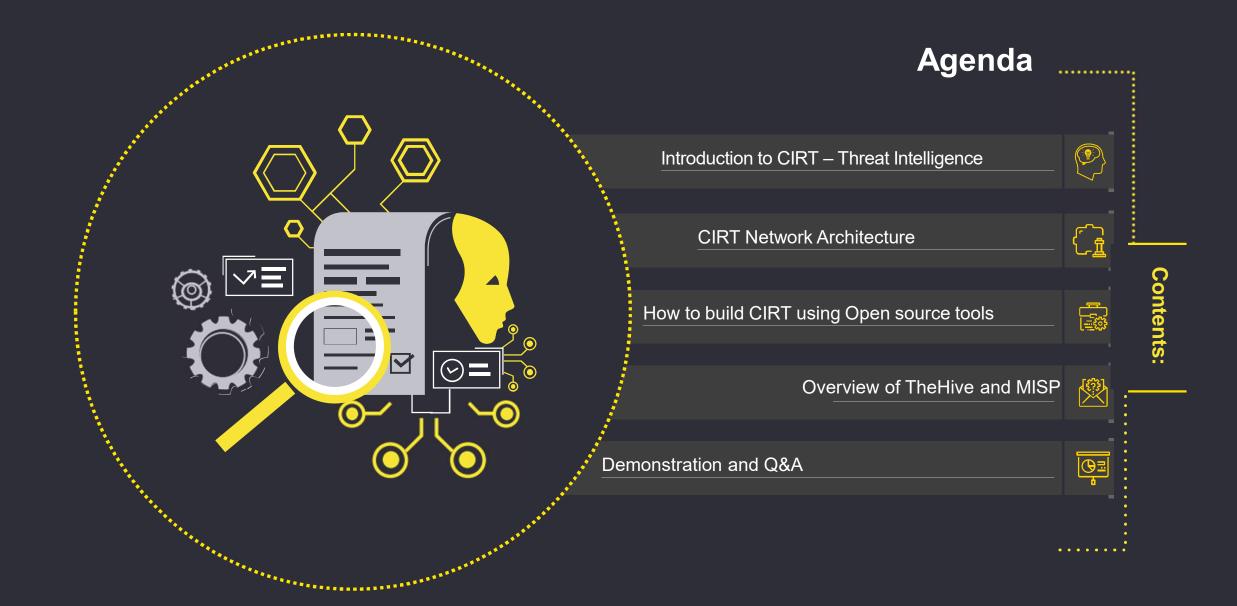
ITUEvents
ITU 2021 Global
CyberDrill

Threat Monitoring and Incident Response for CNI using open source tools

07 October 2021 14:00-16:00 CEST

#Cybersecurity #CyberDrill





## Cyber Attacks are Increasing in sophistication

#### Next generation ► Roboticised attacks 24/7 using Al and machine learning State sponsored attacks ► Quantum computing ► State-sponsored ► What's next? espionage Criminal networks ► Market manipulation Information of value to ► Competitive advantage sell or use for extortion/ransom Malicious insiders Military/political objectives e.g. credit cards, Identities, IP ► Revenge Manipulation of systems, ► Personal gain Industrial espionage and ► Stock price competitive advantage Hackers manipulation ▶ Money ► Competitive Embarrassment ► advantage ► Political, social and Script kiddies ► Amusement or environmental experimentation causes Nuisance or notoriety Unsophisticated attackers Sophisticated attackers Corporate espionage State-sponsored attacks or Organised crime (criminal Next Level Threat (script kiddies) (malicious insiders) (hackers) Advanced Threat Protection networks) (ATP)

1980's/1990's

## Computer Incident Response Team (CIRT) - Services Overview

Threat Intelligence

Threat Hunting

Threat Hunting

Forensics and Investigations

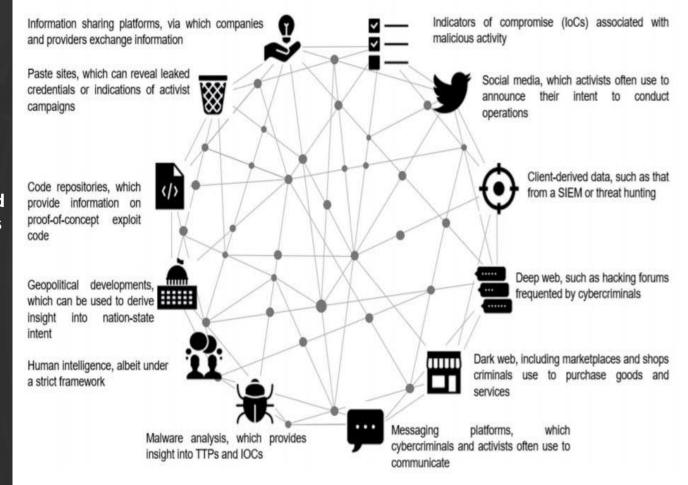
Vm

Vulnerability Management

Ot

OT/ICS Security

A modern approach to collect cyber threat intelligence involves inter-linking inferences from numerous data sources to provide actionable insights against a specific attacker or an emerging threat



Courtesy: CREST

# Threat Intelligence - Our Key Defense Against Cyber Threats

#### What is Threat Intelligence (CTI)?

Cyber threat intelligence refers to the collection and analysis of data which can be used by security teams to determine what actions are necessary to help prevent, detect and respond to cyber threats

#### Types of Threat Intelligence

Traditionally, CTI involved collection of simply Technical data like IOCs, CVEs and Incident Analysis Reports. However, a complete approach involves inclusion of Tactical, Operational as well as Strategic intelligence for protecting against threats.

#### Methodology

# Identify the crown jewels Identify the core assets of the organisation to protect from internal and external threats

The objectives are as follows:

- Understand the risks
- Understand the needs and expectations
- Define the objectives
- Identify the core assets to protect (Data, People, Infrastructure, etc)



