

# Jammer

High Interaction Threat detection system

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Jammer is a **High Interaction Threat detection system**, which will improve the level of security of your enterprise network via the following phases:



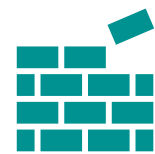
### DETECT

Jammer detects in real time all the connections incoming towards your network, creating configurable isolated environments where the attacker activity is redirected and saved.



### ANALYZE

Jammer provides all the instrumentation to analyze sessions' specifics via a modern web UI, both for live inspection and post-analysis. Sessions can be tagged, searched, logs can be downloaded and processed offline.



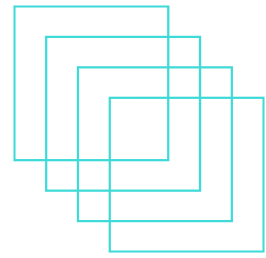
### REACT

To lively improve the level of security of your infrastructure, Jammer provides APIs that can be integrated in your tooling to promptly react on new emerging threats.



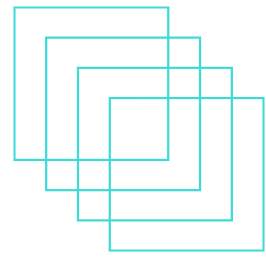
### PROTECT

Via this set of instrumentation, your infrastructure will automatically improve its level of security, and analysts are provided with all the instrumentation needed to analyze and implement custom security measures.



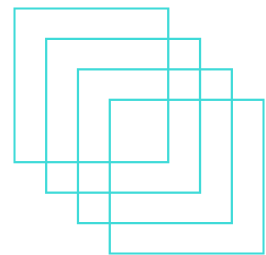
## EXPOSE REAL NETWORK SERVICES

On connection every attacker is given its own sandbox



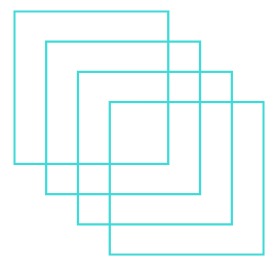
## EXPLORE DATA

Search through data in full-text mode or with our custom built in language



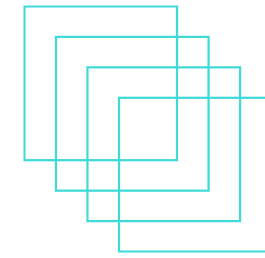
## INTEGRATE

Integrate in your own infrastructure through Jammer REST APIs



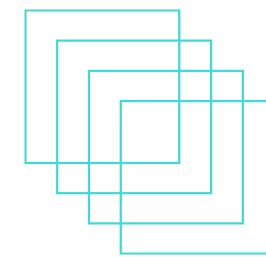
## ALLOWS ADDING AND EXPOSING NEW SERVICES WITH EASE

Jammer already comes with a plethora of well-known services sandboxes (SSH, Telnet, Samba, etc.) but its design and modularity allows adding and exposing new services for attackers as desired with extreme ease.



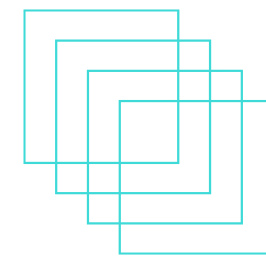
## COLLECT ATTACKER DATA

Network data, host information, executed commands etc.



