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BDSAF Cybersecurity Symposium 2025

DevSecOps in the AI Era: Security Gates that Scale

SAST • SCA • DAST • CI/CD • AI-assisted Review

About Me

Anowar - Solution Architect & Member of CoE

- Leading **DevSecOps** & **multi-functional teams**
- Building teams & **architectures that scale**
- Driving **AI-assisted engineering** across large product orgs

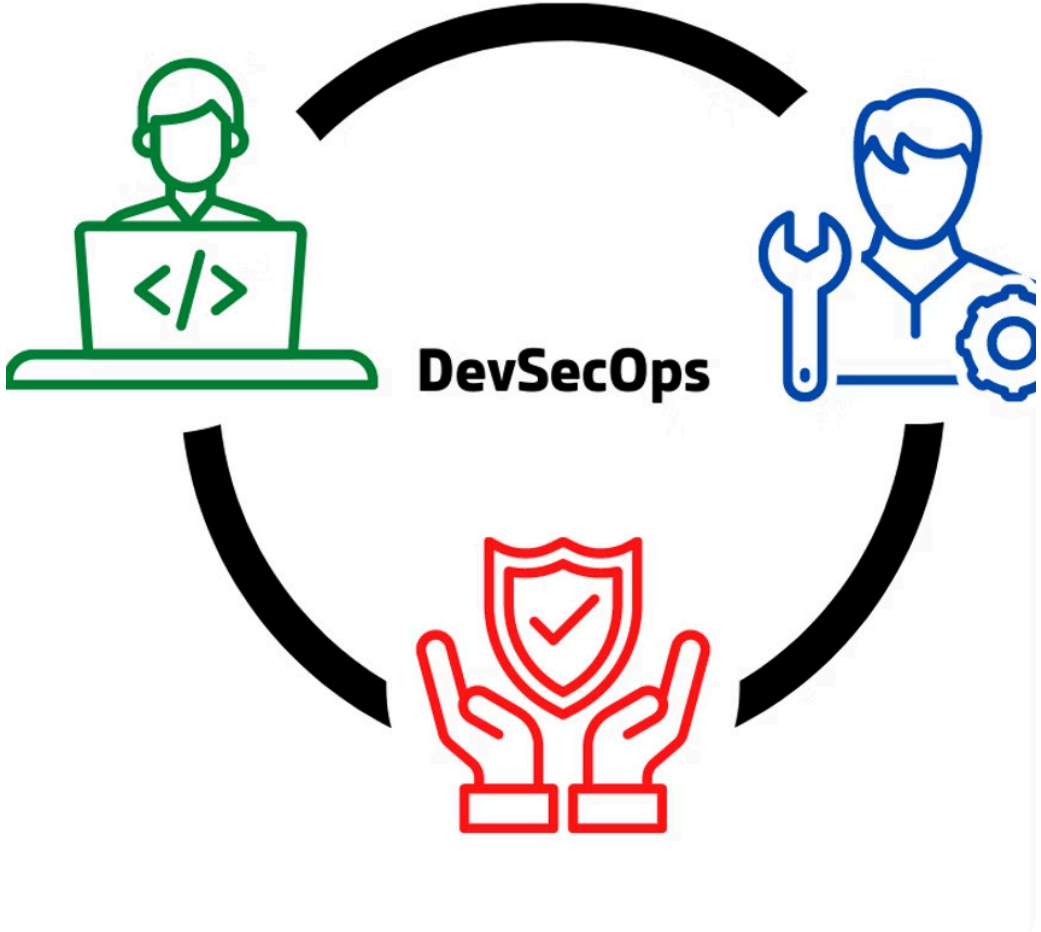
DevOps vs DevSecOps

DevOps

- Set of practice focus on **Development** and Infra-**Operation**
- **Goal:** delivery speed

DevSecOps

- Development, **Security**, and Infra-Operation
- Integration of security into the SDLC
- **Goal:** speed **+ safety**



Why DevSecOps (AI Context)

AI-Assisted Coding

AI speeds coding—but also introduces risks.

