Image Scanning using Clair

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Agenda

- Installing Clair
- Configure cfstep-paclair OOTB Step
- Setup Storage Integration
- Upload Clair Reports

Security is Critically Important

- Anything you can do that helps with your security story which has a low cost should be a given.
- The cost to remediate vulnerability is exponentially lower the sooner you address in Software Development Lifecycle.
- Let’s setup a simple step today together with minimal cost to operate to help us save on the price of vulnerabilities.

Clair

Where does Clair fit into CI/CD?

Open Source project (low cost)
Simple vulnerability scanning
Prevent vulnerabilities from being introduced
Reports to remediate vulnerabilities

Clair Scans in CI Pipeline

Scan Docker image
Fail build based on predetermined thresholds
Report results back to Docker image

Clair Reports

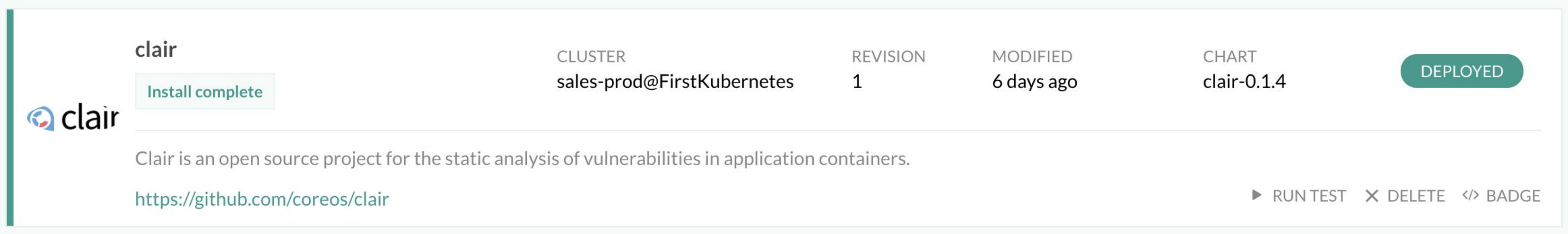
HTML report is created

Clair Report Storage

Store Clair report for you build

Clair Helm Chart

Download/Configuration/Installation of Clair via Helm Chart
https://github.com/coreos/clair/tree/master/contrib/helm



clair

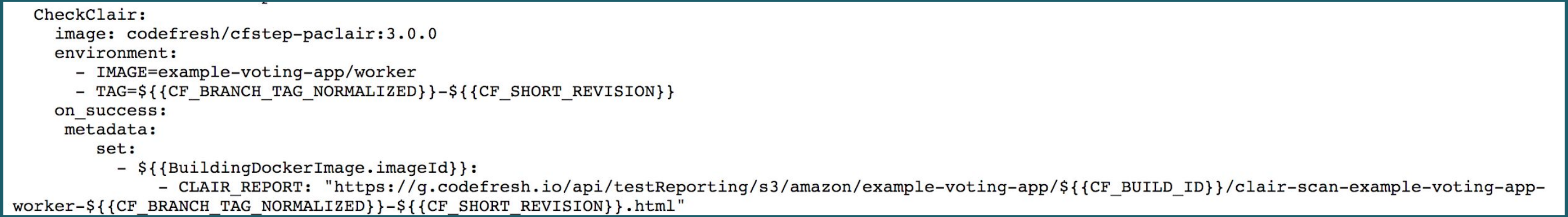
Install complete

CLUSTER	REVISION	MODIFIED	CHART
sales-prod@FirstKubernetes	1	6 days ago	clair-0.1.4

Clair is an open source project for the static analysis of vulnerabilities in application containers.

