SBOMPlay

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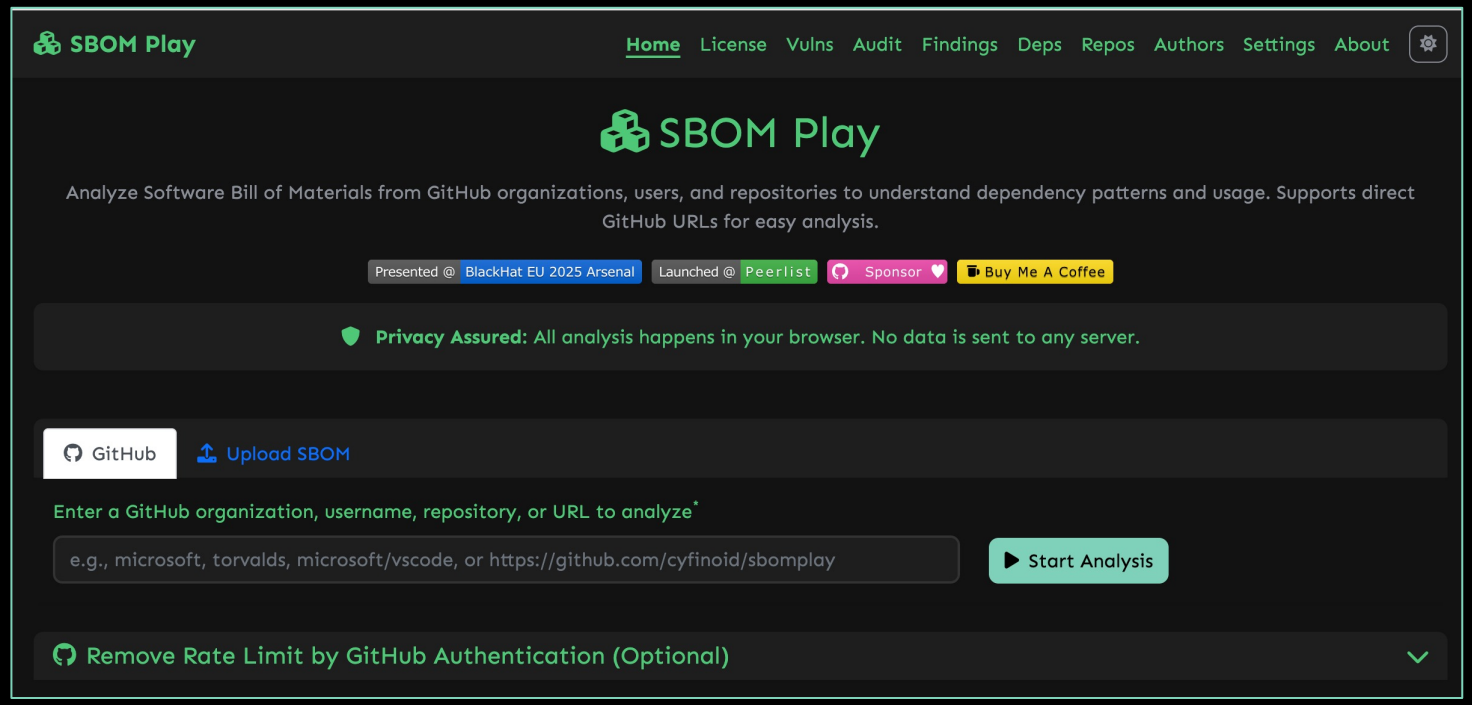
black hat ARSENAL
APRIL 23-24, 2026
MARINA BAY SANDS / SINGAPORE

