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DEVSECOPS – USING CONTAINERS TO SPEED UP YOUR TESTING

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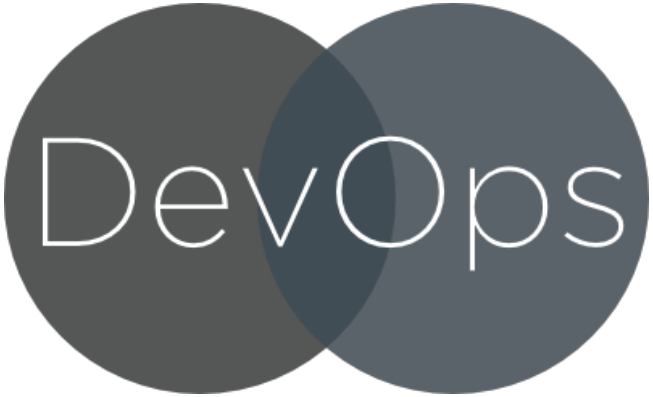
What is DevOps

***DevOps** is the combination of cultural philosophies, practices, and tools that increases an organization's ability to deliver applications and services at high velocity* – AWS Blog

What is DevOps

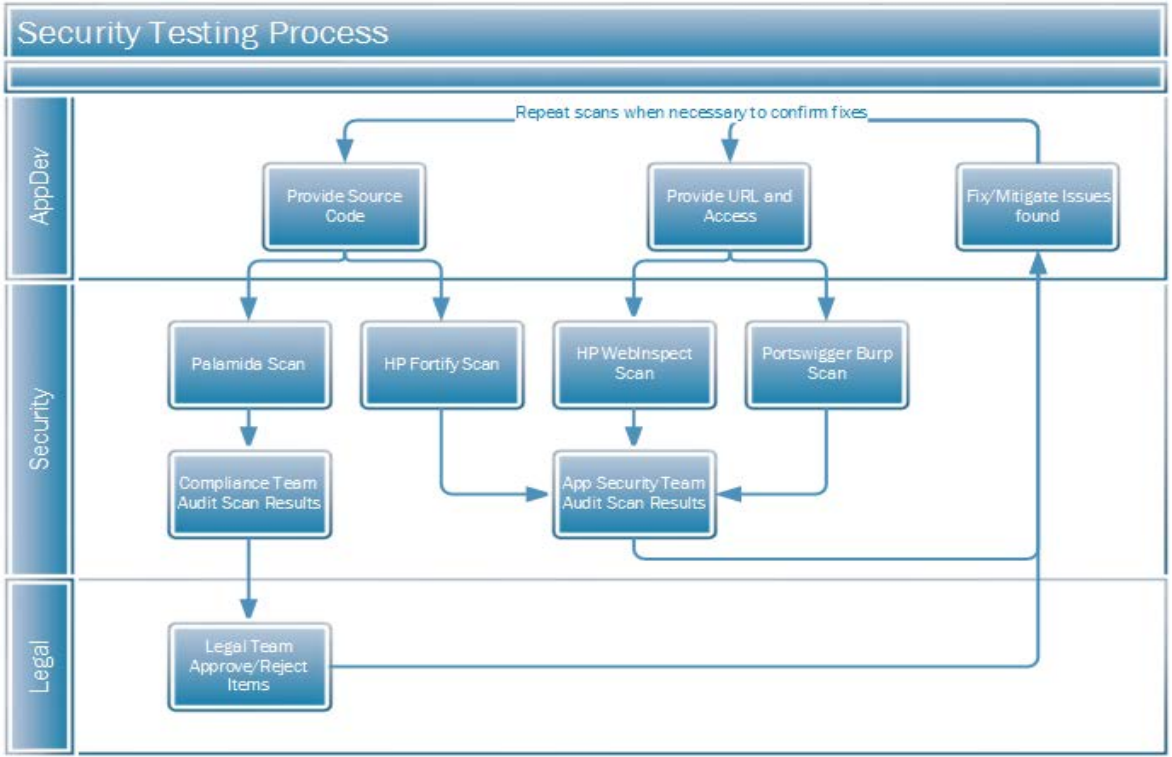
- Brings Dev, Testing, Ops together
- Culture Change
- Goal is to reduce cycle time



What is DevOps

“Until code is in production, no value is actually being generated, because it’s merely WIP stuck in the system.”– Gene Kim