#### Deploy to production

Automation leveraging deep learning techniques







Daily KPIs on organization's exposure on the Internet



Cyber supervision on the attacks targeting the organization's employees and VIPs

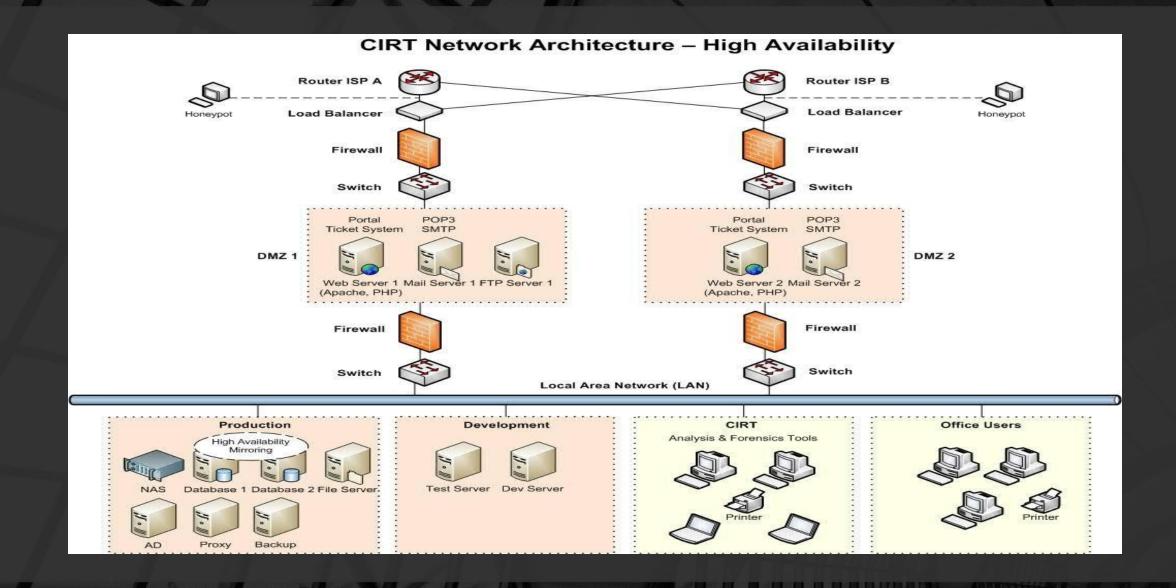


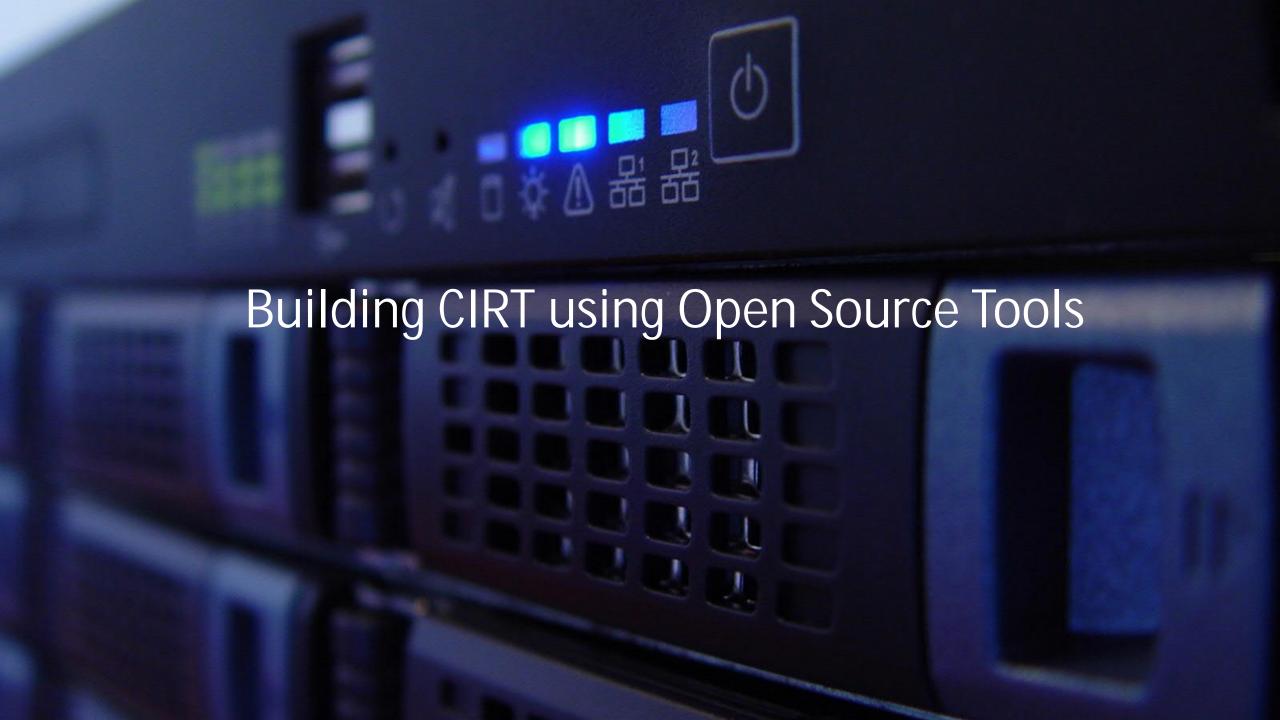
Operational risks detection and alerting (ransomwares, vulnerabilities, etc)



Data breach detection and alerting (deep/dark webs, online share platforms, social networks, etc)

## CIRT Network Architecture - High Availability Architecture





# Building CIRT- Open Source Tools

**Active Monitoring** 

- SNORT
- ▶ SNORBY





**Passive Monitoring** 

- Nagios
- Icinga
- Zabbix







**Public Source Watch** 

- ▶ PhishTank
- ZoneH
- Malware Domain List





**Local Detection** 

- TPOT
- ▶ Honeynet Project





Alerting and Monitoring

- ► RTIR
- **OTRS**
- TheHIVE







Threat Intel

► MISP



### What is MISP?

MISP stands for Malware Information Sharing Platform. It is a Threat sharing platform



- Free and Open Source and exists >10 years
- CIRCL leads development
- Used by >6000 organisations worldwide
- Security teams, national and government CSIRTs, commercial providers

## Functions of MISP

- Core functionality is sharing
- Everyone can be a consumer and/ or a contributor/producer
- Quick benefit without the obligation to contribute
- Low barrier to get acquainted to the system



### How does MISP work?

- ▶ The MISP structure consists of events, feeds, communities, and subscribers
- Normally an event is a threat entry containing information related to the threat and the associated IOCs.
- Once an event has been created, a user assigns it to a specific feed that acts as a centralized list of events belonging to a specific organization and containing certain events or grouping specifications.