SBOM Play

- SBOM Exploration and intelligence extraction platform
- IN-Browser
- Fully client side



https://cyfinoid.github.io/sbomplay/

SBOM is just an inventory

2023

- Initial Idea
- Bsides London presentation

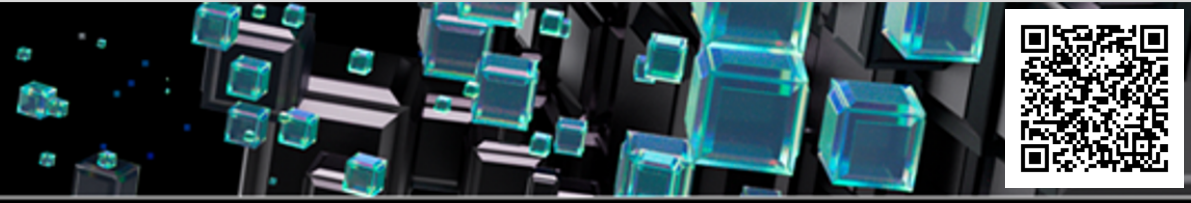
2024

- Bsides Bangalore
- c0c0n
- SBOMPlay python

2025

- SBOMPlay created

https://cyfinoid.github.io/sbomplay/



SBOM Beyond Infosec

- SBOMPlay showcases different ways to use sbom
- Using SBOM in non-infosec scenarios
- Showing is better then talking

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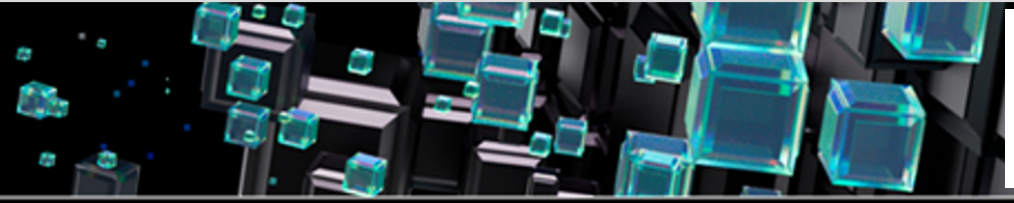

Input

- Github*
  - A Github organization / user / repository
  - Either in shortform user/repo or org/repo or username or org
  - full github url https://github.com/cyfinoid/sbomplay
- Upload SBOM
  - spdx or cyclonedx json format supported

**Github repos need to have dependency graph enabled*

https://cyfinoid.github.io/sbomplay/

Under the hood

1. INPUT

User provides a GitHub Org, User, or Repo URL.

2. FETCH

The browser queries the GitHub Dependency Graph API for SBOM data.

3. RESOLVE & AUGMENT

The in-browser engine resolves the full dependency tree by querying public registries (npm, PyPI, etc.) and vulnerability databases (OSV.dev).

4. ANALYZE & VISUALIZE

Results are processed and displayed across multiple interactive views.

5. STORE

All analysis data is stored locally in the browser's IndexedDB for persistence.

This entire process is managed by JavaScript running in the browser. Your sensitive data never leaves your machine.

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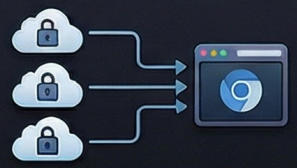
Privacy Preservation as a core principle

Browser-Native Privacy

100% Client-Side Processing

All analysis and dependency resolution happens in your local JavaScript runtime, not a server.

Direct Server Fetching



Data is fetched directly from registries to your browser; no third party holds a copy.

Zero Server-Side Footprint

There is nothing stored at the tool's and, leaving no server-side data to protect.

SBOM Play: Privacy-Preserving Supply Chain Intelligence

A browser-native analysis tool enriching SBOM data with vulnerability and license insights, eliminating intellectual property uploads by processing all data locally.

Local Data Sovereignty

Persistent IndexedDB Storage

Analysis results are saved in your browser's local database, granting you full data control.

Ephemeral Token Handling

GitHub tokens are used only for rate limits and are never persisted or transmitted.

Traditional SaaS vs. SBOM Play

	Traditional SaaS Tools	SBOM Play
Data Location	Centralized Server/Cloud	Local Browser (IndexedDB)
IP Disclosure	Required (Uploads)	None (Local Processing)
Attack Surface	Vendor Database	User's Machine Only

Universal Portability

Standalone HTML Execution

Download the zip, unzip, and double-click index.html to run the full application.

Air-Gap Compatible

Supports network-isolated environments by allowing local hoating of all CDN assets.