Emerging Risks

AI-generated code contains **known vulnerabilities in ~45%** of cases

Veracode 2025 GenAI Code Security Report

Our Goal

We need *secure-by-default pipelines* around AI.

Why DevSecOps (AI Context)

AI accelerates development velocity but expands the attack surface. Security must shift left into the pipeline and remain vigilant at runtime.

Velocity Surge

AI-assisted coding increases **output**—and **risk surface**.

Shift Left

Catch vulnerabilities early in code and dependencies.

Runtime Gates

Runtime behavior reveals what static analysis misses.

Goal: Secure-by-default, developer-friendly, measurable.

Pipeline Map (Tools @ a Glance)

- **SAST/SCA:** SonarCloud Quality Gate (PR)
- **Peer + AI review:** Copilot PR / Amazon Q / CodeRabbit
- **DAST (runtime):** Playwright → **OWASP ZAP**
- **(Optional) External:** scheduled surface checks

One pipeline, multiple gates.

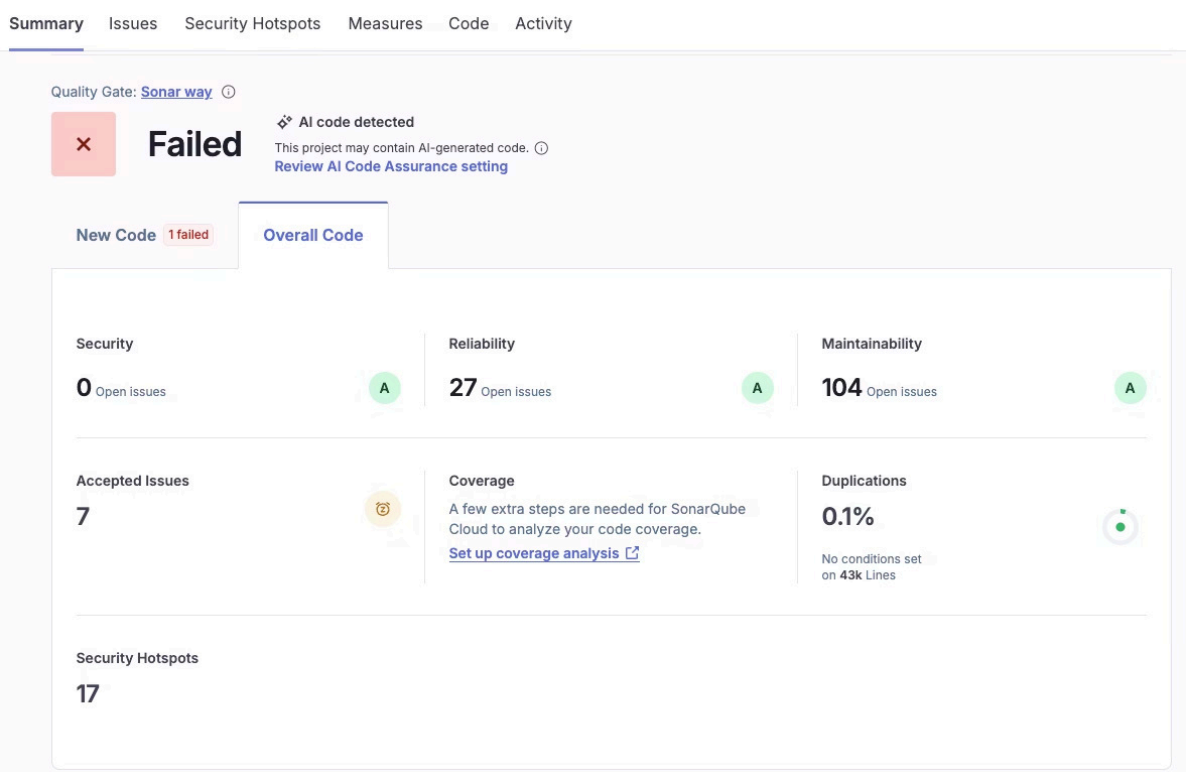
Gate #1 - SAST (What & Why)