Conventional AppSec Testing




Conventional AppSec testing is too slow
SLOW

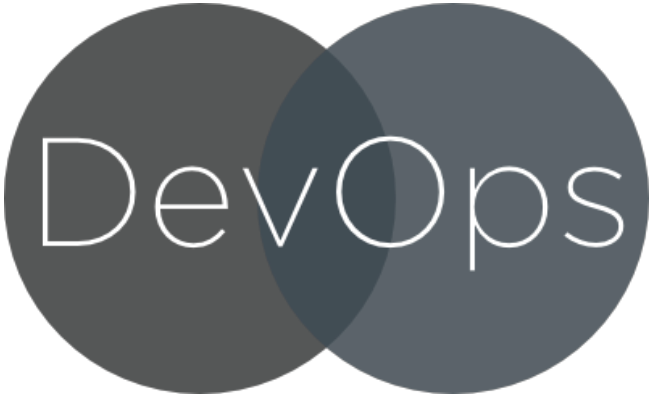
Traditional AppSec Testing Doesn't Work

- Slow
- Too many people involved
- Manual
- Not flexible

DevOps Changes Security

DevOps forces security to change

- Faster
- More Accurate
- Flexible
- Shift Responsibility



DevSecOps enters the picture

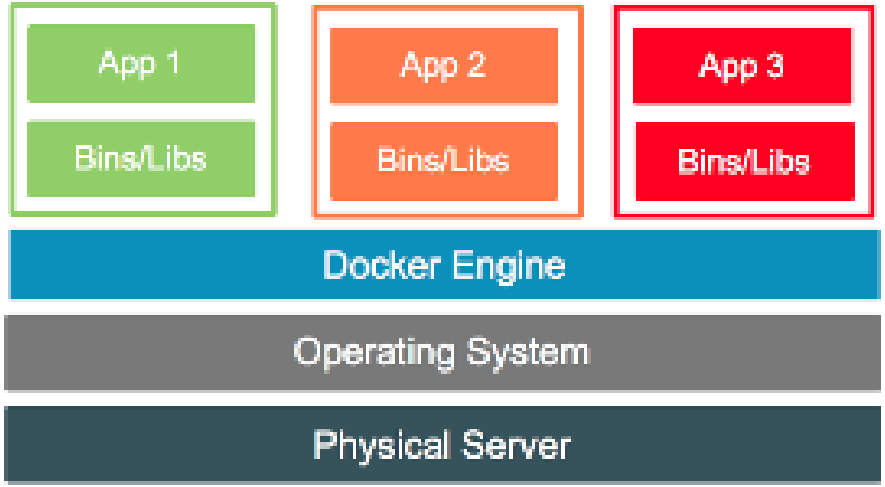
- Incorporate security principles into DevOps
- Make developers responsible for security
- Move security team to auditors/SMEs
- Shift in culture

What's the magic DevSecOps solution?

- No silver bullet
- Its about what works for you
- Keys
  - Increase Dev Responsibility
  - Automated
  - No PDFs!!
  - Flexible

One possible solution is containers

What's a container?