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SBOM Data extraction

- Cascading SBoM resolutions
- 10 levels deep (configurable)
- Live parallel query to the registeries

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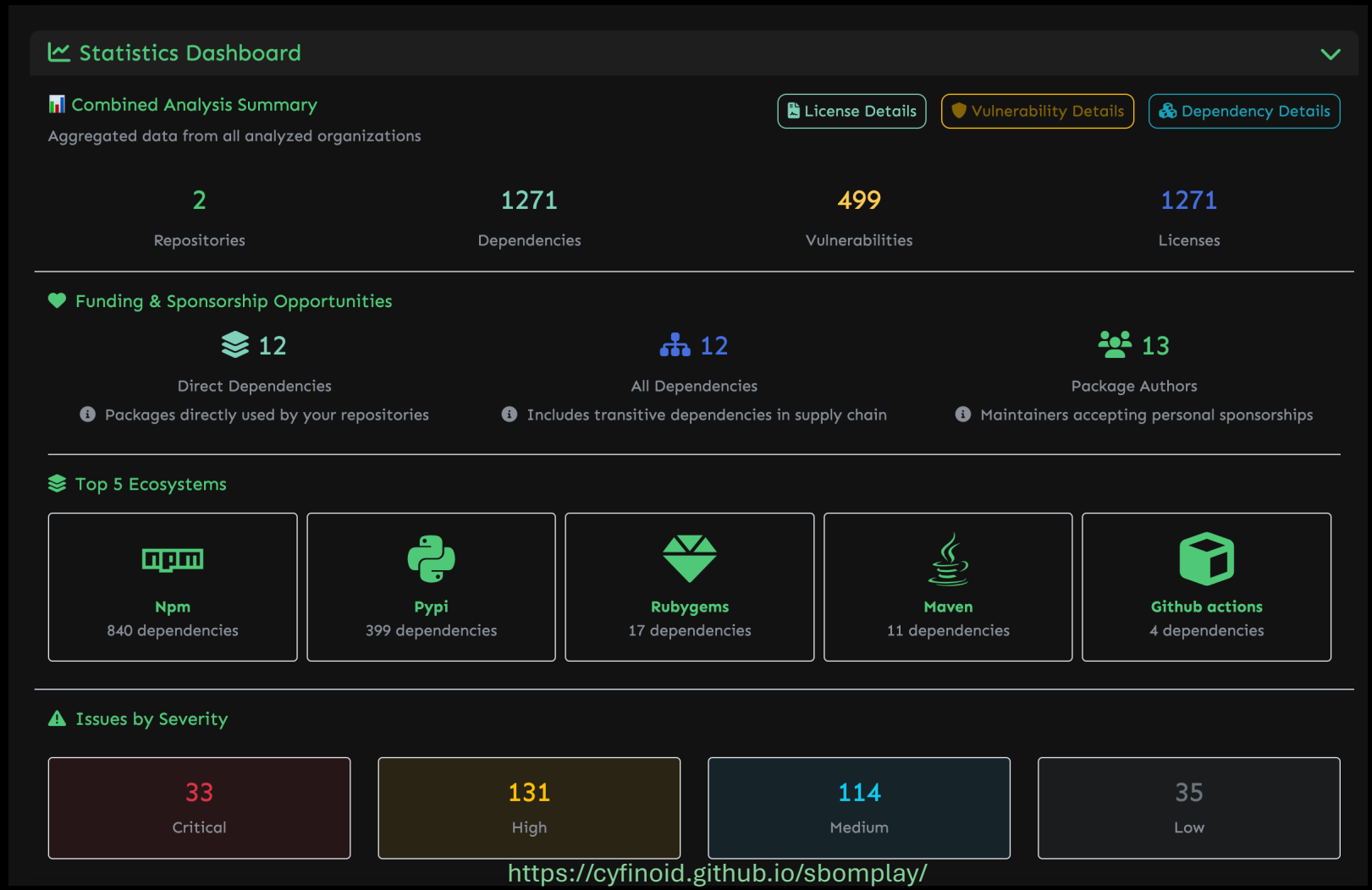
Dashboard



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Dependency View

Analysis: All Analyses (1271 deps) | Search: Search package name... | Type: All | Ecosystem: All | Repository: All

☐ Vulnerable ☐ Sponsorship ☐ Major Drift ☐ Minor Drift ☐ Unmaintained ☐ End-of-Life