## MISP Process









#### Analysis

- Trusted provider
- Identifies threat for a sector / organisation

#### Threat event

- Detection package
- Indicators of compromise
- Activities and behaviour

#### Victim

- Receives
   MISP event
- Verification and approval

#### **Infrastructure**

- Query for activity
- Block activity

Share back and report back

Sample Use cases

Block IP address on firewall Block malicious URL on proxy

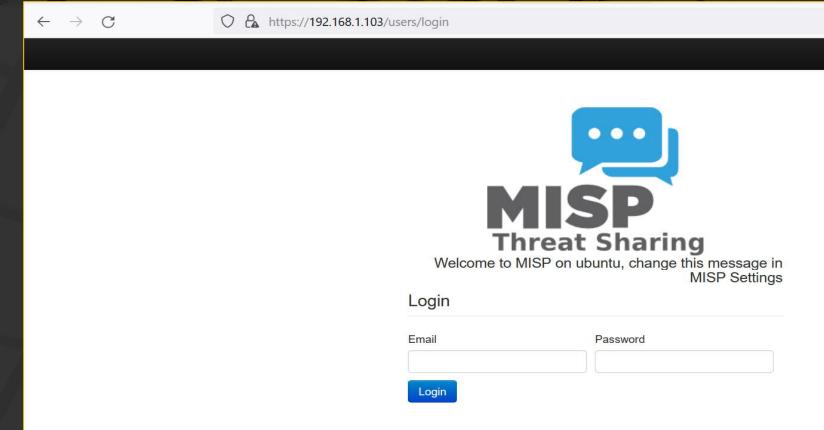
Query logs for activity

Scan endpoints with custom rules

IDS signatures

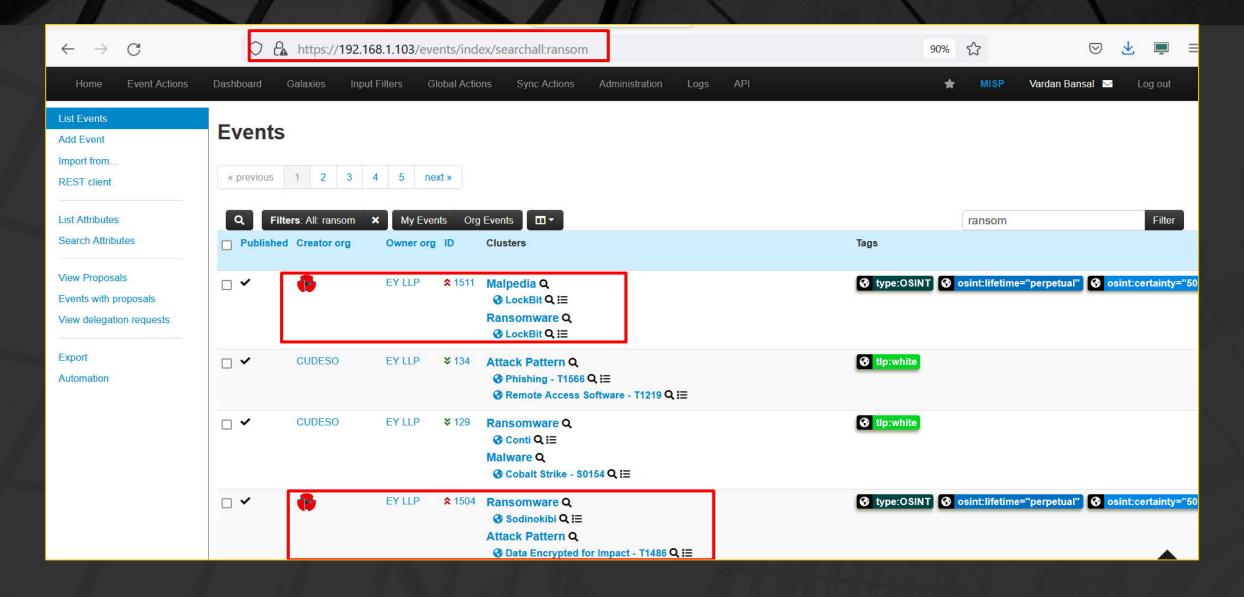
SIEM alerts

# Glimpse of MISP

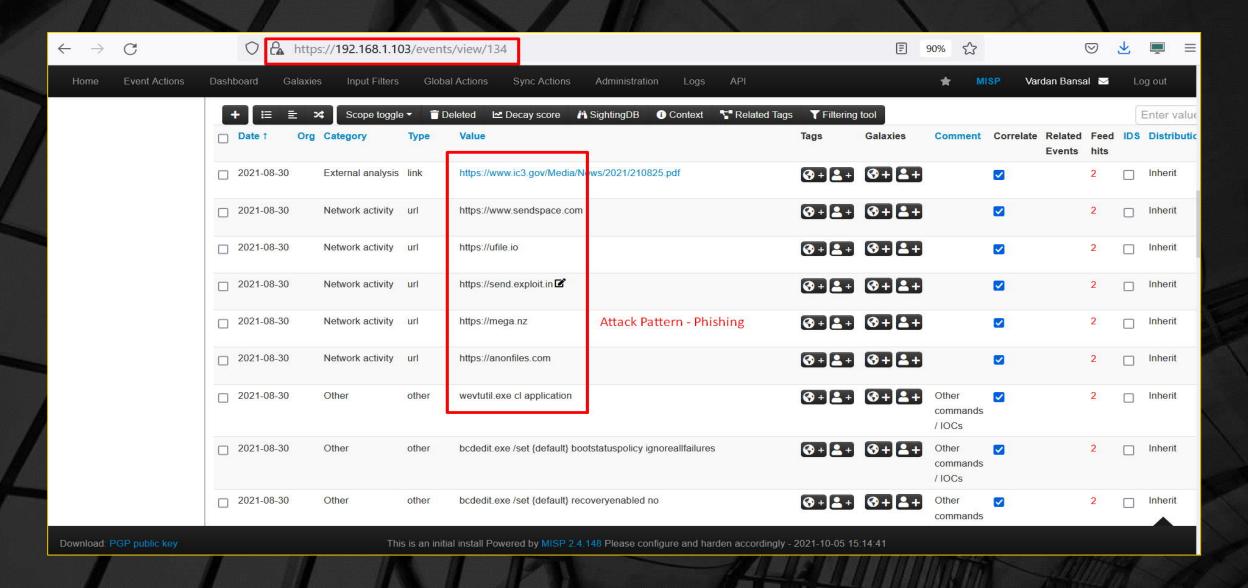


90% 🖒

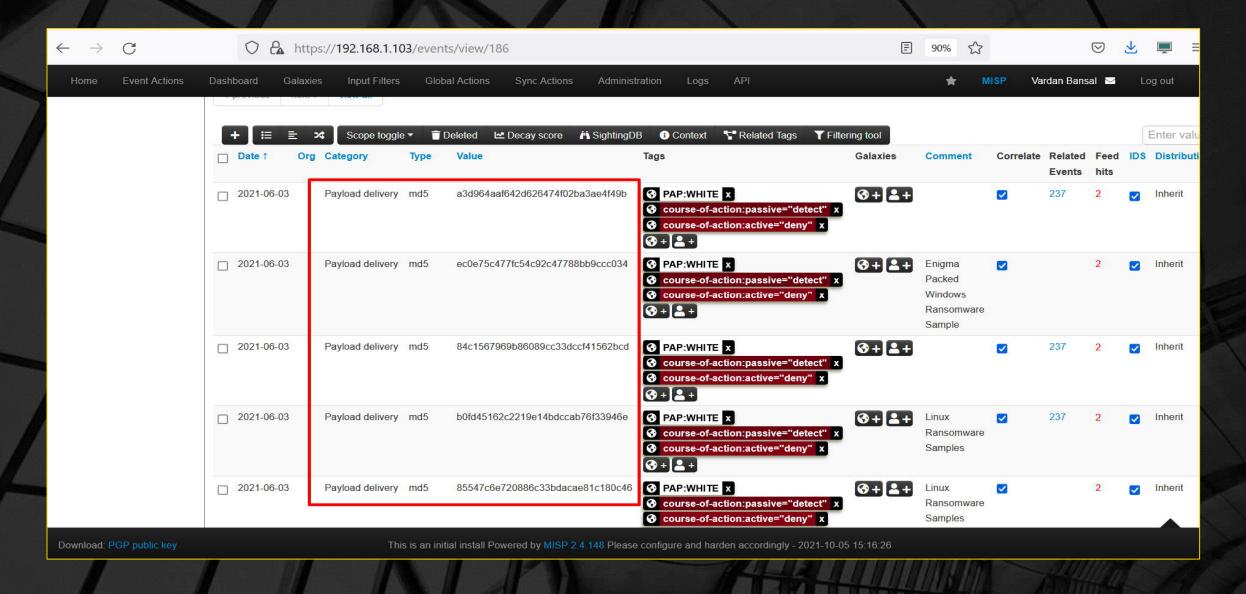
# Glimpse of MISP



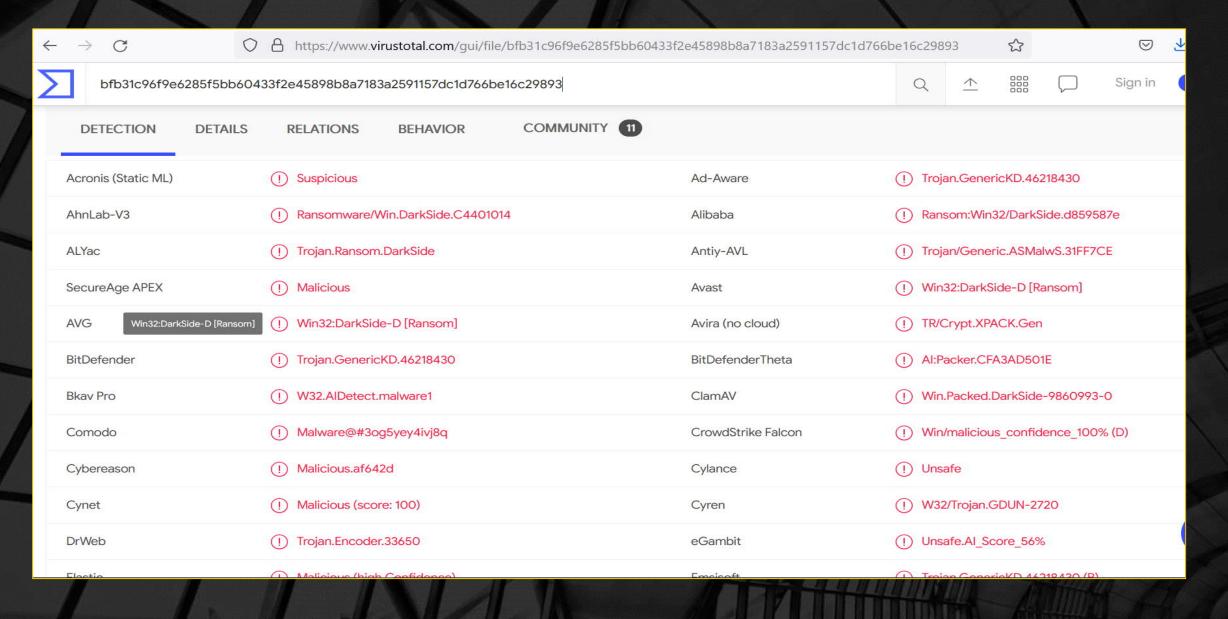
## Glimpse of MISP



## Glimpse of MISP - Ransomware



# Glimpse of MISP - Ransomware Search in Virustotal







### TheHive

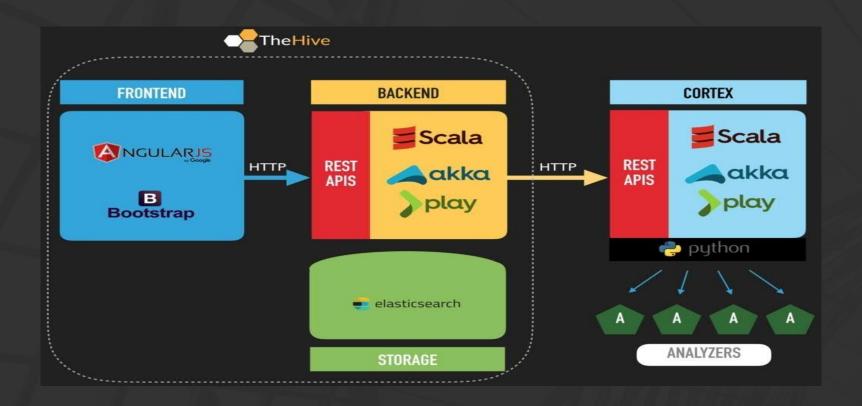


- Collaborate in real-time
- Handle & respond to incidents
- Perform forensics analysis