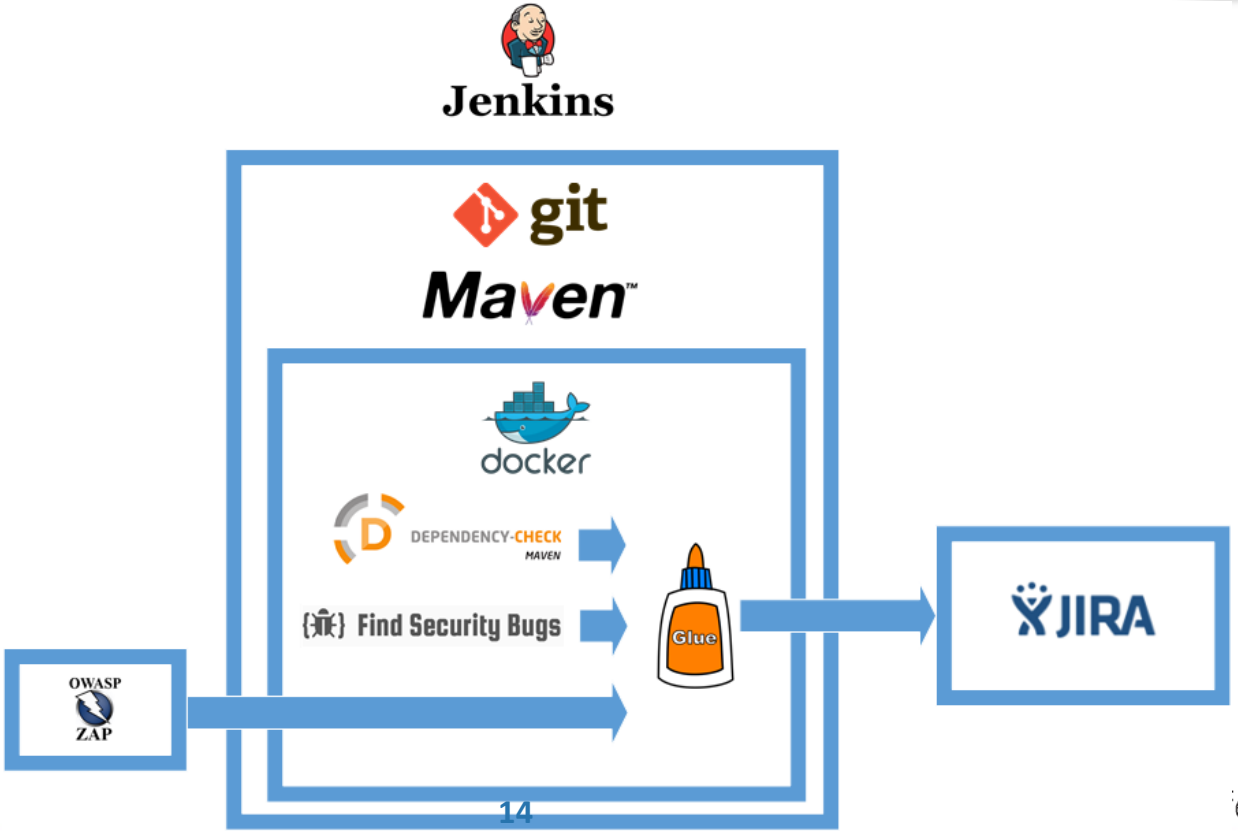
EXAMPLE OF A CONTAINER

Packages apps into a single container for deployment

Containers + Security

- Determine application set
- Group all of your applications together
- Install in a Docker container
- Configure in build automation tool

