

# Vulnerability & Misconfiguration Scanner - Trivy



# Agenda

- What did you do for your artifacts to ensure its security & configuration correct?
- What kind of concern are?
- Trivy - An vulnerability & misconfiguration scanner tool
- Difficult to use?
- Q&A

**What did you do for your  
artifacts to ensure its security &  
configuration correct?**

# Docker Image

- Push image to registry directly

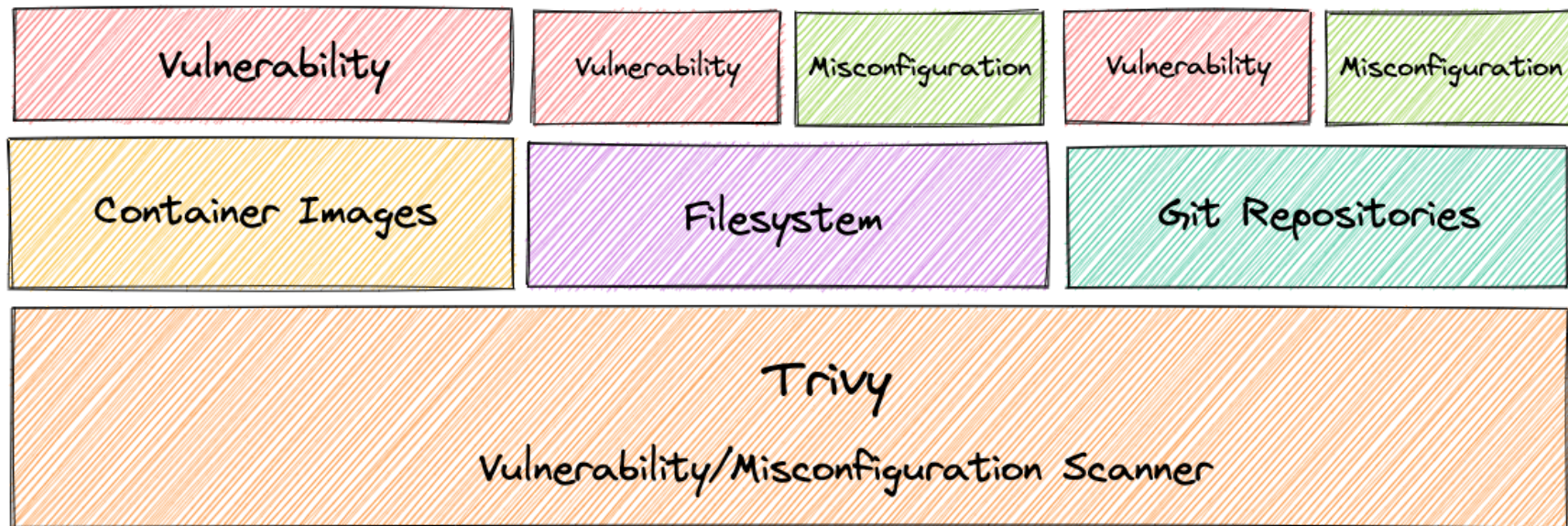
**What kind of concern are?**

# Maybe

- Your base image has know/unfixed vulnerabilities
- Your artifacts contains some wrong config
- Your write some backdoor unconsciously
- ...