What It Covers

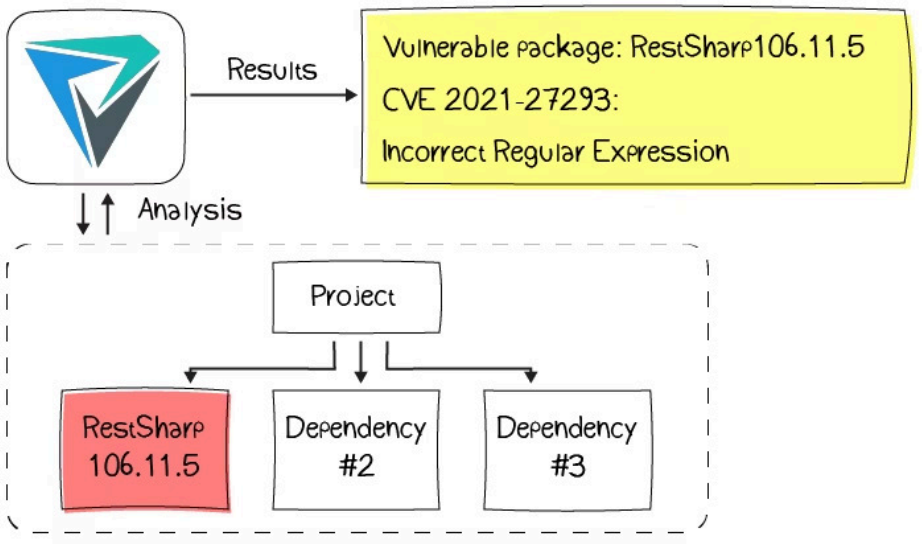
- **Static** scan of source code
- Finds: injections, unsafe APIs, code smells
- **Fail** on High/Critical at PR

Catch vulnerabilities in Code

Fix early, fix cheap.



Gate #1b - SCA (Dependencies)



What It Covers

- Track **CVEs** in libraries
- Validate open-source licenses (compliance)
- Auto PRs for safe upgrades
- Generate CycloneDX SBOM for provenance

You ship your deps too.

Human × AI in Code Review

The most effective reviews blend AI pattern detection with human judgment about design intent and business risk.