1271	345	926	1271
Total Dependencies	Direct	Transitive	Showing (filtered)

Dependencies — Export CSV

Dependency	Ecosystem	Repos	Vulns	License	Sponsor	Parent
abbrev@1.1.1	npm	1 repo	—	ISC	—	Unknown
accepts@1.3.7	npm	1 repo	—	MIT	—	Unknown
acorn@7.3.1	npm	1 repo	—	MIT	—	Unknown

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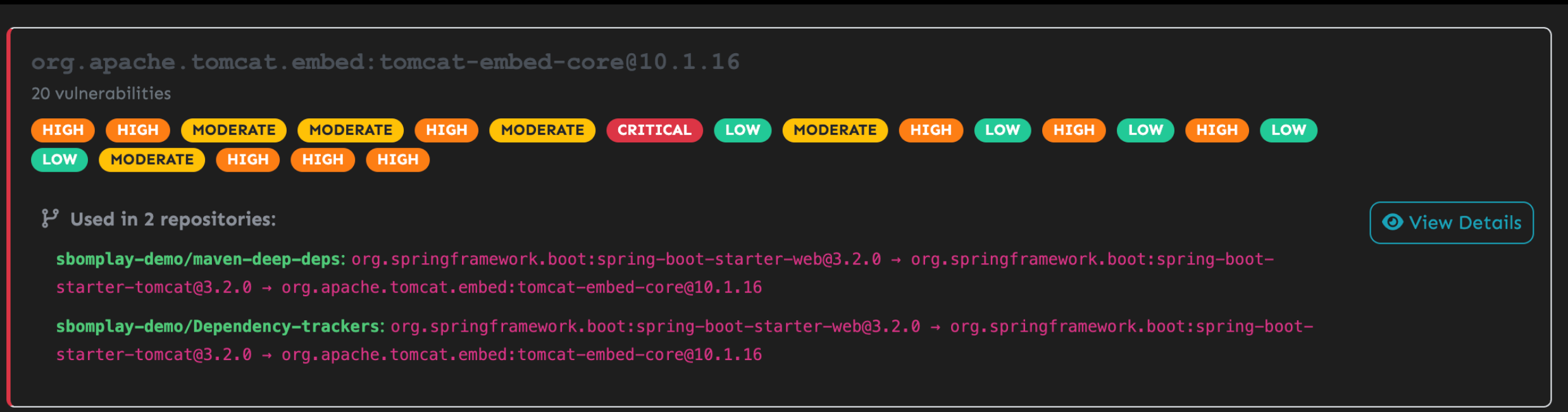
Vulnerability View



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Repository View

Analysis: All Analyses (17 repos)

Search: Search repository name...

Page Size: 25 per page

17	17	8	17
Total Repositories	With SBOM	With Vulnerabilities	Showing (filtered)

Repositories — Export CSV

Repository	SBOM Grade	Vulnerabilities	Dependencies	Authors	Repository License
sbomplay-demo/cargo-deep-deps	D (5.2)	—	12	88	—
sbomplay-demo/composer-deep-deps	D (5.2)	H:1 M:2 L:2	10	12	—
sbomplay-demo/Dependency-trackers	D (6.5)	H:158 M:125 L:59	808	968	GPL-3.0
sbomplay-demo/docker-deep-deps	D (5.3)	—	0	0	—
sbomplay-demo/github-actions-basic	D (5.1)	—	4	1	—
sbomplay-demo/github-actions-nested	D (5.1)	—	10	5	—
sbomplay-demo/go-deep-deps	D (6.7)	—	12	6	—

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License Compliance

Select Analysis

All Analyses (1271 deps)

Filter by License Category

All Categories

Unlicensed	Copyleft	Unknown	Proprietary	Total	License Changes
38	0	27	0	1233	2
unlicensed deps	high risk	high risk	medium risk	licensed deps	transitions

License Types

All unique licenses found in dependencies

License Name	Category	Packages	Repositories	Risk Level	Actions
GPL-3.0	copyleft	98	1	high	View
BSD	unknown	7	1	high	View
GPL-3.0-or-later	copyleft	5	1	high	View

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License Changes

Select Analysis

All Analyses (1271 deps)

