.41 Model 5 0	
☐	2019-07-18		Network activity	ip-src	6.6.6.6				☑	41		☑	Inherit	(0/0/0)		NIDS Simple Decaying ... 23.31 Model 5 0	

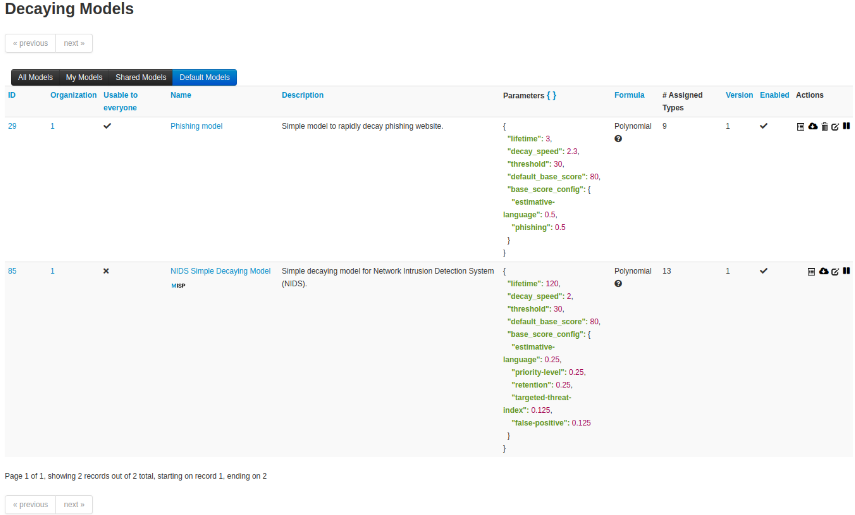
- Decay score toggle button
  - Shows Score for each *Models* associated to the *Attribute* type

IMPLEMENTATION IN MISP: API RESULT

`/attributes/restSearch`

```
"Attribute": [
  {
    "category": "Network activity",
    "type": "ip-src",
    "to_ids": true,
    "timestamp": "1565703507",
    [...]
    "value": "8.8.8.8",
    "decay_score": [
      {
        "score": 54.475223849544456,
        "decayed": false,
        "DecayingModel": {
          "id": "85",
          "name": "NIDS Simple Decaying Model"
```

IMPLEMENTATION IN MISP: INDEX



Decaying Models

« previous | next »

All Models | My Models | Shared Models | Default Models

ID	Organization	Usable to everyone	Name	Description	Parameters { }	Formula	# Assigned Types	Version	Enabled	Actions

29	1	✓	Phishing model	Simple model to rapidly decay phishing website.	{
					"lifetime": 3,
					"decay_speed": 2.3,
					"threshold": 30,
					"default_base_score": 80,
					"base_score_config": {
					"estimative-language": 0.5,
					"phishing": 0.5
					}
					}
						Polynomial	9	1	✓	

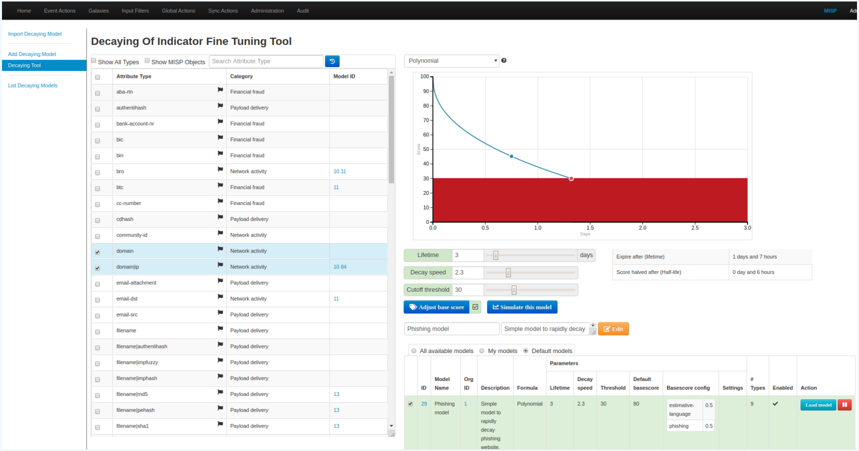
85	1	✗	NIDS Simple Decaying Model
			MISP
				Simple decaying model for Network Intrusion Detection System (NIDS).	{
					"lifetime": 120,
					"decay_speed": 2,
					"threshold": 30,
					"default_base_score": 80,
					"base_score_config": {
					"estimative-language": 0.25,
					"priority-level": 0.25,
					"retention": 0.25,
					"targeted-threat-index": 0.125,
					"false-positive": 0.125
					}
					}
						Polynomial	13	1	✓	