# **Trivy - An vulnerability & misconfiguration scanner tool**

# Capability





# Working principle



1

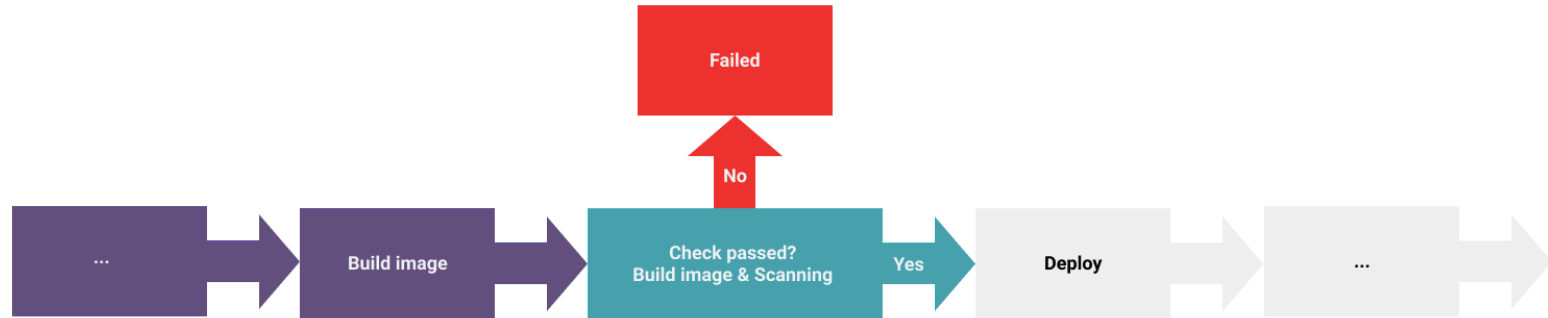


2

# Difficult to use?

Talks is cheep, show me code

# Pipeline



# Image

```
docker run --rm -v \
/var/run/docker.sock:/var/run/docker.sock \
aquasec/trivy image \
--severity HIGH,CRITICAL \
--exit-code 1 \
dashboard:${{ github.sha }}
```

- [https://github.com/guzhongren/Buildkite-Dashboard/runs/4087037441?check\\_suite\\_focus=true](https://github.com/guzhongren/Buildkite-Dashboard/runs/4087037441?check_suite_focus=true)

```

1  Run docker run --rm -v /var/run/docker.sock:/var/run/docker.sock \
2  docker run --rm -v /var/run/docker.sock:/var/run/docker.sock \
3  aquasec/trivy image --severity HIGH,CRITICAL --exit-code 1
4  dashboard:dc266d0260f05098138d5b03797cebdfe72b7842
5  shell: /usr/bin/bash -e {0}
6  Unable to find image 'aquasec/trivy:latest' locally
7  latest: Pulling from aquasec/trivy
8  a0d0a0d46f8b: Already exists
9  bff5b5a771f2: Pulling fs layer
10 818276ee1efb: Pulling fs layer
11 c83f610988b2: Pulling fs layer
12 c83f610988b2: Verifying Checksum
13 c83f610988b2: Download complete
14 818276ee1efb: Verifying Checksum
15 818276ee1efb: Download complete
16 bff5b5a771f2: Verifying Checksum
17 bff5b5a771f2: Download complete
18 bff5b5a771f2: Pull complete
19 818276ee1efb: Pull complete
20 c83f610988b2: Pull complete
21 Digest: sha256:14afd8ec72df184bc5e2b0d0891865ce5037c14d41d4af571cd0a78fe3981e03
22 Status: Downloaded newer image for aquasec/trivy:latest
23 2021-11-03T00:21:02.723Z INFO Need to update DB
24 2021-11-03T00:21:02.723Z INFO Downloading DB...
25 2021-11-03T00:21:07.346Z INFO Detected OS: debian
26 2021-11-03T00:21:07.346Z INFO Detecting Debian vulnerabilities...
27 2021-11-03T00:21:07.367Z INFO Number of language-specific files: 0
28
29 dashboard:dc266d0260f05098138d5b03797cebdfe72b7842 (debian 10.11)
30 =====
31 Total: 30 (HIGH: 26, CRITICAL: 4)
32
33 +-----+-----+-----+-----+-----+
34 | LIBRARY | VULNERABILITY ID | SEVERITY | INSTALLED VERSION | FIXED VERSION |
35 | TITLE | | | | |
36 +-----+-----+-----+-----+-----+
37 | curl | CVE-2021-22946 | HIGH | 7.64.0-4+deb10u2 | | curl: Requirement to use
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# Repo

```
docker run --rm -v \
  /var/run/docker.sock:/var/run/docker.sock \
  aquasec/trivy repo \
  --severity HIGH,CRITICAL \
  --exit-code 1 \
  https://github.com/guzhongren/Buildkite-Dashboard
```

- [https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?check\\_suite\\_focus=true](https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?check_suite_focus=true)

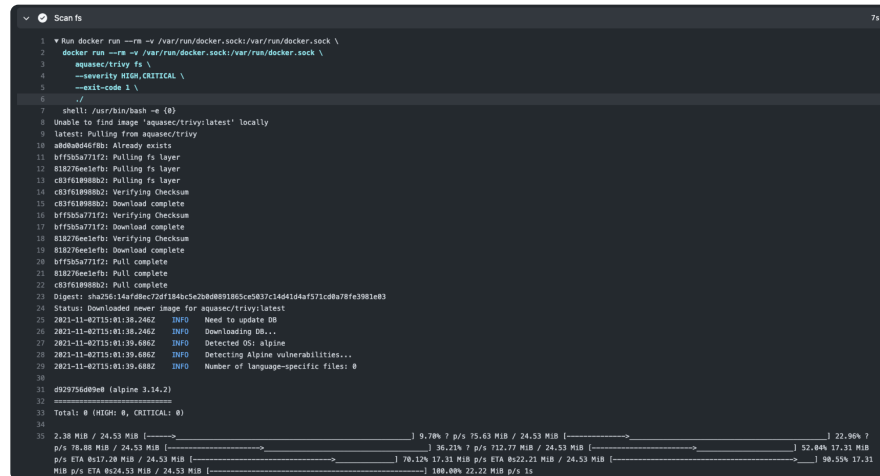
```
Scan repo 5s
1  Run docker run --rm -v \
2  docker run --rm -v \
3    /var/run/docker.sock:/var/run/docker.sock \
4    aquasec/trivy repo \
5    --severity HIGH,CRITICAL \
6    guzhongren/Buildkite-Dashboard
7  shell: /usr/bin/bash -e {0}
8  2021-11-02T15:01:41.503Z INFO Need to update DB
9  2021-11-02T15:01:41.503Z INFO Downloading DB...
10 Enumerating objects: 141, done.
11 Counting objects: 0% (1/141)
12 Counting objects: 1% (2/141)
13 Counting objects: 2% (3/141)
14 Counting objects: 3% (5/141)
15 Counting objects: 4% (6/141)
16 Counting objects: 5% (8/141)
17 Counting objects: 6% (9/141)
```