- Organise, structure and archive incidents
- Corelate & merge incident
- Custom case templates: incident workflows

- Augment your processes with metrics & custom feeds
- Generate fully customisable dashboards: track activity, follow KPIs...
- ► Feeders: get alerts from MISP, CTI providers, SIEM, emails, ...
- Find similarities across cases & alerts
- REST API
- Webhook support

### Hive Architecture

TheHive is written in Scala and uses ElasticSearch to store and access data on the back end. The front end uses AngularJS and Bootstrap. A number of REST API endpoints are also provided to allow for integrations and bulk actions.



# What is Security Case Management?

The case management functionality allows a security team to escalate investigations with detailed information and logs gathered on a single dashboard.

It facilitates easier compliance and quick response to security events as soon as they are detected or

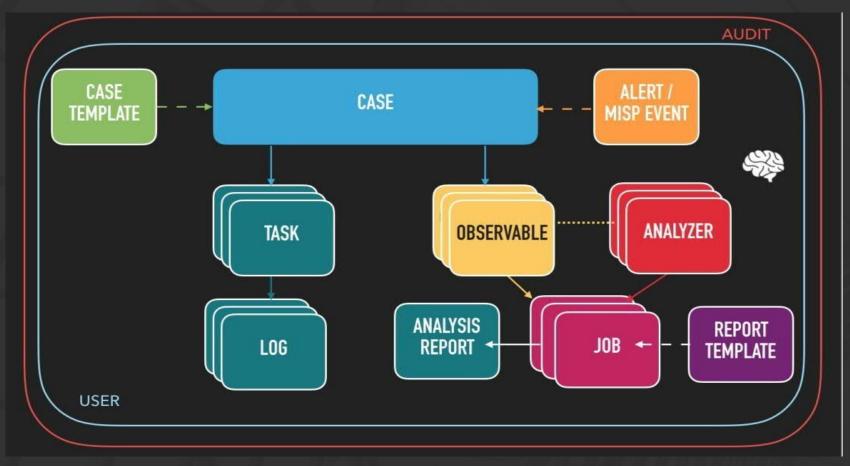
identified. Case management fast-tracks the investigation.