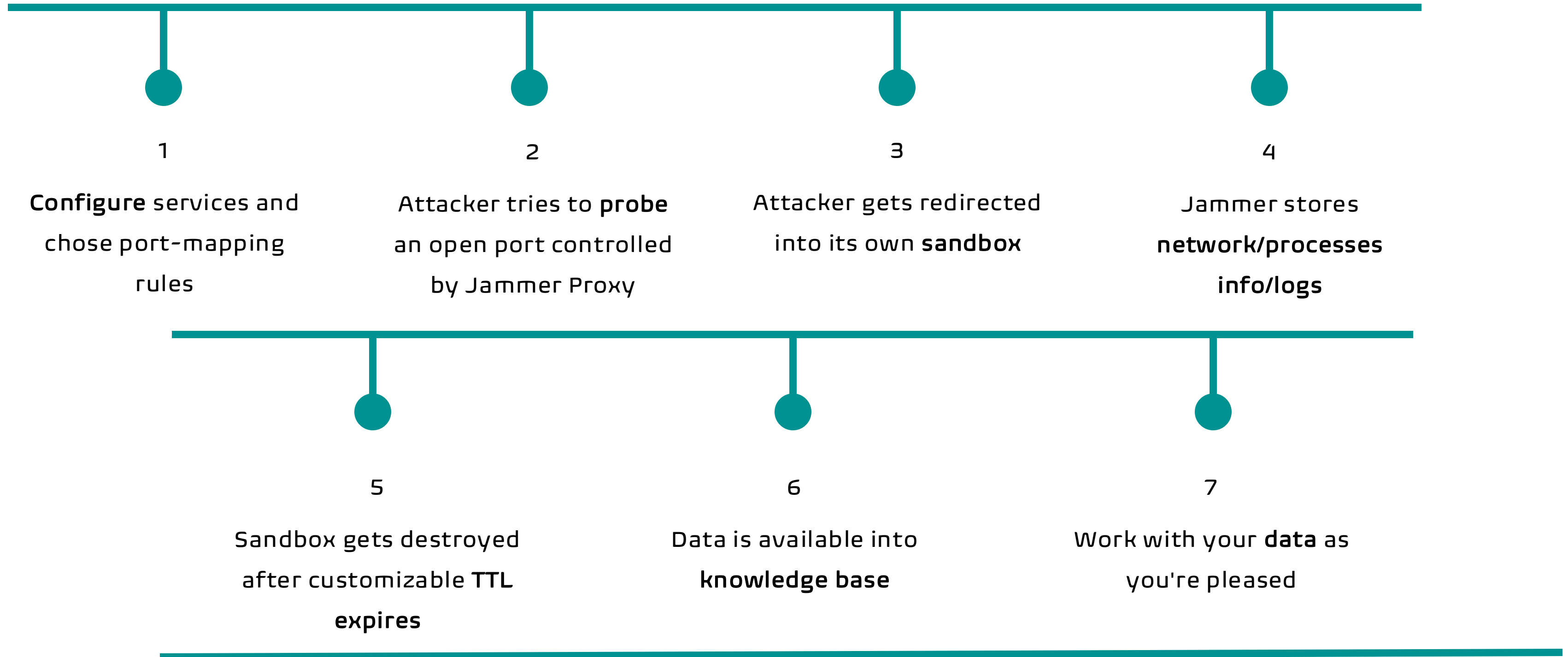
## STAGED ROUTINES ENGINE

Create staged routines to automatically tag threats, generate reports, feed other systems



## GENERATE REPORTS

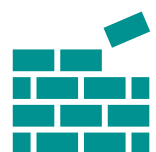
Generate and share threat reports





## THREAT INTELLIGENCE DATA GENERATION

Jammer generated data comes in world-standard formats, such as CSV, PCAP and JSON API. Such data can be used to create, store and host a custom threat intelligence database.



## ALERT GENERATION: FIREWALL/IDS/IPS LIVE CONFIGURATION

Jammer live activity and monitoring systems can be used to automatically configure and interact with firewall systems already present in your infrastructure.