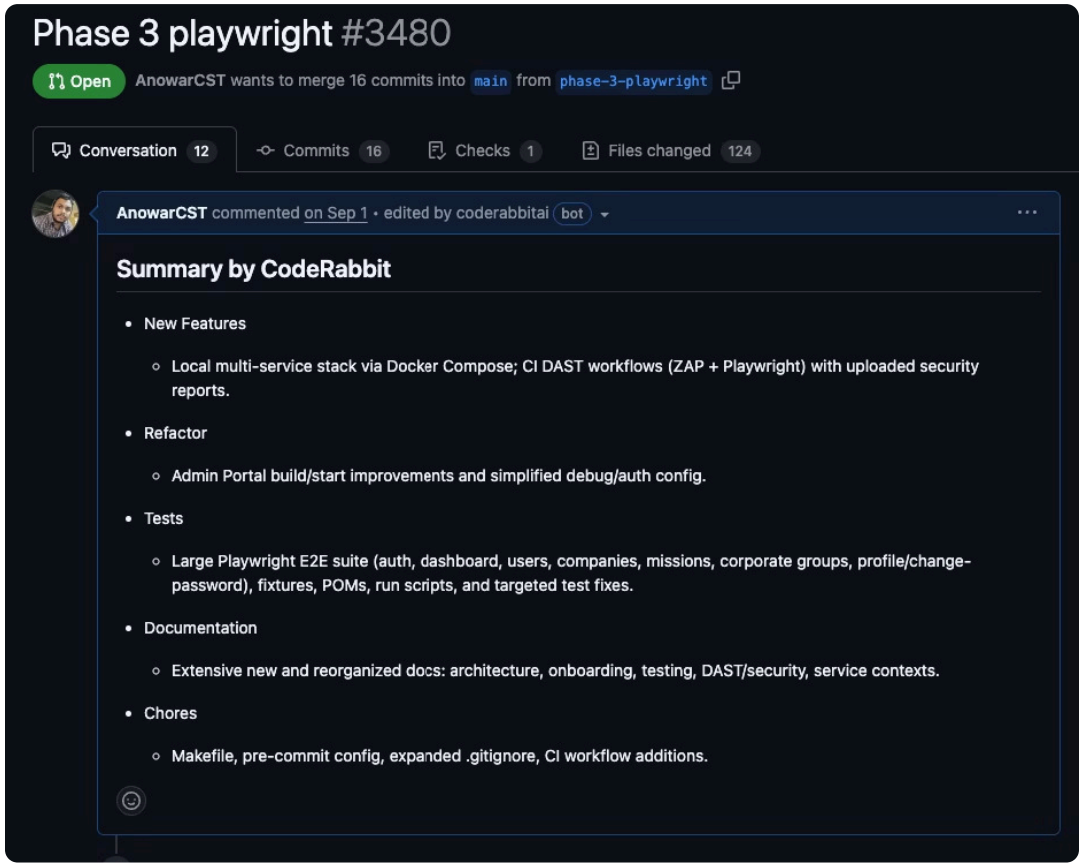
Human Reviewers

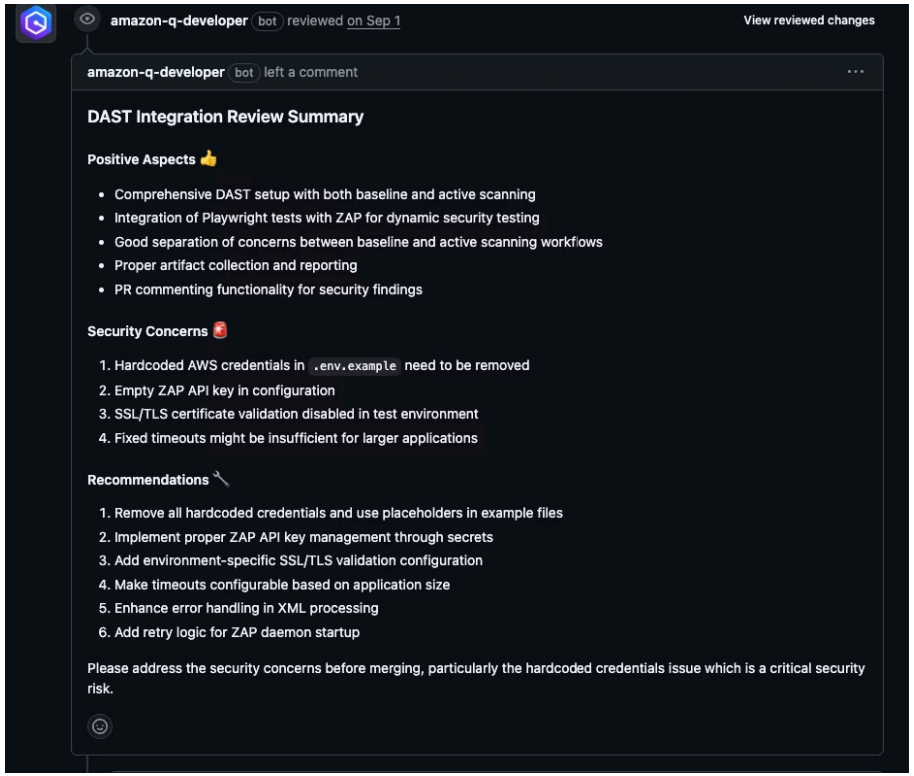
- Design intent & architecture
- Business context & risk appetite
- Final approval decision

AI Reviewers (Copilot, CodeRabbit, Amazon Q)

- Pattern matching & code smells
- Known insecure API usage
- Missing test coverage hints

Policy: AI assists; humans decide. Document AI suggestions in PR comments for auditability.