Filter by License Category

All Categories

Unlicensed	Copyleft	Unknown	Proprietary	Total	License Changes
38	0	27	0	1233	2
unlicensed deps	high risk	high risk	medium risk	licensed deps	transitions

License Changes Detected

All license changes across all dependencies (not just high-risk)

Dependency	Version 1 @ License 1	Version 2 @ License 2	Repositories
wordwrap	0.0.2 MIT/X11	0.0.3 MIT	1
es6-symbol	3.1.1 MIT	3.1.3 ISC	1

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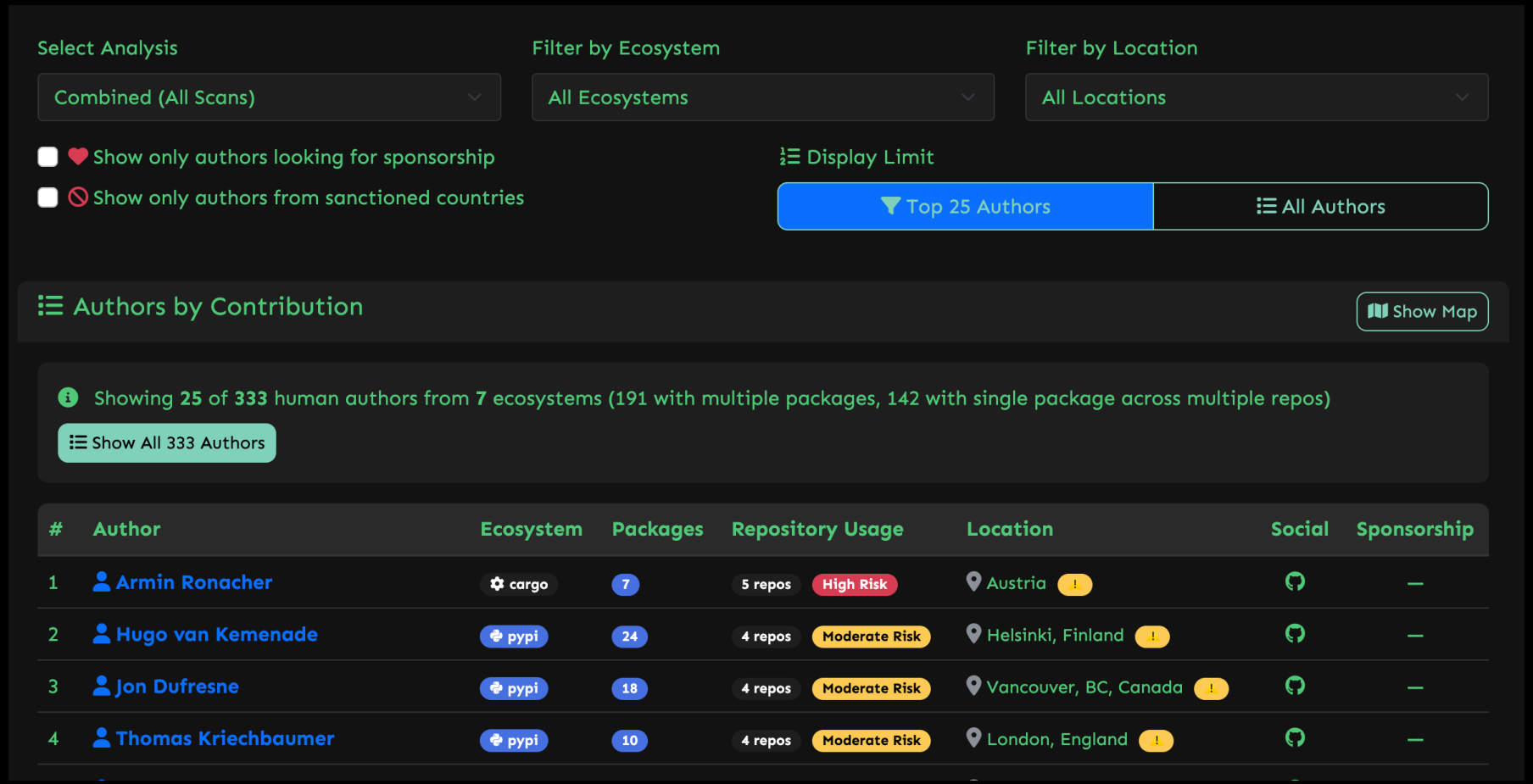
Author Details



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Geographical Distribution

Author Locations Map

Hide Map

Location Data Disclaimer: Author locations shown on this map are based on voluntarily provided information from authors themselves (typically from their GitHub profiles, package registry profiles, or other public sources). This information may be incomplete, outdated, or inaccurate. Locations are geocoded automatically and may not reflect the actual current location of authors.