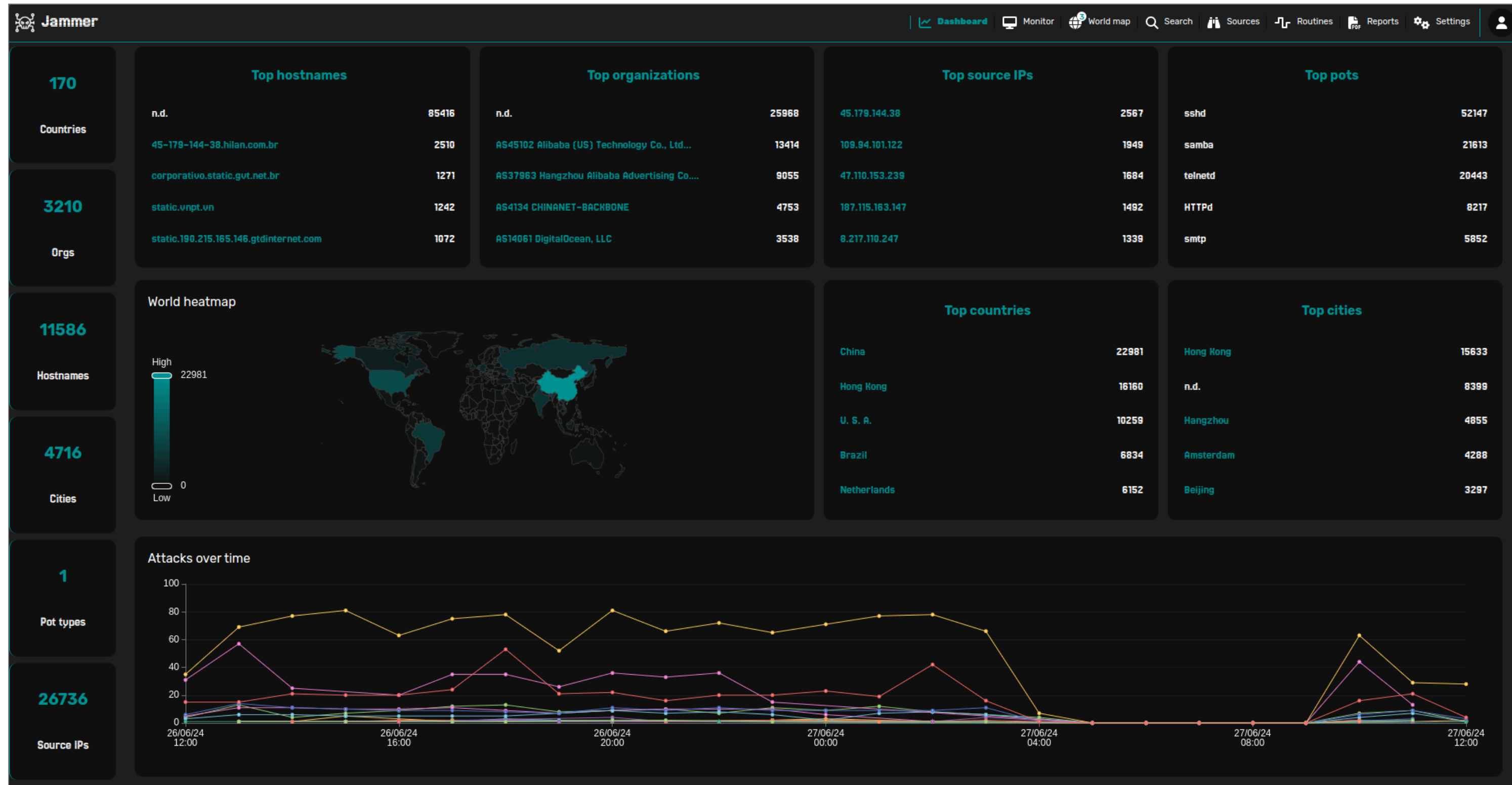
## PENETRATION TESTING TRAINING

Via its set of instrumentation, Jammer can be easily used as a laboratory to train and prepare analysts against real threats and attack scenarios.



## LIVE INFRASTRUCTURE MONITORING

Jammer tracks attackers' sessions live. Its Web UI automatically shows newcomers attacks, sessions, and real time logs.



Home section shows prominent statistics about collected data

The screenshot shows the Jammer Monitor interface. At the top, there's a navigation bar with 'Dashboard', 'Monitor', 'Search', 'Sources', 'Routines', 'Reports', and 'Settings'. The main area is divided into three sections:

- World Map:** A dark-themed world map with several red dots indicating active attack locations.
- 8 live pots:** A list of active attack sessions. Each entry includes the protocol (e.g., RDP, sshd), IP address, and a progress bar. For example, the first entry is RDP at 190.215.165.146:64021, located in Chile, Santiago, starting on 2024-06-22 at 01:40:54 PM.
- Last 5 pots:** A list of recently terminated sessions. Each entry includes the country, city, protocol, IP address, and statistics. For example, the first entry is U.S.A. (Texarkana) using telnetd at 24.119.65.136, with 1 connection, 21 sessions, 1 error, and 12 data units.

