AN INTRODUCTION TO CYBERSECU-RITY INFORMATION SHARING MISP - Threat Sharing

CIRCL / TEAM MISP PROJECT

MISP PROJECT https://www.misp-project.org/

FIRST.ORG/AFRICA CERT



■ (11:00 - 15:00) MISP fundamentals

MISP AND STARTING FROM A PRACTICAL USE-CASE

- During a malware analysis workgroup in 2012, we discovered that we worked on the analysis of the same malware.
- We wanted to share information in an easy and automated way to avoid duplication of work.
- Christophe Vandeplas (then working at the CERT for the Belgian MoD) showed us his work on a platform that later became MISP.
- A first version of the MISP Platform was used by the MALWG and the increasing feedback of users helped us to build an improved platform.
- MISP is now a community-driven development.

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.

- 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.



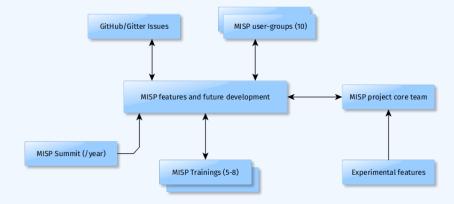
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Connecting Europe Facility

- MISP is a threat information sharing platform that is free & open source software
- A tool that collects information from partners, your analysts, your tools, feeds
- Normalises, correlates, enriches the data
- Allows teams and communities to collaborate
- Feeds automated protective tools and analyst tools with the output

- 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.

MISP MODEL OF GOVERNANCE



Sharing indicators for a **detection** matter.

- 'Do I have infected systems in my infrastructure or the ones I operate?'
- Sharing indicators to **block**.
 - 'I use these attributes to block, sinkhole or divert traffic.'
- Sharing indicators to **perform intelligence**.
 - 'Gathering information about campaigns and attacks. Are they related? Who is targeting me? Who are the adversaries?'
- $\blacksquare \rightarrow$ These objectives can be conflicting (e.g. False-positives have different impacts)

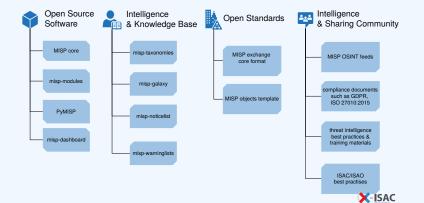
COMMUNITIES USING MISP

- Communities are groups of users sharing within a set of common objectives/values.
- CIRCL operates multiple MISP instances with a significant user base (more than 1200 organizations with more than 4000 users).
- Trusted groups running MISP communities in island mode (air gapped system) or partially connected mode.
- **Financial sector** (banks, ISACs, payment processing organizations) use MISP as a sharing mechanism.
- Military and international organizations (NATO, military CSIRTs, n/g CERTs,...).
- Security vendors running their own communities (e.g. Fidelis) or interfacing with MISP communities (e.g. OTX).
- Topical communities set up to tackle individual specific issues (COVID-19 MISP)

SHARING DIFFICULTIES

- Sharing difficulties are not really technical issues but often it's a matter of **social interactions** (e.g. **trust**).
- Legal restriction¹
 - "Our legal framework doesn't allow us to share information."
 - "Risk of information-leak is too high and it's too risky for our organization or partners."
- Practical restriction
 - "We don't have information to share."
 - "We don't have time to process or contribute indicators."
 - "Our model of classification doesn't fit your model."
 - "Tools for sharing information are tied to a specific format, we use a different one."

MISP PROJECT OVERVIEW



- Sharing via distribution lists Sharing groups
- Delegation for pseudo-anonymised information sharing
- Proposals and Extended events for collaborated information sharing
- Synchronisation, Feed system, air-gapped sharing
- User defined **filtered sharing** for all the above mentioned methods
- Cross-instance information caching for quick lookups of large data-sets
- Support for multi-MISP internal enclaves

Correlating data

- Feedback loop from detections via Sightings
- **False positive management** via the warninglist system
- **Enrichment system** via MISP-modules
- Integrations with a plethora of tools and formats
- Flexible API and support libraries such as PyMISP to ease integration
- **Timelines** and giving information a temporal context
- Full chain for indicator life-cycle management

CONCLUSION

- Information sharing practices come from usage and by example (e.g. learning by imitation from the shared information).
- MISP is just a tool. What matters is your sharing practices. The tool should be as transparent as possible to support you.
- Enable users to customize MISP to meet their community's use-cases.
- MISP project combines open source software, open standards, best practices and communities to make information sharing a reality.