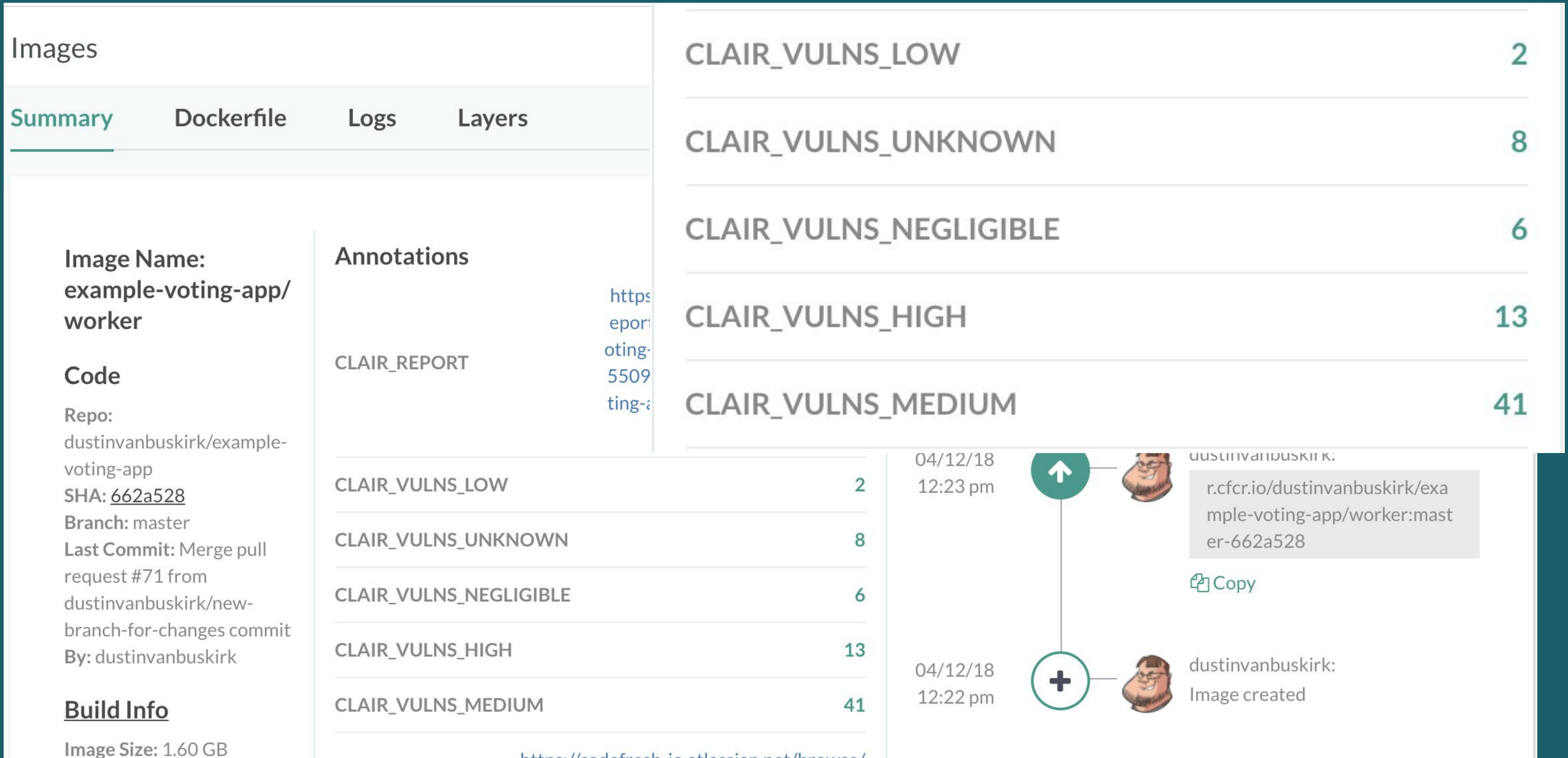
https://github.com/coreos/clair

YAML Step for Clair Scan



```
  CheckClair:
    image: codefresh/cfstep-paclair:3.0.0
    environment:
      - IMAGE=example-voting-app/worker
      - TAG=${{CF_BRANCH_TAG_NORMALIZED}}-${{CF_SHORT_REVISION}}
    on_success:
     metadata:
        set:
          - ${{BuildingDockerImage.imageId}}:
              - CLAIR_REPORT: "https://g.codefresh.io/api/testReporting/s3/amazon/example-voting-app/${{CF_BUILD_ID}}/clair-scan-example-voting-app-
worker-${{CF_BRANCH_TAG_NORMALIZED}}-${{CF_SHORT_REVISION}}.html"
```

Annotating the Docker image with vulnerability information



Images

Image Name: example-voting-app/worker

Code

Repo: dustinvanbuskirk/example-voting-app
SHA: 662a528
Branch: master
Last Commit: Merge pull request #71 from dustinvanbuskirk/new-branch-for-changes commit
By: dustinvanbuskirk

Build Info

Image Size: 1.60 GB

Annotations

CLAIR_REPORT	https eport oting- 5509 ting-a
CLAIR_VULNS_LOW	2
CLAIR_VULNS_UNKNOWN	8
CLAIR_VULNS_NEGLIGIBLE	6
CLAIR_VULNS_HIGH	13
CLAIR_VULNS_MEDIUM	41

https://codefresh.io.atlassian.net/browse/

04/12/18 12:23 pm

dustinvanbuskirk:

r.cfcr.io/dustinvanbuskirk/example-voting-app/worker:master-662a528

04/12/18 12:22 pm

dustinvanbuskirk: Image created

CLAIR_VULNS_LOW	2
CLAIR_VULNS_UNKNOWN	8
CLAIR_VULNS_NEGLIGIBLE	6
CLAIR_VULNS_HIGH	13
CLAIR_VULNS_MEDIUM	41

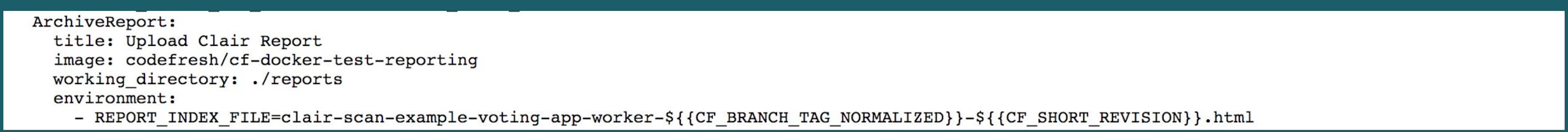
Setup Storage Integration

Add Storage Integration to Codefresh
https://codefresh.io/docs/docs/configure-ci-cd-pipeline/test-reports/#connecting-your-storage-account

Upload Clair Reports

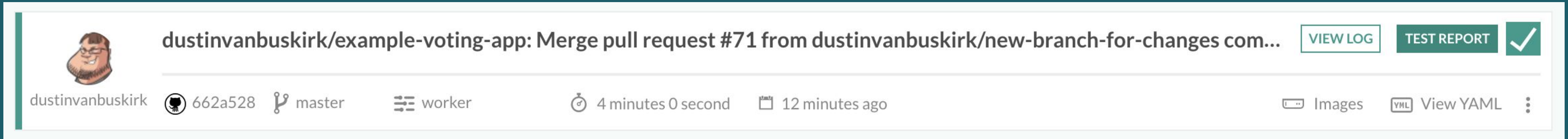
Add Report Archiving Step to Codefresh Pipeline

YAML to Upload Clair Report to Storage via Integration



```
ArchiveReport:
  title: Upload Clair Report
  image: codefresh/cf-docker-test-reporting
  working_directory: ./reports
  environment:
    - REPORT_INDEX_FILE=clair-scan-example-voting-app-worker-${{CF_BRANCH_TAG_NORMALIZED}}-${{CF_SHORT_REVISION}}.html
```

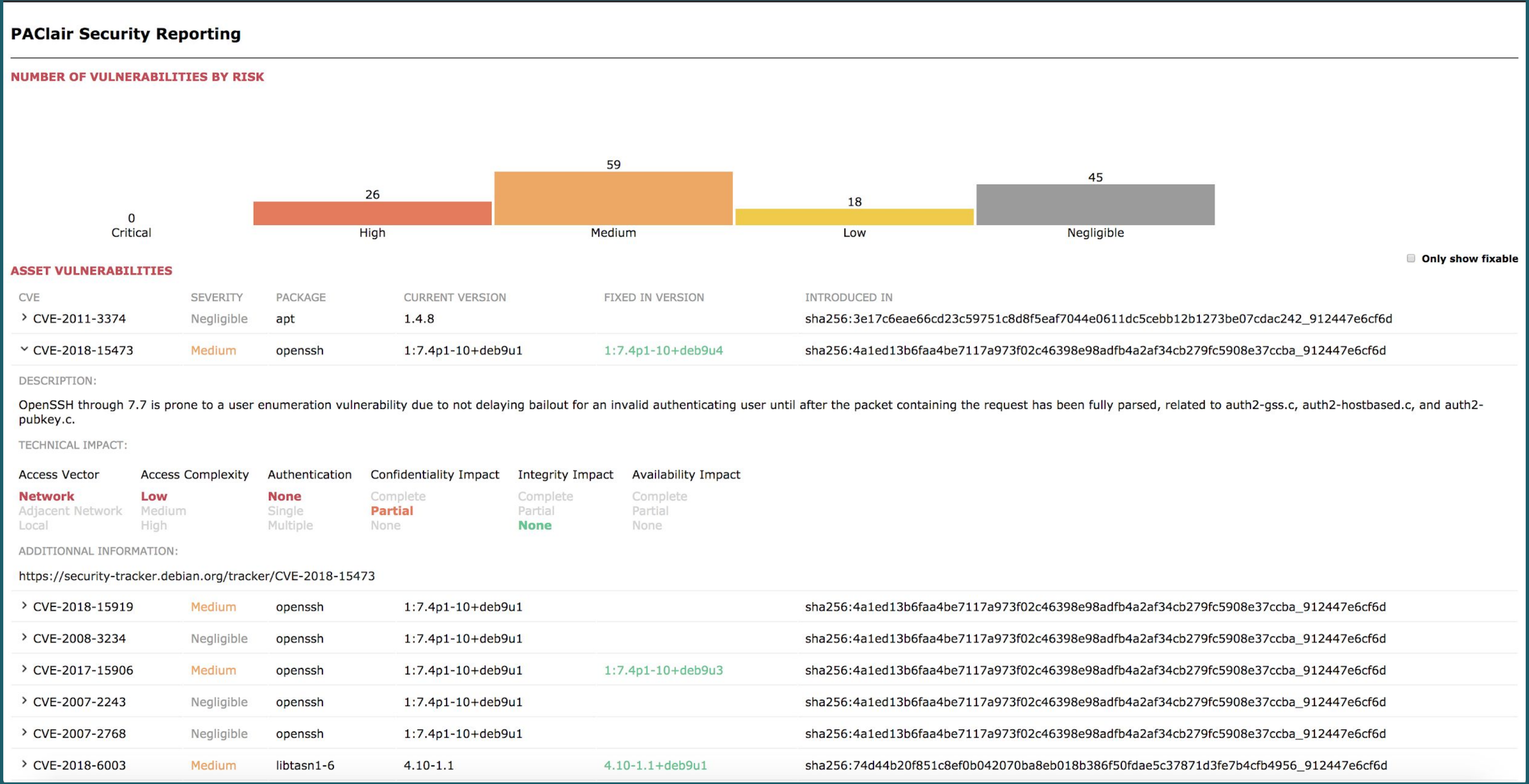
Accessing your stored reports from Codefresh