On the right live attack sessions are shown, on the bottom left recently terminated attack sessions are shown

### Live session

The screenshot shows a 'Live session' window for an sshd connection. It displays the IP address 220.203.12.53:44320 +1. The session is managed by podman and jammer-1. It shows 2 connections, 15 sessions, 0 errors, and 0 data units. The session started on 2024-06-22 at 01:52:10 PM and is located in China, Shanghai.

### Stored session

The screenshot shows a 'Stored session' window for an sshd connection. It displays the IP address 47.109.109.106. The session is located in China, Chengdu. It shows 25 connections, 313 sessions, 0 errors, and 0 data units.

### Live Map

The screenshot shows a 'Live Map' with a dark-themed world map. Several red dots are scattered across the map, indicating active attack locations in various parts of the world.

## Malware section

Added at	ID	Reporter	Threat type	URL
2024-06-06 07:48:06 AM	2876770	anonymous	malware_download	http://103.149.87.198/r (offline) ref: https://urlhaus.abuse.ch/url/2876770/
2024-06-02 03:12:09 PM	2872158	LemonHaze420_	malware_download	http://103.149.87.198/la.bot.mips (offline) ref: https://urlhaus.abuse.ch/url/2872158/
2024-06-02 03:12:08 PM	2872157	LemonHaze420_	malware_download	http://103.149.87.198/la.bot.arm7 (offline) ref: https://urlhaus.abuse.ch/url/2872157/
2024-06-02 03:12:08 PM	2872156	LemonHaze420_	malware_download	http://103.149.87.198/la.bot.mipsol (offline) ref: https://urlhaus.abuse.ch/url/2872156/
2024-06-02 03:12:08 PM	2872155	LemonHaze420_	malware_download	http://103.149.87.198/la.bot.sparc (offline) ref: https://urlhaus.abuse.ch/url/2872155/
2024-06-02 03:12:08 PM	2872154	LemonHaze420_	malware_download	http://103.149.87.198/la.bot.arm6 (offline) ref: https://urlhaus.abuse.ch/url/2872154/
2024-06-02 03:12:08 PM	2872153	LemonHaze420_	malware_download	http://103.149.87.198/la.bot.powepco (offline)

In this section details about a single session are shown:

- Country, host and organization info of the IP address
- Attacked service
- Malicious findings
- Session tags

Malware information is retrieved via providers such as Maltiverse, Urlhaus, etc.

## Application logs

All service generated logs are shown with possibility to filter out using full-text search and download them as CSV