### Cases

The core construct of TheHive is the investigation case.

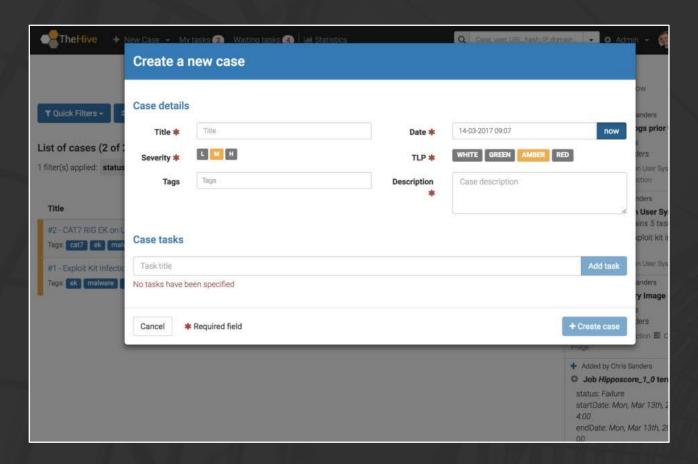
A case can be generated from an alert or created from scratch.



## Case Management

Since, case is the core construct of most security investigations, whether you're reviewing alerts, reverse engineering malware, or working a declared incident, all the data you put into a case is easily searchable from the search bar at the top of the

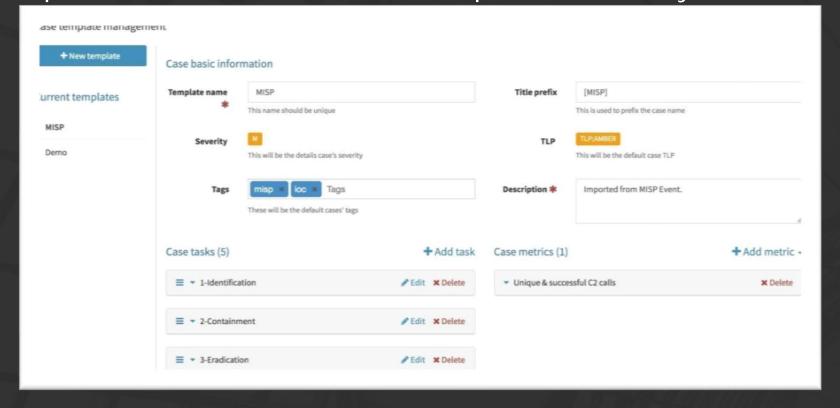
screen



## Case Templates

Case Templates are present to automatically add tasks, description, metrics and custom fields while creating a new case. A user can choose to create an empty case or based on a registered template. You can create custom templates to which you add tasks as

shown below.

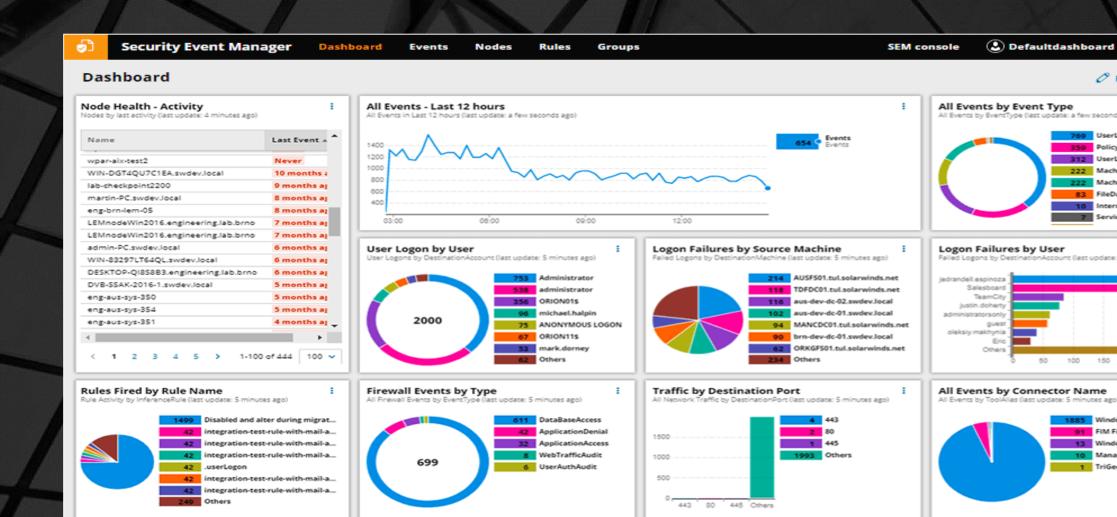


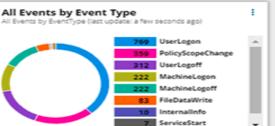
# Case Templates

The user can change values defined in template. A template contains:

- default severity
- default tags
- title prefix (can be changed by user at case creation)
- default TLP
- task list (title and description)
- metrics
- custom fields

## Snort

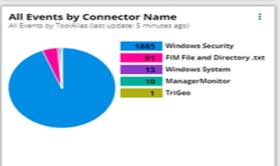




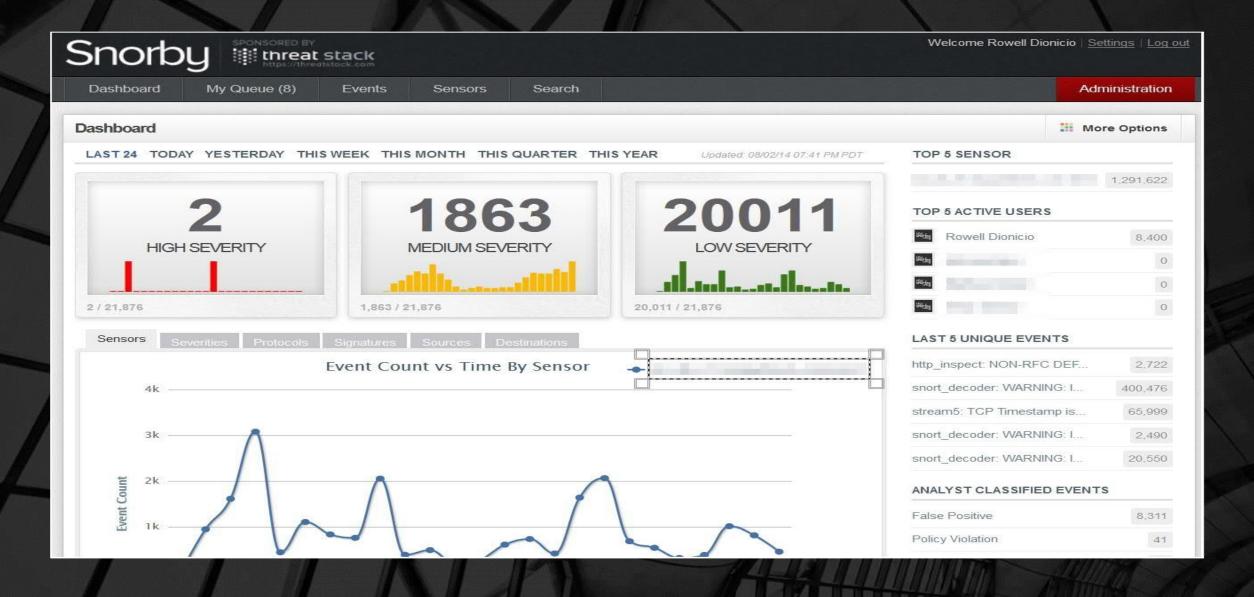
?