dustinvanbuskirk/example-voting-app: Merge pull request #71 from dustinvanbuskirk/new-branch-for-changes com…

dustinvanbuskirk

662a528 master worker 4 minutes 0 second 12 minutes ago



PAClair Security Reporting

NUMBER OF VULNERABILITIES BY RISK

☐ **Only show fixable**

ASSET VULNERABILITIES

CVE	SEVERITY	PACKAGE	CURRENT VERSION	FIXED IN VERSION	INTRODUCED IN
› CVE-2011-3374	Negligible	apt	1.4.8		sha256:3e17c6eae66cd23c59751c8d8f5eaf7044e0611dc5cebb12b1273be07cdac242_912447e6cf6d
⌄ CVE-2018-15473	Medium	openssh	1:7.4p1-10+deb9u1	1:7.4p1-10+deb9u4	sha256:4a1ed13b6faa4be7117a973f02c46398e98adfb4a2af34cb279fc5908e37ccba_912447e6cf6d

DESCRIPTION:

OpenSSH through 7.7 is prone to a user enumeration vulnerability due to not delaying bailout for an invalid authenticating user until after the packet containing the request has been fully parsed, related to auth2-gss.c, auth2-hostbased.c, and auth2-pubkey.c.

TECHNICAL IMPACT:

Access Vector	Access Complexity	Authentication	Confidentiality Impact	Integrity Impact	Availability Impact
Network	**Low**	**None**	Complete	Complete	Complete
Adjacent Network	Medium	Single	**Partial**	Partial	Partial
Local	High	Multiple	None	**None**	None

ADDITIONNAL INFORMATION:

https://security-tracker.debian.org/tracker/CVE-2018-15473

CVE	SEVERITY	PACKAGE	CURRENT VERSION	FIXED IN VERSION	INTRODUCED IN
› CVE-2018-15919	Medium	openssh	1:7.4p1-10+deb9u1		sha256:4a1ed13b6faa4be7117a973f02c46398e98adfb4a2af34cb279fc5908e37ccba_912447e6cf6d
› CVE-2008-3234	Negligible	openssh	1:7.4p1-10+deb9u1		sha256:4a1ed13b6faa4be7117a973f02c46398e98adfb4a2af34cb279fc5908e37ccba_912447e6cf6d
› CVE-2017-15906	Medium	openssh	1:7.4p1-10+deb9u1	1:7.4p1-10+deb9u3	sha256:4a1ed13b6faa4be7117a973f02c46398e98adfb4a2af34cb279fc5908e37ccba_912447e6cf6d
› CVE-2007-2243	Negligible	openssh	1:7.4p1-10+deb9u1		sha256:4a1ed13b6faa4be7117a973f02c46398e98adfb4a2af34cb279fc5908e37ccba_912447e6cf6d
› CVE-2007-2768	Negligible	openssh	1:7.4p1-10+deb9u1		sha256:4a1ed13b6faa4be7117a973f02c46398e98adfb4a2af34cb279fc5908e37ccba_912447e6cf6d
› CVE-2018-6003	Medium	libtasn1-6	4.10-1.1	4.10-1.1+deb9u1	sha256:74d44b20f851c8ef0b042070ba8eb018b386f50fdae5c37871d3fe7b4cfb4956_912447e6cf6d

Demo time

Questions?

Schedule a 1:1 with our DevOps Experts

Sign up for FREE! 120 builds/month

Codefresh.io

Thank You

See our upcoming Codefresh Live events at:

[codefresh.io/events]