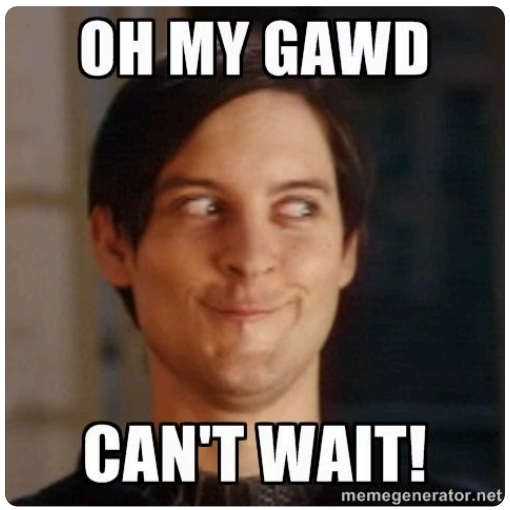




What Next?

- SAST
- SCA
- Human peer review
- AI Review

PR Merge and deploy to PRODUCTION



SAST ✅

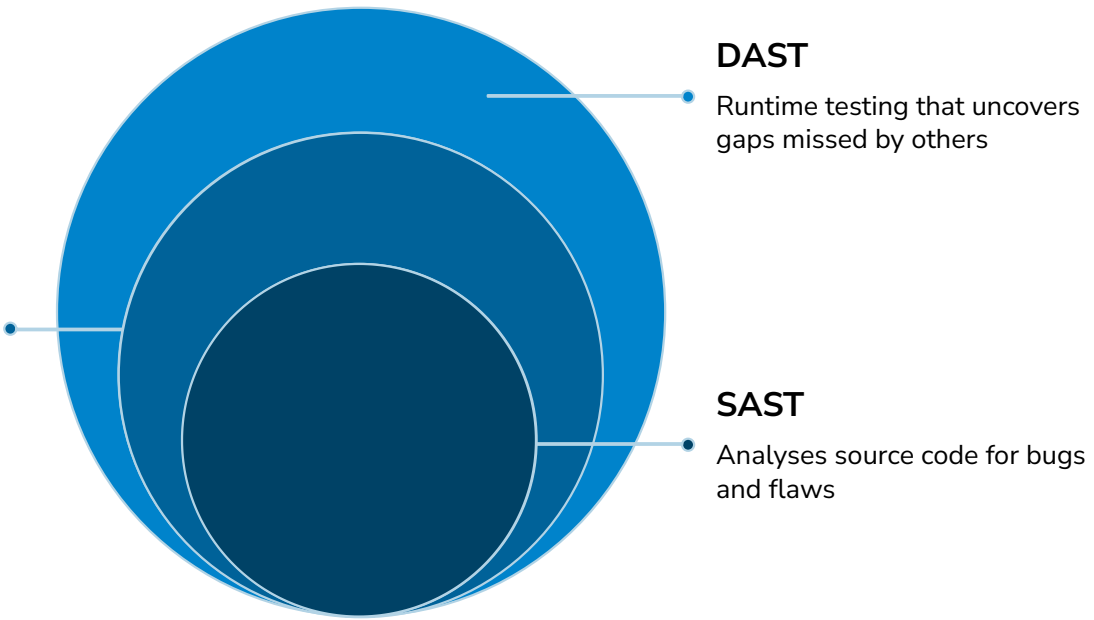
SCA ✅

Runtime & Infra: 🚨

Unit tests cleared… runtime says ‘step aside’.

Where DAST Fits

- **Runtime** behaviour under real flows
- Catches headers, cookies, auth, injections, **Complements** SAST/SCA



Layered security: **SAST** for **code**, **SCA** for **dependencies**, **DAST** for **runtime**.