Page 1 of 1, showing 2 records out of 2 total, starting on record 1, ending on 2

« previous | next »

View, update, add, create, delete, enable, export, import

Implementation in MISP: Fine tuning tool


Home
Event Actions
Galaxies
Input Filters
Global Actions
Sync Actions
Administration
Audit
MISP
Import Decaying Model
Add Decaying Model
Decaying Tool
List Decaying Models
Search Attribute Type
Polynomial
100
90
80
70
60
50
40
30
20
10
0
Score
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Days
Adjust base score
Simulate this model
Edit
Load model

Decaying Of Indicator Fine Tuning Tool

☐ Show All Types ☐ Show MISP Objects

☐	Attribute Type	Category	Model ID
☐	aba-rtn	Financial fraud	
☐	authentihash	Payload delivery	
☐	bank-account-nr	Financial fraud	
☐	bic	Financial fraud	
☐	bin	Financial fraud	
☐	bro	Network activity	10 11
☐	btc	Financial fraud	11
☐	cc-number	Financial fraud	
☐	cdhash	Payload delivery	
☐	community-id	Network activity	
☑	domain	Network activity	
☑	domain|ip	Network activity	10 84
☐	email-attachment	Payload delivery	
☐	email-dst	Network activity	11
☐	email-src	Payload delivery	
☐	filename	Payload delivery	
☐	filename|authentihash	Payload delivery	
☐	filename|impfuzzy	Payload delivery	
☐	filename|imphash	Payload delivery	
☐	filename|md5	Payload delivery	13
☐	filename|pehash	Payload delivery	13
☐	filename|sha1	Payload delivery	13

Lifetime 3 days

Decay speed 2.3

Cutoff threshold 30

Expire after (lifetime)	1 days and 7 hours
Score halved after (Half-life)	0 day and 6 hours

☑

Phishing model

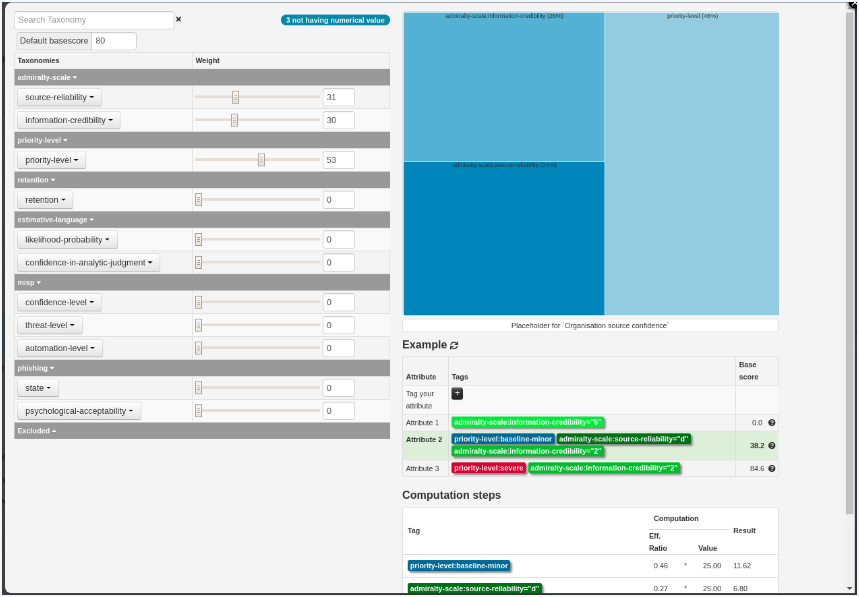
Simple model to rapidly decay

○ All available models ○ My models ● Default models

	ID	Model Name	Org ID	Description	Formula	Parameters						# Types	Enabled	Action
						Lifetime	Decay speed	Threshold	Default basescore	Basescore config	Settings			
☑	29	Phishing model	1	Simple model to rapidly decay phishing website.	Polynomial	3	2.3	30	80	estimative-language 0.5 phishing 0.5		9	✓	

Create, modify, visualise, perform mapping

IMPLEMENTATION IN MISP: base_score TOOL



Search Taxonomy
3 not having numerical value
admiralty-scale:information-credibility (26%)
priority-level (46%)
admiralty-scale:source-reliability (27%)
Placeholder for `Organisation source confidence`

