Adding Container Image Scanning to your Codefresh Pipelines with anchore

JEREMY VALANCE

Jeremy Valance

Solutions Architect

anchore

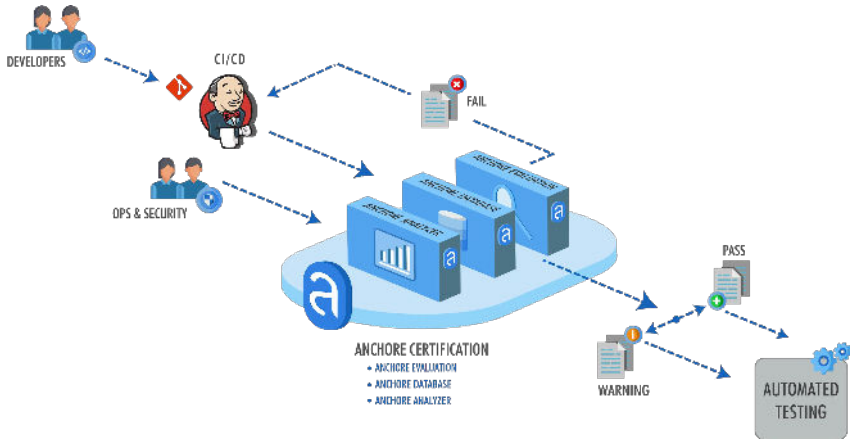
Agenda

- Introduction
- Container Security Models
- Scanning with Anchore in a CodeFresh Pipeline
- Live Demo
- Q&A

Container Security

What should a container security model look like?

- Should involve securing all pieces of the container lifecycle (image, registry, container runtime, and host).
- Mandatory image scanning step in CI/CD process.
- “Shift left” to catch vulnerabilities early in the development lifecycle.
- Methods and tooling for notifications and remediation are available when vulnerabilities are found within a container image.



Container Security

Why do we need to scan images?

- Container images greatly increase speed of development and release.
- Images are static archive files that include all components to run a given app or service.
- Libraries and components within the image may contain vulnerabilities.
- If not scanned, images with vulnerable packages can make their way into production environments.
- Developers may accidentally leave secrets or credentials within images.
- Image metadata and Dockerfiles may contain sensitive configurations like unused exposed ports or running as a root user.

Container Security

What does container image scanning do?

- Anchore analysis tools will inspect container images and generate a detailed manifest of the image, a virtual ‘bill of materials’ that includes official operating system packages, unofficial packages, configuration files and language modules and artifacts.
- Policies rules can be created to govern security vulnerabilities,, configuration file contents, secrets, manifest changes, exposed ports or any user defined checks.
- Image scanning is focused on gaining a deep understanding of the contents of the images, and does not scan proprietary source code.

Anchore Policies

How do Anchore policies work?

- Anchore first analyzes the container image, then conducts a policy evaluation on it.
- Anchore policies are made up of a set of user-defined rules such as:
  - Security vulnerabilities
  - Image manifest changes
  - Configuration file contents
  - Presence of credentials in an image
  - Exposed ports
  - Package whitelists and blacklists
- Policies can be created through API, CLI, or Enterprise UI.
- Policies can be enforced through CI/CD, API or CLI.

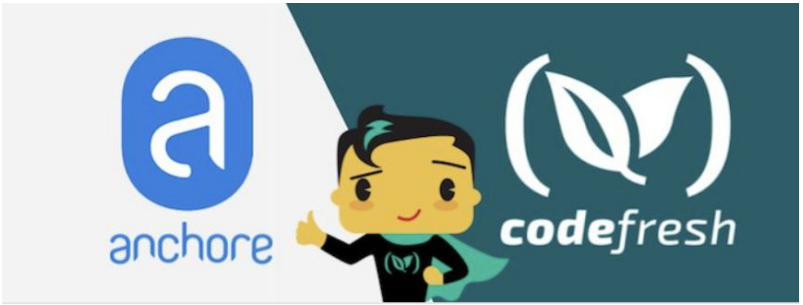
Example Policy


```
{
  "id": "48e6f7d6-1765-11e8-b5f9-8b6f228548b6",
   "name": "Example Policy",
  "rules": [
      {
          "action": "STOP",
          "gate": "dockerfile",
          "id":"ce7b8000-829b-4c27-8122-69cd59018400",
          "params": [
                {
                     "name": "ports",
                     "value": "22"
                }
       ]
  }
]
```

Anchore & Codefresh

Scanning with Anchore in a Codefresh pipeline

- All configuration detailed within codefresh.yml file.
- First step builds image from Dockerfile and pushes to Codefresh registry automatically.
- Second step scans image with Anchore and evaluates the policy rules against the analyzed data.
- Final step (depending on the result of step two), will push the image to Dockerhub.



Anchore

How do I use it?

- Anchore Engine Open Source: https://github.com/anchore/anchore-engine
- Anchore Enterprise: https://anchore.com/enterprise
- Github examples:
  - Image Fail: https://github.com/valancej/node_critical_fail
  - Image Pass: https://github.com/valancej/node_critical_pass

INTEGRATION

See our blog post complete with codefresh yaml at: Codefresh.io/blog

https://codefresh.io/blog

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Security-Testing | November 20, 2018

Build Image

In the first step of the pipeline, we build a sample Docker image from a Dockerfile as defined in our codefresh.yaml:

```
1 build_image:
2     title: Building Docker Image
```

Summary

- Container images should be scanned as a step in CI/CD process.
- Policies should be created and enforced at the CI/CD layer to increase confidence in deployments.

Questions?

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codefresh

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DevOps Experts
-and-
Sign up for FREE! 120
builds/month

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Thank You

See our upcoming Codefresh Live events at:

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