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Common Dependencies

Top 5 Most Commonly Used Dependencies

backcall@0.2.0
Used in 4 repositories
View

chardet@4.0.0
Used in 4 repositories
View

brotli@1.0.9
Used in 4 repositories
View

pysocks@1.7.1
Used in 4 repositories
View

urwid@2.1.2
Used in 4 repositories
View

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Version Sprawl

Top 5 Dependencies with Version Sprawl

org.slf4j:slf4j-api 7 versions Version Sprawl

Versions: 1.7.25, 1.7.32, 1.7.36, 2.0.0-alpha1, 2.0.2 ... and 2 more

View

protobuf 6 versions Version Sprawl

Versions: 3.18.3, 3.19.6, 4.21.12, 4.25.9, 6.33.6 ... and 1 more

View

flask 6 versions Version Sprawl

Versions: 1.1.2, 2.0.3, 2.2.5, 2.3.3, 3.1.3 ... and 1 more

View

importlib-metadata 5 versions Version Sprawl

Versions: 1.6.0, 2.0.0, 8.7.1, 9.0.0, unknown

View

commander 5 versions Version Sprawl

Versions: 11.1.0, 2.20.3, 4.1.1, 7.2.0, 8.3.0

View

https://cyfinoid.github.io/sbomplay/

SBoM Audit and Compliance Findings

Select Analysis: All Analyses (1271 deps) | Filter by Severity: All Severities | Filter by Section: All Sections | Filter by Repository: All Repositories

SBOM Audit

2/2	0	1	64%
Repositories with SBOM	CISA 2025	Fresh SBOMs	Avg Completeness

Grade Distribution

D: 2

CISA 2025: 0/2 (0%) — US Federal SBOM requirements

BSI TR-03183: 0/2 (0%) — German/EU technical guideline

CERT-In: 0/2 (0%) — Indian CERT guidelines

Repository SBOM Quality

Source	Repository	Format	Grade	Score	CISA	BSI	CERT	Freshness	Complete	Details
upload	upload/depconfuse	CycloneDX 1.2	D	6.3/10	✗	✗	✗	Aging	65%	8
GitHub	anantshri-clones/Dependency-trackers	SPDX 2.3	D	6.5/10	✗	✗	✗	Very Fresh	63%	12