Edit Dashboard

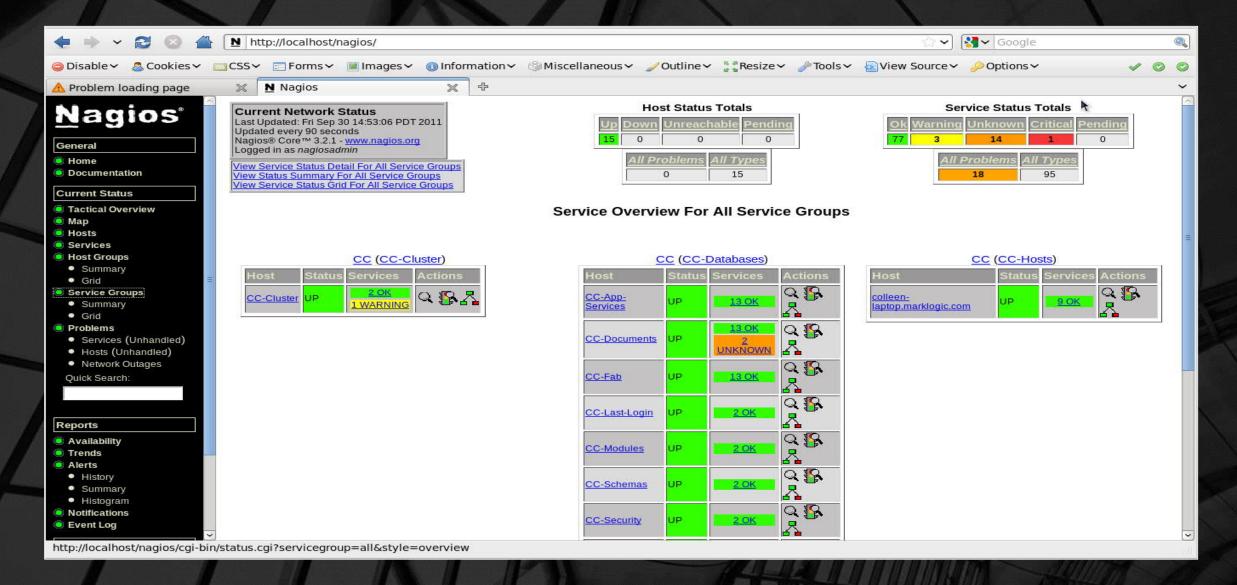




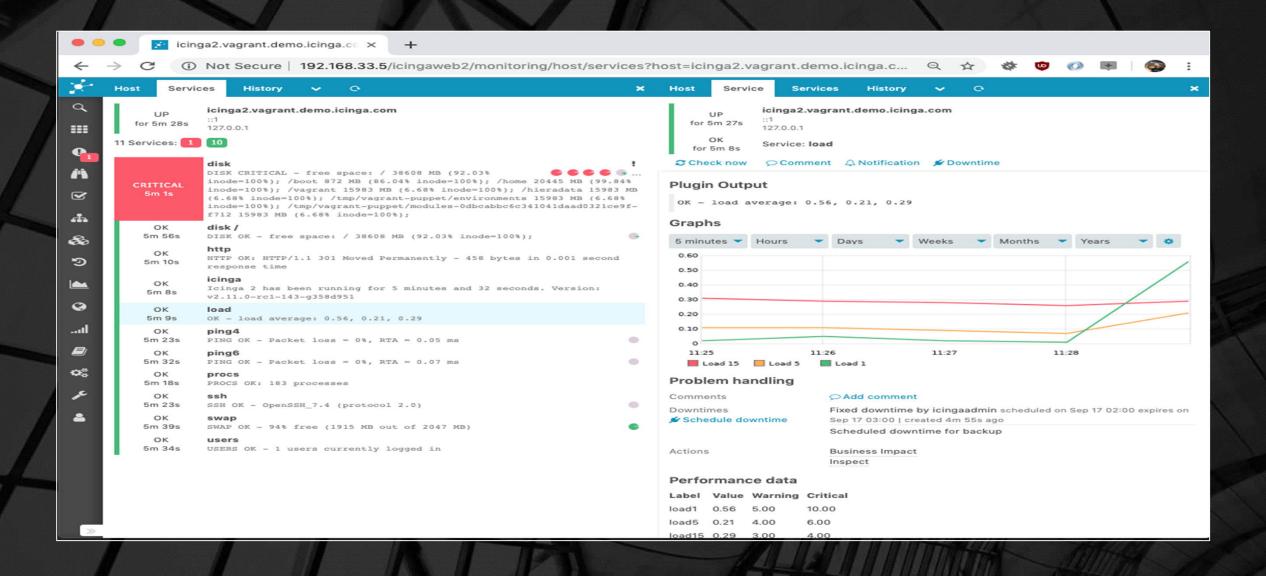
## **SNORBY**



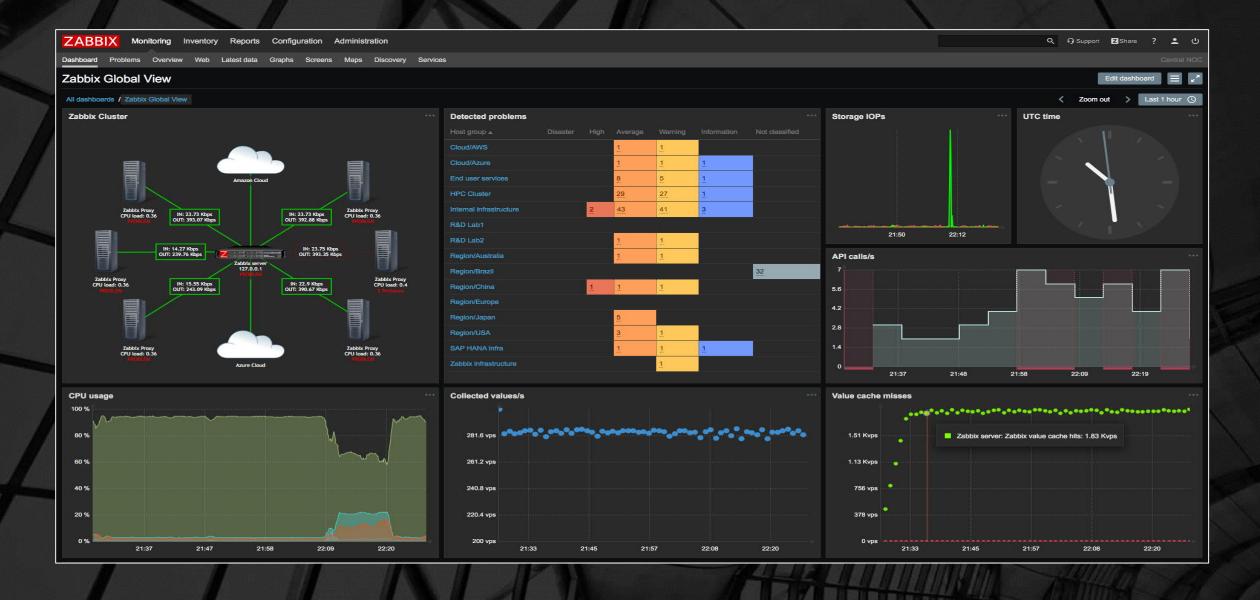
## Nagios



#### **ICINGA**



## Zabbix



### PhishTank



Add A Phish Verify A Phish Phish Search Stats FAQ Developers Mailing Lists

••••••

Sign In

Register | Forgot Password

Join the fight against phishing

Submit suspected phishes. Track the status of your submissions. Verify other users' submissions. Develop software with our free API.

Found a phishing site? Get started now — see if it's in the Tank:

Is it a phish? http://

#### Recent Submissions

You can help! Sign in or register (free! fast!) to verify these suspected phishes.

ID	URL	Submitted by
7310261	https://esl-playglobal.net	CyberSt0rm1
7310260	https://values.rubberduckcars.com/02834992/am_bin/	<u>ymst</u>
7310259	https://nobleinstall.com/service/hosting/mail?uid=	<u>ymst</u>
7310258	https://mochkin.xyz/pge/891241974/1274917/index.ph	NIRT
7310256	https://veriizonaoll.weebly.com/	<u>j4232l</u>
7310254	https://www.sky-bt.com/index.html	verifrom
7310253	https://santanderclient.com/	<u>paulch</u>

#### What is phishing?

Phishing is a fraudulent attempt, usually made through email, to steal your personal information.

Learn more...

#### What is PhishTank?

PhishTank is a collaborative clearing house for data and information about phishing on the Internet. Also, PhishTank provides an open API for developers and researchers to integrate anti-phishing data into their applications at no charge.

Read the FAQ...



Events Archive 🚖 Home News Archive Onhold Notify Stats Register Login

search...

DOMAIN NOTIFIER ProtoWave Reloaded Fulltext/Wildcard Onhold (Unpublished) only Special defacements only Apply filter Date : ALL

Total notifications: 3,339 of which 715 single ip and 2,624 mass defacements

H - Homepage defacement

M - Mass defacement (click to view all defacements of this IP)

R - Redefacement (click to view all defacements of this site)

L - IP address location

Special defacement (special defacements are important websites)