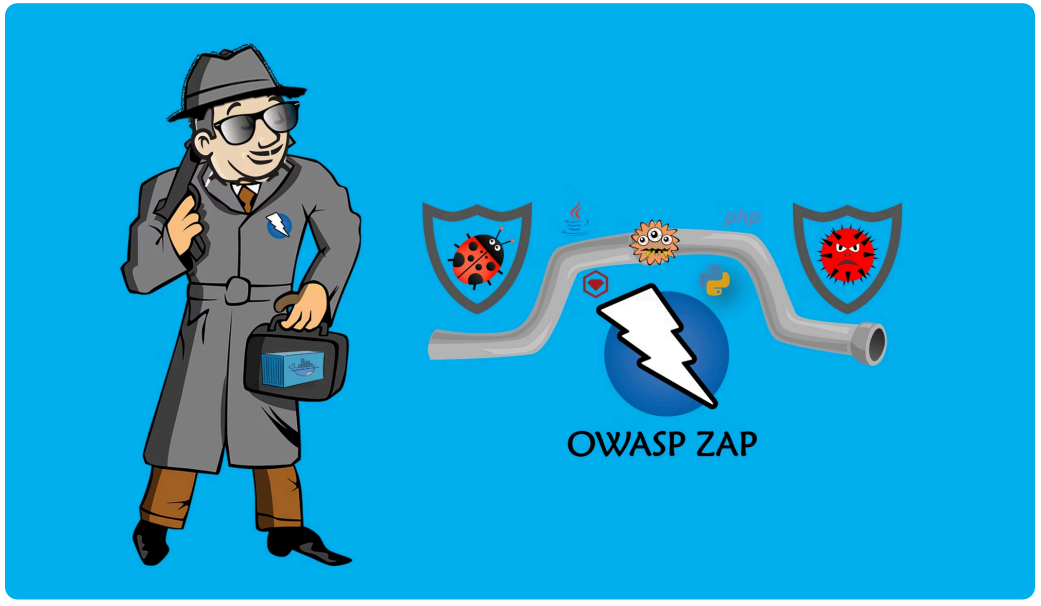
OWASP ZAP Overview (Pros/Cons)

What is ZAP?

- OWASP's flagship **proxy-based DAST** tool.
- Modes: **Baseline** (safe), **Full** (active)**, API** (OpenAPI/GraphQL)**.**
- Dockerized, extensible, CI/CD friendly.
- Free & open-source, widely adopted.

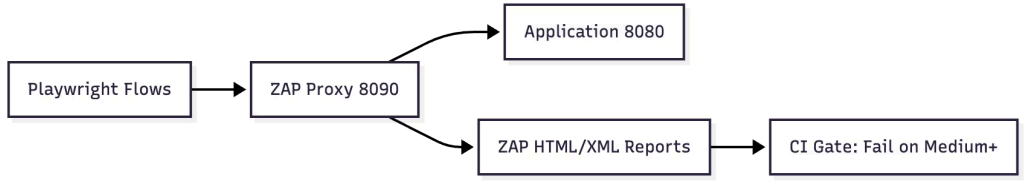
ZAP = developer-friendly runtime security: free, flexible, but needs tuning.

Bridge - From Functional to Security Tests



- **Playwright** automates real user journeys → UI, features, API calls.
- **ZAP proxy** inspects all Playwright traffic at runtime.
- **CI/CD gate:** ZAP reports → pipeline passes or fails.

CI/CD Flow:



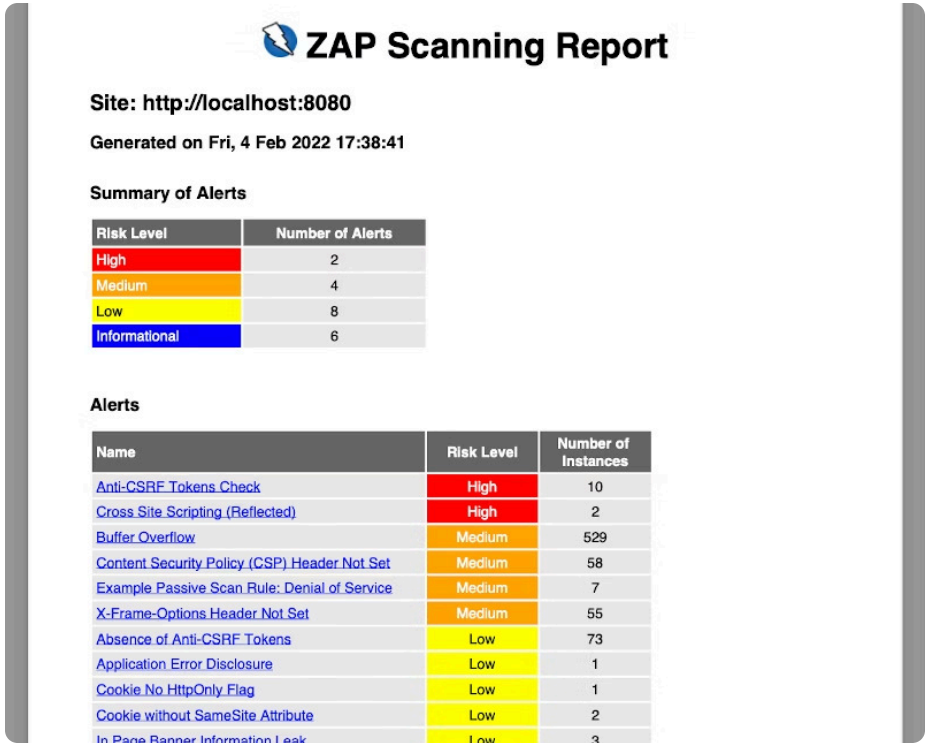
Your E2E tests, now security tests.