```
Scan repo 5s
219 package-lock.json (npm)
220 =====
221
222 Total: 1 (HIGH: 1, CRITICAL: 0)
223
224 +-----+
225 | LIBRARY | VULNERABILITY ID | SEVERITY | INSTALLED VERSION | FIXED VERSION | TITLE |
226 |-----+-----+-----+-----+-----+-----+
227 | lodash | CVE-2021-23337 | HIGH | 4.17.19 | 4.17.21 | nodejs-lodash: command |
228 | | | | | | injection via template |
229 | | | | | | -->avd,aquasec.com/nvd/cve-2021-23337 |
230 +-----+
231
232 yarn.lock (yarn)
233 =====
234 Total: 2 (HIGH: 2, CRITICAL: 0)
235
236 +-----+
237 | LIBRARY | VULNERABILITY ID | SEVERITY | INSTALLED VERSION | FIXED VERSION | TITLE |
238 |-----+-----+-----+-----+-----+-----+
239 | ansi-regex | CVE-2021-3807 | HIGH | 3.0.0 | 5.0.1, 6.0.1 | nodejs-ansi-regex: Regular |
240 | | | | | | expression denial of service |
```

# FS

```
docker run --rm -v \
  /var/run/docker.sock:/var/run/docker.sock \
  aquasec/trivy fs \
  --severity HIGH,CRITICAL \
  --exit-code 1 \
  ./
```

- [https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?check\\_suite\\_focus=true](https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?check_suite_focus=true)

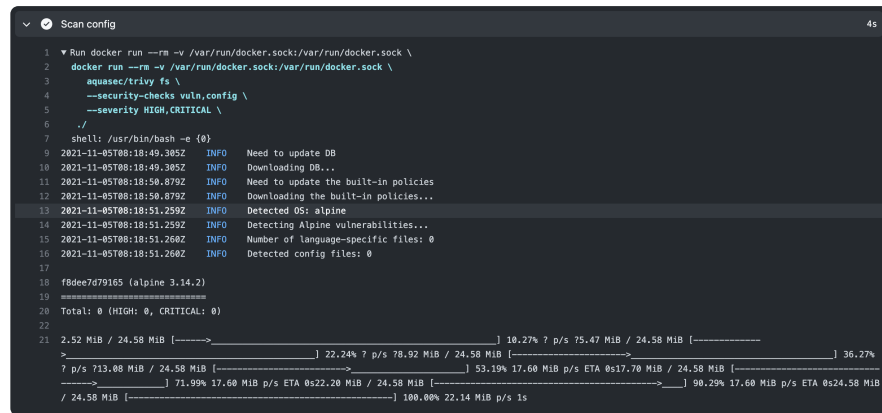