Date	Notifier	н	1 R	L	*	Domain	os	View
2019/03/21	ProtoWave Reloaded				l	biblioteca.ifnmg.edu.br/93.htm	Linux	mirror
2019/03/21	ProtoWave Reloaded				$\Rightarrow$	www.biblioteca.pm.go.gov.br/93	Linux	mirror
2019/03/21	ProtoWave Reloaded				*	www.biblioteca.al.rs.gov.br/93	Linux	mirror
2019/03/04	ProtoWave Reloaded		R	008	$\Rightarrow$	kenya.iom.int/ney.jpg	Linux	mirror
2019/03/04	ProtoWave Reloaded		R		*	acuna.gob.mx/ney.jpg	Linux	mirror
2019/03/04	ProtoWave Reloaded			-	*	mahaiwmp.gov.in/sites/ney.jpg	Unknown	mirror
2019/02/26	ProtoWave Reloaded		R		*	www.maderasdelorinoco.gob.ve/9	Linux	mirror
2019/02/06	ProtoWave Reloaded					solosagrado.com.br/1.txt	Linux	mirror
2019/02/06	ProtoWave Reloaded					yugioh.com.br/1.txt	Linux	mirror
2018/11/30	ProtoWave Reloaded				*	ps.tjac.jus.br/93.htm	Unknown	mirror
2018/11/30	ProtoWave Reloaded				*	simba.se.gov.br/93.htm	Linux	mirror
2018/11/29	ProtoWave Reloaded				*	monitoramento.seplan.mt.gov.br	Linux	mirror
2018/11/29	ProtoWave Reloaded				*	transitolandia.der.df.gov.br/9	Unknown	mirror
2018/11/29	ProtoWave Reloaded				$\Rightarrow$	colegio.pm.df.gov.br/93.htm	Win 2008	mirror
2018/11/29	ProtoWave Reloaded				*	transparencia.caetite.ba.gov.b	Unknown	mirror
2018/11/29	ProtoWave Reloaded				*	tributos.alagoinhas.ba.gov.br/	Unknown	mirror
2018/11/29	ProtoWave Reloaded	- 1	1		*	colegio.pmdf.df.gov.br/93.htm	Win 2008	mirror
2018/11/29	ProtoWave Reloaded				*	transparencia.arapongas.pr.gov	Win 2008	mirror
2018/11/29	ProtoWave Reloaded				*	tributosweb.petropolis.rj.gov	Win 2012	mirror
2018/11/29	ProtoWave Reloaded				*	intranet.pedreira.sp.gov.br/93	Win 2008	mirror
2018/11/29	ProtoWave Reloaded				*	sistemas.cbpm.ba.gov.br/93.htm	Win 2003	mirror
2018/11/29	ProtoWave Reloaded				*	transservprev.sjpatrocinio.pr	Win 2016	mirror
2018/11/29	ProtoWave Reloaded				*	sistemas.rionegro.pr.gov.br/93	Win 2008	mirror
2018/11/29	ProtoWave Reloaded				*	transpref.sjpatrocinio.pr.gov	Win 2016	mirror
2018/11/29	ProtoWave Reloaded				*	sistemas2.portovelho.ro.gov.br	Linux	mirror
	1234	567	8 9	10	11 1	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26	27 28 29 30	