Processes

Timestamp	Source	Destination	Filename	Net namespace	PID namespace	Syscall	Command	Command line
2024-06-22 12:59:13 PM			/etc/passwd.12	4026533977	4026534062	unlink(87)	usermod	
2024-06-22 12:59:13 PM			/etc/shadow.12	4026533977	4026534062	unlink(87)	usermod	
2024-06-22 12:59:13 PM			/etc/shadow.lock	4026533977	4026534062	unlink(87)	usermod	
2024-06-22 12:59:13 PM			/etc/passwd.lock	4026533977	4026534062	unlink(87)	usermod	
2024-06-22 12:59:13 PM			/usr/sbin/groupmod	4026533977	4026534062	execve(59)	bash	groupmod -o -g 1000 smb
2024-06-22 12:59:13 PM			/etc/group.13	4026533977	4026534062	unlink(87)	groupmod	
2024-06-22 12:59:13 PM			/etc/passwd.13	4026533977	4026534062	unlink(87)	groupmod	
2024-06-22 12:59:14 PM			/etc/group.lock	4026533977	4026534062	unlink(87)	groupmod	
2024-06-22 12:59:14 PM			/etc/passwd.lock	4026533977	4026534062	unlink(87)	groupmod	
2024-06-22 12:59:14 PM			/bin/rm	4026533977	4026534062	execve(59)	bash	rm -f /etc/samba/smb.tmp
2024-06-22 12:59:14 PM			/bin/cp	4026533977	4026534062	execve(59)	bash	cp /etc/samba/smb.default /etc/samba/smb.tmp
2024-06-22 12:59:14 PM			/bin/sed	4026533977	4026534062	execve(59)	bash	sed -i s/"(s*)"force user = */"\1force user = Administrator/ /etc/samba/smb.tmp
2024-06-22 12:59:14 PM			/bin/sed	4026533977	4026534062	execve(59)	bash	sed -i s/"(s*)"force group = */"\1force group = smb/ /etc/samba/smb.tmp
2024-06-22 12:59:14 PM			/bin/ls	4026533977	4026534062	execve(59)	bash	ls -A /storage
2024-06-22 12:59:14 PM			/bin/chmod	4026533977	4026534062	execve(59)	bash	chmod 0770 /storage
2024-06-22 12:59:14 PM			/storage	4026533977	4026534062	chmod(90)	chmod	
2024-06-22 12:59:14 PM			/bin/chown	4026533977	4026534062	execve(59)	bash	chown Administrator:smb /storage
2024-06-22 12:59:14 PM				4026533977	4026534062	chown(92)	chown	
2024-06-22 12:59:14 PM			/usr/bin/smbpasswd	4026533977	4026534062	execve(59)	bash	smbpasswd -a -c /etc/samba/smb.tmp -g Administrator
2024-06-22 12:59:15 PM			/var/lib/samba/private/passdb.tdb.tmp	4026533977	4026534062	unlink(87)	smbpasswd	
2024-06-22 12:59:16 PM			/var/lib/samba/private/msg.sock.2	4026533977	4026534062	unlink(87)	smbd	
2024-06-22 12:59:16 PM			/usr/sbin/smbd	4026533977	4026534062	execve(59)	bash	smbd -configfile=/etc/samba/smb.tmp -foreground -debug stdout -

Processes section shows relevant information about commands and syscalls executed during the session, data can be exported as CSV

Searching through data can be done using full-text or Jammer language (very similar to Shodan.io)

network\_payload- "wget" country: "CN" EXISTS tags

Showing 1 - 18 of 18

### Top pots

sshd	47715
samba	19295
telnetd	18918
HTTPd	7502
smtp	5061

### Top source IPs

45.179.144.38	2567
109.94.101.122	1949
47.110.153.239	1684
187.115.163.147	1475
8.217.110.247	1339

### Top countries

China	21568
Hong Kong	14828
U. S. A.	9141
Brazil	6504
Netherlands	5415

### Top cities

Hong Kong	14328
n/a	7883
Hangzhou	4750
Amsterdam	3681
Beijing	3220

China Jiangsu; Nanjing	180.103.115.168	2024-06-19 03:14:02 AM	1 4 0 1	COIN-MINER
China Beijing; Beijing	36.112.137.229	2024-06-16 08:40:12 PM	1 4 0 1	COIN-MINER
China No region info; Luoyang	123.5.202.230	2024-06-14 06:34:09 PM	1 2 0 1	MOZI
China Guangxi; Nanning	182.90.225.72	2024-06-13 02:58:42 PM	1 2 0 1	COIN-MINER
China Shandong; Qingdao	123.129.135.227	2024-06-13 06:11:34 AM	1 2 0 1	MOZI
China Beijing; Beijing	180.76.172.6	2024-06-10 06:52:21 AM	1 4 0 0	COIN-MINER
China Beijing; Beijing	111.67.194.176	2024-06-06 03:07:40 PM	1 86 0 0	COIN-MINER
China Hunan; Changsha	175.6.72.28	2024-06-06 01:12:57 PM	1 86 0 0	COIN-MINER
China Shanghai; Shanghai	223.100.28.112	2024-06-05 02:11:48 AM	1 86 0 0	COIN-MINER
China Guangdong; Shenzhen	120.86.254.35	2024-05-30 07:03:44 PM	1 2 0 0	MOZI
China Hebei; Shijiazhuang	27.128.230.100	2024-05-29 01:10:42 AM	1 86 0 0	COIN-MINER
China Shanghai; Shanghai	223.100.28.112	2024-05-27 02:03:28 PM	1 2 0 0	COIN-MINER
China Guangdong; Shenzhen	120.86.254.101	2024-05-27 06:51:18 AM	1 2 0 0	MOZI CVE-2018-10561 CVE-2018-1056 GPON
China	182.116.20.91	2024-05-27 05:30:13 AM		