```
1 Run docker run --rm -v /var/run/docker.sock:/var/run/docker.sock \
2   docker run --rm -v /var/run/docker.sock:/var/run/docker.sock \
3   aquasec/trivy fs \
4   --severity HIGH,CRITICAL \
5   --exit-code 1 \
6   ./
7 shell: /usr/bin/bash -e (8)
8 Unable to find image 'aquasec/trivy:latest' locally
9 latest: Pulling from aquasec/trivy
10 sha256:0e0f0b: Already exists
11 bf935a771f2: Pulling fs layer
12 818276ee1efb: Pulling fs layer
13 cb3fe18988b2: Pulling fs layer
14 cb3fe18988b2: Verifying Checksum
15 cb3fe18988b2: Download complete
16 bf935a771f2: Verifying Checksum
17 bf935a771f2: Download complete
18 818276ee1efb: Verifying Checksum
19 818276ee1efb: Download complete
20 bf935a771f2: Pull complete
21 818276ee1efb: Pull complete
22 cb3fe18988b2: Pull complete
23 Digest: sha256:14af8ec72df184bc5e2b0d891865c5837c14041eaf571cd0a78fe3981e03
24 Status: Downloaded newer image for aquasec/trivy:latest
25 2021-11-02T13:01:38.246Z INFO Need to update DB...
26 2021-11-02T13:01:38.246Z INFO Downloading DB...
27 2021-11-02T13:01:39.686Z INFO Detected OS: alpine
28 2021-11-02T13:01:39.686Z INFO Detecting alpine vulnerabilities...
29 2021-11-02T13:01:39.686Z INFO Number of language-specific files: 0
30
31 #020736d09eb (alpine 3.14.2)
32 =====
33 Total: 0 (HIGH: 0, CRITICAL: 0)
34
35 2.38 MiB / 24.53 MiB [-----] 9.70% 7 p/s 75.63 MiB / 24.53 MiB [-----] 22.90% 7
36 p/s 78.68 MiB / 24.53 MiB [-----] 36.21% 7 p/s 712.77 MiB / 24.53 MiB [-----] 52.84% 17.31 MiB
37 p/s ETA 0s17.28 MiB / 24.53 MiB [-----] 70.12% 17.31 MiB p/s ETA 0s22.21 MiB / 24.53 MiB [-----] 90.55% 17.31
38 MiB p/s ETA 0s24.53 MiB / 24.53 MiB [-----] 100.00% 22.22 MiB p/s 1s
```

# Config

```
docker run --rm -v \
  /var/run/docker.sock:/var/run/docker.sock \
  aquasec/trivy config \
  --severity HIGH,CRITICAL \
  --security-checks vuln,config \
  --exit-code 1 \
  ./
```

- [https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?](https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?check_suite_focus=true)  
[check\\_suite\\_focus=true](https://github.com/guzhongren/Buildkite-Dashboard/runs/4093499534?check_suite_focus=true)




```
▼ Scan config 4s


1 ▼ Run docker run --rm -v /var/run/docker.sock:/var/run/docker.sock \
2   docker run --rm -v /var/run/docker.sock:/var/run/docker.sock \
3     aquasec/trivy fs \
4     --security-checks vuln,config \
5     --severity HIGH,CRITICAL \
6     ./
7   shell: /usr/bin/bash -e {0}
8   2021-11-05T00:18:49.305Z   INFO   Need to update DB
9   2021-11-05T00:18:49.305Z   INFO   Downloading DB...
10  2021-11-05T00:18:50.879Z   INFO   Need to update the built-in policies
11  2021-11-05T00:18:50.879Z   INFO   Downloading the built-in policies...
12  2021-11-05T00:18:51.239Z   INFO   Detected OS: alpine
13  2021-11-05T00:18:51.239Z   INFO   Detecting Alpine vulnerabilities...
14  2021-11-05T00:18:51.260Z   INFO   Number of language-specific files: 0
15  2021-11-05T00:18:51.260Z   INFO   Detected config files: 0
16
17  fbdee7d79165 (alpine 3.14.2)
18  =====
19  Total: 0 (HIGH: 0, CRITICAL: 0)
20
21  2.52 MiB / 24.58 MiB [-----] 10.27% ? p/s 75.47 MiB / 24.58 MiB [-----] 36.27%
22
23  ? p/s 713.00 MiB / 24.58 MiB [-----] 53.19% 17.60 MiB p/s ETA 0s17.70 MiB / 24.58 MiB [-----] 90.29% 17.60 MiB p/s ETA 0s24.58 MiB
24  / 24.58 MiB [-----] 100.00% 22.14 MiB p/s 1s
```


# .trivyignore

CVE-2021-3711

- <https://github.com/guzhongren/Buildkite-Dashboard/blob/main/.trivyignore>

 main ▾ Buildkite-Dashboard / .trivyignore

 **guzhongren** fix(ci): fix trivy ✓

 1 contributor

1 lines (1 sloc) | 14 Bytes

1 CVE-2021-3711



# Refs

- <https://aquasecurity.github.io/trivy>
- <https://github.com/aquasecurity/trivy>
- <http://guzhongren.github.io/2021/08/container-image-scanner-trivy/>
- ...

**Q & A**

**Thank you!**