Use AI Tool to fix the ZAP Report

- **Alert → Evidence → URL → Remediation**
- Show **one Medium** (CSP) & **one High** (reflected XSS)
- Action: ticket → fix → rerun → green

Ask your **AI Tool** to fix the ZAP Report

AI assists; humans decide. Re-scan until clean.



ZAP Scanning Report

Site: http://localhost:8080

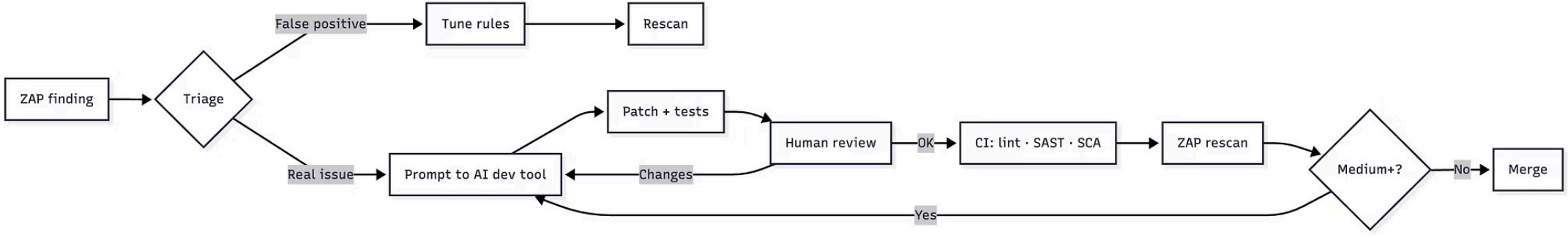
Generated on Fri, 4 Feb 2022 17:38:41

Summary of Alerts

Risk Level	Number of Alerts
High	2
Medium	4
Low	8
Informational	6

Alerts

Name	Risk Level	Number of Instances
Anti-CSRF Tokens Check	High	10
Cross Site Scripting (Reflected)	High	2
Buffer Overflow	Medium	529
Content Security Policy (CSP) Header Not Set	Medium	58
Example Passive Scan Rule: Denial of Service	Medium	7
X-Frame-Options Header Not Set	Medium	55
Absence of Anti-CSRF Tokens	Low	73
Application Error Disclosure	Low	1
Cookie No HttpOnly Flag	Low	1
Cookie without SameSite Attribute	Low	2
In Page Banner Information Leak	Low	3



Start Monday: Your Action Plan

1 Enable SonarCloud Quality Gate

Enforce SAST checks on every PR; fail High/Critical, advisory on Medium.

2 Add Playwright → OWASP ZAP Baseline

Route functional test flows through ZAP proxy; fail PR on Medium+ findings. Run nightly full scans.

3 Activate AI Review Assistants

Enable Copilot PR reviews or CodeRabbit; require human sign-off on suggestions.

4 Pick One External Option

Deploy OWASP Amass + Nuclei (OSS) or Detectify for weekly external scanning.

Q&A / Resources

DevSecOps Quick Start: https://gist.github.com/AnowarCST/9b9fbb2867e066cd01509da9481f74bb

Secure-by-default is a habit.

Thank You!