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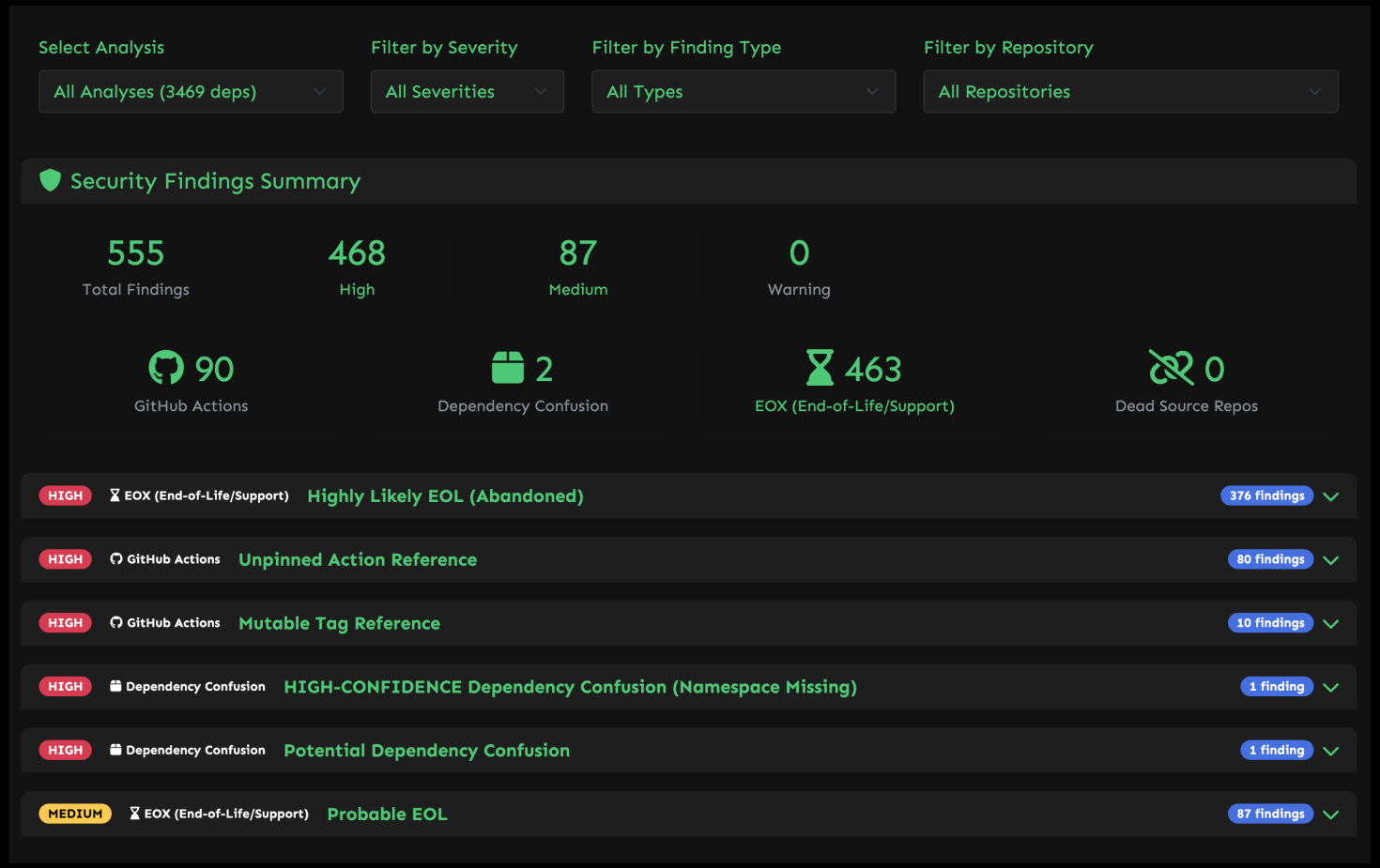
EoX and Dependency Confusion Detection



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SBOMPlay : SBOM Exploration and intelligence extraction

Client-side web application for analyzing Software Bill of Materials (SBOM) data from GitHub. It empowers security professionals to identify vulnerabilities, assess license compliance, and detect supply chain risks—all processed locally within the browser.

Deep Supply Chain Intelligence

Automated Vulnerability Scanning

Integrated OSV.day scanning identifies CVEs across dependencies with severity-based filtering.

Advanced License Compliance

Categorizes 100+ licenses by risk level **and detects complex dual-license conflicts.**

Privacy-First Architecture

100% Client-Side Processing

Your SBOM data never leaves your machine; all analysis happens in-browser.

IndexedDB Persistent Storage

Efficiently stores gigabytes of local analysis data without requiring a back-end server.

Author & Funding Detection

Tracks author geolocation, deduplicates contributors, and identifies open-source sponsorship opportunities.

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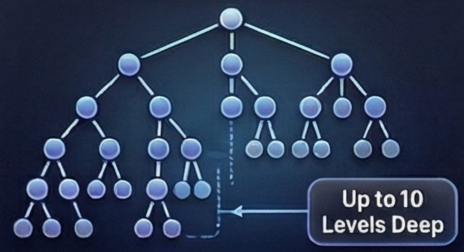
Deep Dependency Resolution



Resolves transitive dependency trees up to 10 levels deep across multiple ecosystems.

https://cyfinoid.github.io/sbomplay/

Thanks

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- /in/anantshri
- https://cyfinoid.github.io/sbomplay/
- https://github.com/cyfinoid/sbomplay/