Default basescore 80

Taxonomies	Weight
admiralty-scale	
source-reliability	31
information-credibility	30
priority-level	
priority-level	53
retention	
retention	0
estimative-language	
likelihood-probability	0
confidence-in-analytic-judgment	0
misp	
confidence-level	0
threat-level	0
automation-level	0
phishing	
state	0
psychological-acceptability	0
Excluded	

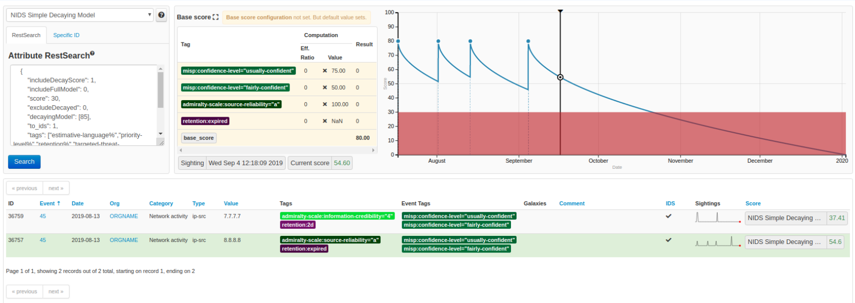
Example

Attribute	Tags	Base score
Tag your attribute	+	
Attribute 1	admiralty-scale:information-credibility="5"	0.0
Attribute 2	priority-level:baseline-minor admiralty-scale:source-reliability="d" admiralty-scale:information-credibility="2"	**38.2**
Attribute 3	priority-level:severe admiralty-scale:information-credibility="2"	84.6

Computation steps

Tag	Computation			Result
	Eff. Ratio		Value	
priority-level:baseline-minor	0.46	*	25.00	11.62
admiralty-scale:source-reliability="d"	0.27	*	25.00	6.80

IMPLEMENTATION IN MISP: SIMULATION TOOL



NIDS Simple Decaying Model
RestSearch
Specific ID

Attribute RestSearch

```
{
    "includeDecayScore": 1,
    "includeFullModel": 0,
    "score": 30,
    "excludeDecayed": 0,
    "decayingModel": [85],
    "to_ids": 1,
    "tags": ["estimative-language%","priority-
level%","retention%","targeted-threat-
```

Search

Base score Base score configuration not set. But default value sets.

Tag	Computation		Result
	Eff. Ratio	Value	
misp:confidence-level="usually-confident"	0	× 75.00	0
misp:confidence-level="fairly-confident"	0	× 50.00	0
admiralty-scale:source-reliability="a"	0	× 100.00	0
retention:expired	0	× NaN	0
base_score			80.00

Sighting: Wed Sep 4 12:18:09 2019 | Current score: 54.60

100
90
80
70
60
50
40
30
20
10
0
Score
August
September
October
November
December
2020
Date
« previous
next »

ID	Event	Date	Org	Category	Type	Value	Tags	Event Tags	Galaxies	Comment	IDS	Sightings	Score
36759	45	2019-08-13	ORGNAME	Network activity	ip-src	7.7.7.7	admiralty-scale:information-credibility="4" retention:2d	misp:confidence-level="usually-confident" misp:confidence-level="fairly-confident"			✓		NIDS Simple Decaying ... 37.41
36757	45	2019-08-13	ORGNAME	Network activity	ip-src	8.8.8.8	admiralty-scale:source-reliability="a" retention:expired	misp:confidence-level="usually-confident" misp:confidence-level="fairly-confident"			✓		NIDS Simple Decaying ... 54.6

Page 1 of 1, showing 2 records out of 2 total, starting on record 1, ending on 2

« previous
next »

Simulate *Attributes* with different *Models*

Implementation in MISP: API query body

```
/attributes/restSearch

{
    "includeDecayScore": 1,
    "includeFullModel": 0,
    "excludeDecayed": 0,
    "decayingModel": [85],
    "modelOverrides": {
        "threshold": 30
    }
    "score": 30,
}
```

TO SUM IT ALL UP...

- Massive rise in **user capabilities**
- Growing need for truly **actionable threat intel**
- Lessons learned:
  - **Context is king** - Enables better decision making
  - **Intelligence and situational awareness** are natural by-products of context
  - Don't lock users into your **workflows**, build tools that enable theirs

GET IN TOUCH IF YOU HAVE ANY QUESTIONS

- Contact us
  - `https://twitter.com/mokaddem_sami`
  - `https://twitter.com/iglocska`
- Contact CIRCL
  - info@circl.lu
  - `https://twitter.com/circl_lu`
  - `https://www.circl.lu/`
- Contact MISPProject
  - `https://github.com/MISP`
  - `https://gitter.im/MISP/MISP`
  - `https://twitter.com/MISPProject`