Sources shows aggregated data per IP, Country, City, Host etc. over time. It is particularly useful to identify specific / frequently spotted attackers with a high activity rate.



This screenshot shows the search interface in the Jammer application. The search bar contains 'Enter your search term' and a search icon. A dropdown menu is open, showing 'Organization' as the selected filter. Below the search bar, a list of organizations is displayed, including AS10010 TOKAI Communications Corporation, AS10013 FreeBit Co.,Ltd., AS10019 Matsusaka Cable-TV Station Inc., AS10029 SHYAM SPECTRA PVT LTD, AS10030 Celcom Axiata Berhad, and AS10036 DLIVE.

This screenshot shows the search interface in the Jammer application. The search bar contains 'Enter your search term' and a search icon. A dropdown menu is open, showing 'City' as the selected filter. Below the search bar, a list of cities is displayed, including Abakan, Abancay, Abbottabad, Abeokuta, Abercarn, and Abidjan.

This screenshot shows the search interface in the Jammer application. The search bar contains 'Enter your search term' and a search icon. A dropdown menu is open, showing 'Source IP' as the selected filter. Below the search bar, a list of source IP addresses is displayed, including 1.160.96.183, 1.161.164.70, 1.161.214.122, 1.161.214.18, 1.161.220.220, and 1.161.96.203.

Users can create routines, made of multiple sequential stages, to process past sessions.

For example:

- search for a pattern in application logs
- if a pattern is found, add tags to all the matching data
- then create a report

Reactions to spotted patterns can be customized and programmed on demand. For example, prepare and execute a driver to feed an external IPS system under certain conditions.



The screenshot shows the Jammer application interface. At the top, there is a navigation bar with the Jammer logo and several menu items: Dashboard, Monitor, World map, Search, Sources, Routines (highlighted), Reports, and Settings. Below the navigation bar, there are tabs for 'Routines' and 'Templates'. A search bar is present with the placeholder text 'Enter your search term'. A '+ New routine' button is located below the search bar. The main content area displays a list of four routines, each with a title, description, and various performance metrics.

Routine Name	Description	Stages	Trigger	Last execution	Last execution duration	Count	Actions
Tag Censys.io Scanner	This query finds and tags all censys.io benign scanners	2	0 *****	27/06/2024 12:00 PM	1 sec	93 0	✎ 🗑
Tag PaloAlto Scanner	This query finds PaloAlto network scanners and tags them accordingly	2	0 *****	27/06/2024 12:00 PM	2 sec	223 0	✎ 🗑
Androxgh0st malware search	This search aims to find and tag malware botnet Androxgh0st: https://www.cisa.gov/news-events/cybersecurity-advisories/aa24-016a	2	0 *****	27/06/2024 11:00 AM	4 sec	569 0	✎ 🗑
Tag shadowserver.org	The Shadowserver Foundation is a nonprofit security organization working altruistically behind the scenes to make the Internet more secure for everyon...	2	0 *****	27/06/2024 11:00 AM	5 sec	964 0	✎ 🗑

Stages are executed in order.

Each stage selects session based on the stage specific logic and implementation. Possibilities for stages are:

- **Database stage** – selects past sessions based on queries
- **Boolean stage** – selects past sessions if a condition is met (has there been network activity? Etc.)
- **Execution stage** – execute an action on the matched sessions.

Past sessions matching all the stages pipeline are then shown and can be used as input for executing a routine (for example, apply a tag and / or use the sessions' IPs to feed another system).