## Malware Domain List

# MALWARE DOMAIN LIST

Homepage | Forums | Recent Updates | RSS update feed | Contact us

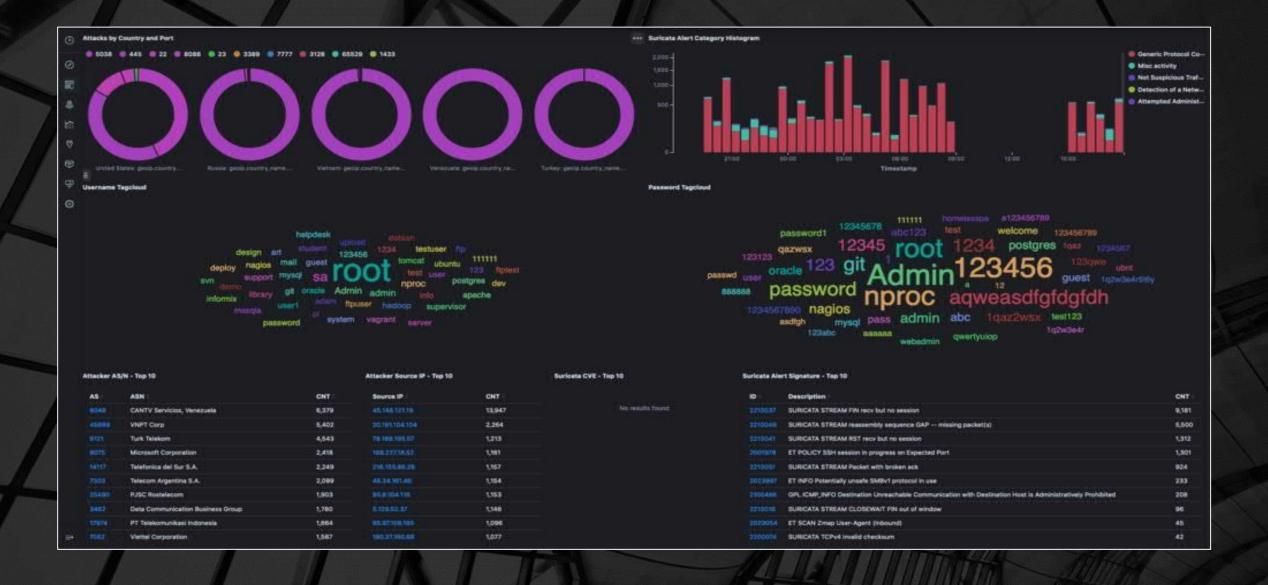
WARNING: All domains on this website should be considered dangerous. If you do not know what you are doing here, it is recommended you leave right away. This website is a resource for security professionals and enthusiasts.

Search:	All v	Results to return: 50	<b>v</b> [	☐ Include inactive sites
Search				

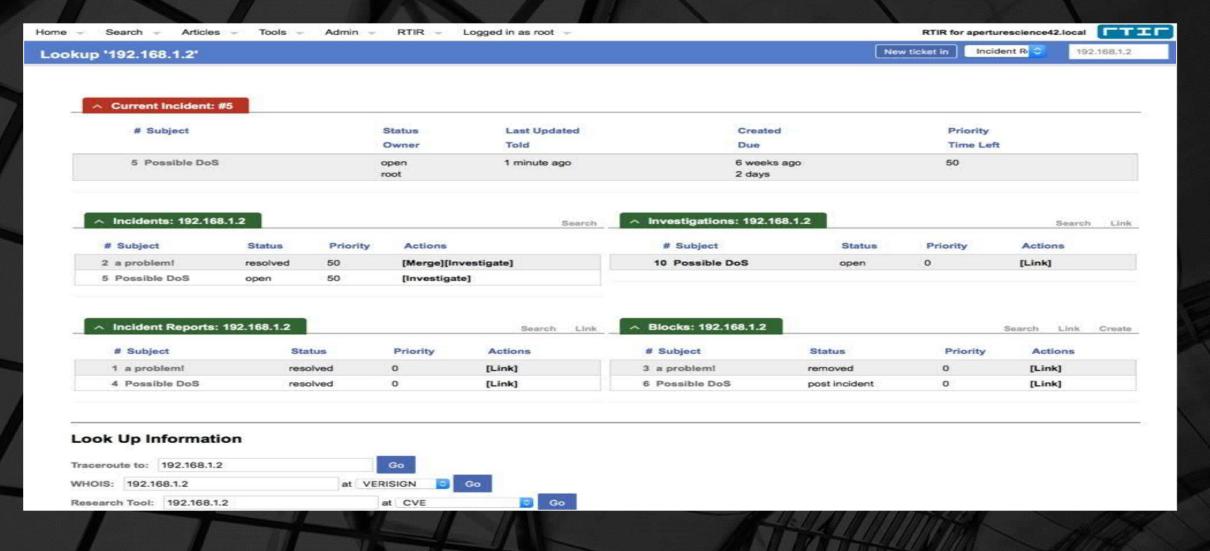
Page <u>0</u> <u>1</u> ... <u>1814</u>

Date (UTC)	<u>Domain</u>	<u>IP</u>	Reverse Lookup	<u>Description</u>	ASN	
<u> </u>	<u>n</u> <u>U</u>	<u>n</u> U	<u> </u>	<u>n</u> <u>u</u>	<u> 11 U</u>	
2017/12/04_18:50	textspeier.de	104.27.163.228	-	phishing/fraud	13335	FXX
2017/10/26_13:48	photoscape.ch/Setup.exe	31.148.219.11	knigazdorovya.com.	trojan	14576	
2017/09/28_08:11	izeselet.hu/wp-content/uploads/2016/03/ch.js	87.229.63.171	s3.abplusz.hu.	coin mining	62292	
2017/06/02_08:38	sarahdaniella.com/swift/SWIFT%20\$.pdf.ace	63.247.140.224	coriandertest.hmdnsgroup.com.	trojan	19271	700
2017/05/01_16:22	amazon-sicherheit.kunden-ueberpruefung.xyz	185.61.138.74	hosted-by.blazingfast.io.	phishing	49349	
2017/03/20_10:13	dieutribenhkhop.com/parking/pay/rd.php?id=10	84.200.4.125	125.0-255.4.200.84.in-addr.arpa.	Ransom, Fake.PCN, Malspam	31400	
2017/03/20_10:13	dieutribenhkhop.com/parking/	84.200.4.125	125.0-255.4.200.84.in-addr.arpa.	Ransom, Fake.PCN, Malspam	31400	
2017/03/20_10:13	fourthgate.org/Yryzvt	104.200.67.194	-	Ransom, Fake.PCN, Malspam	8100	TOTAL STREET
2017/03/20_10:13	alegroup.info/ntnrrhst	194.87.217.87	mccfortwayne.org.	Ransom, Fake.PCN, Malspam	197695	5 🚃
2017/03/14_23:02	privatkunden.datapipe9271.com/	104.31.75.147	_	Paypal phishing	13335	TWO I
2017/03/14_23:02	ssl-6582datamanager.de/	54.72.9.51	ec2-54-72-9-51.eu-we st-1.compute.amazonaws.com.	redirects to Paypal phishing	16509	700
2017/03/06_21:09	down.mykings.pw:8888/ups.rar	60.250.76.52	60-250-76-52.HINET-IP.hinet.net.	related to a Mirai windows spreader trojan	3462	
				related to a Mirai windows		-

## **TPOT**



### RTIR



## **OTRS**