Security Container Example



SIMPLE EXAMPLE

Tools Needed

- Jenkins
- Docker
- OWASP Glue
- Jira

Jenkins

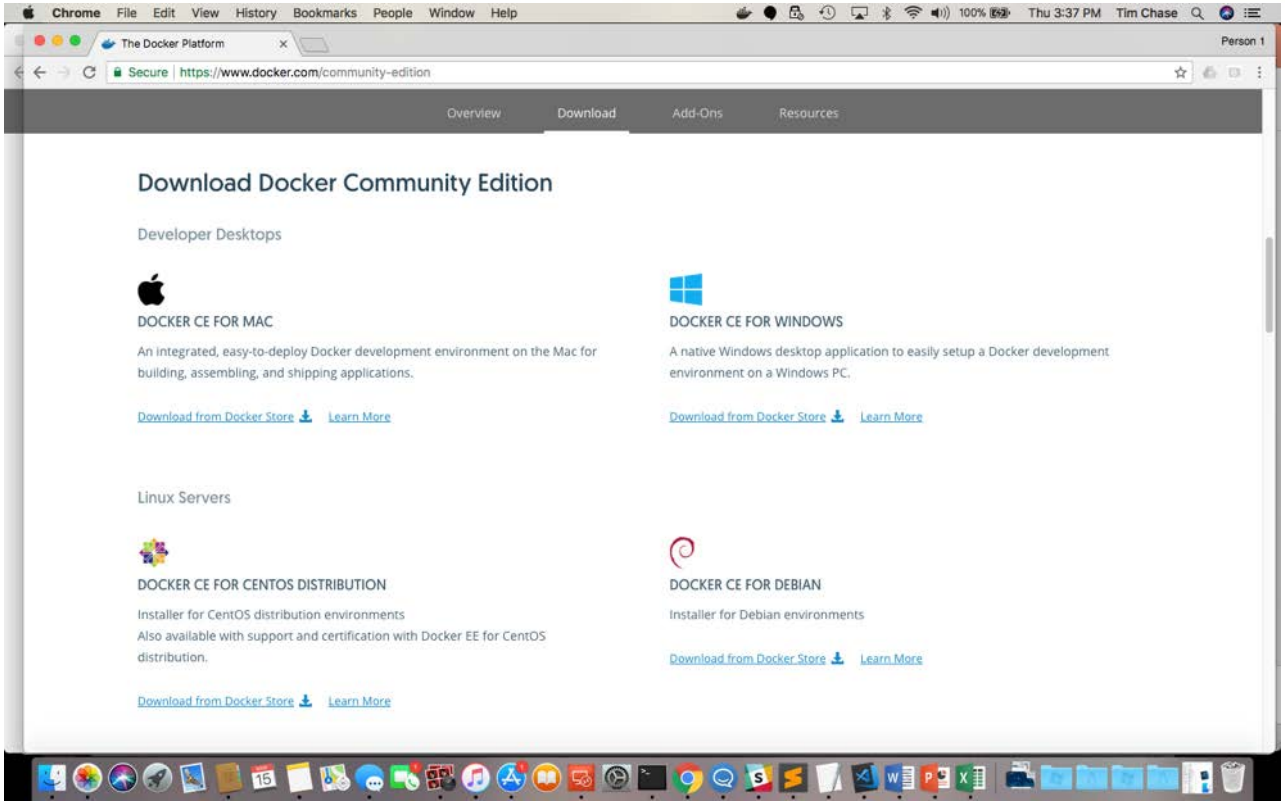
OWASP Glue

- Helpful for creating a pipeline of tools
- Docker container with security tools installed
- Easily extendable to new tools

OWASP Glue

- Examples of tools
  - Brakeman
  - FindSecBugs
  - NSP
  - Contrast (commercial)
  - Checkmarx (commercial) eslint
- Export
  - Jira
  - JSON
  - CSV/Text

Install Docker

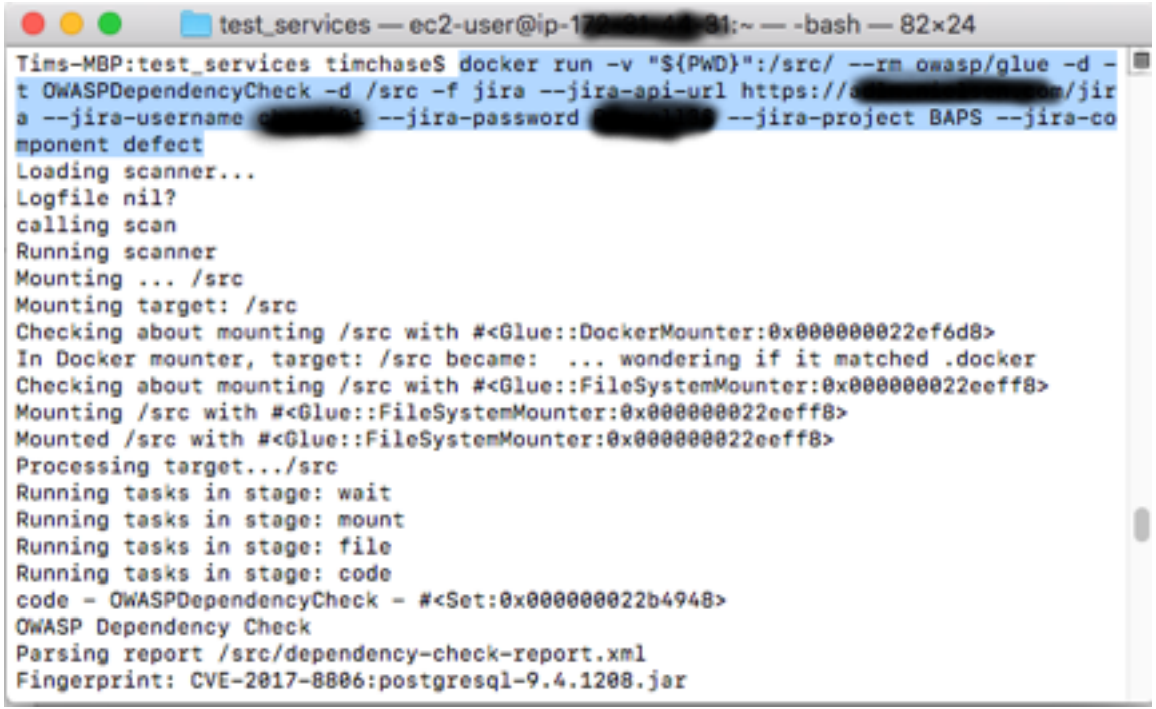


Run Glue

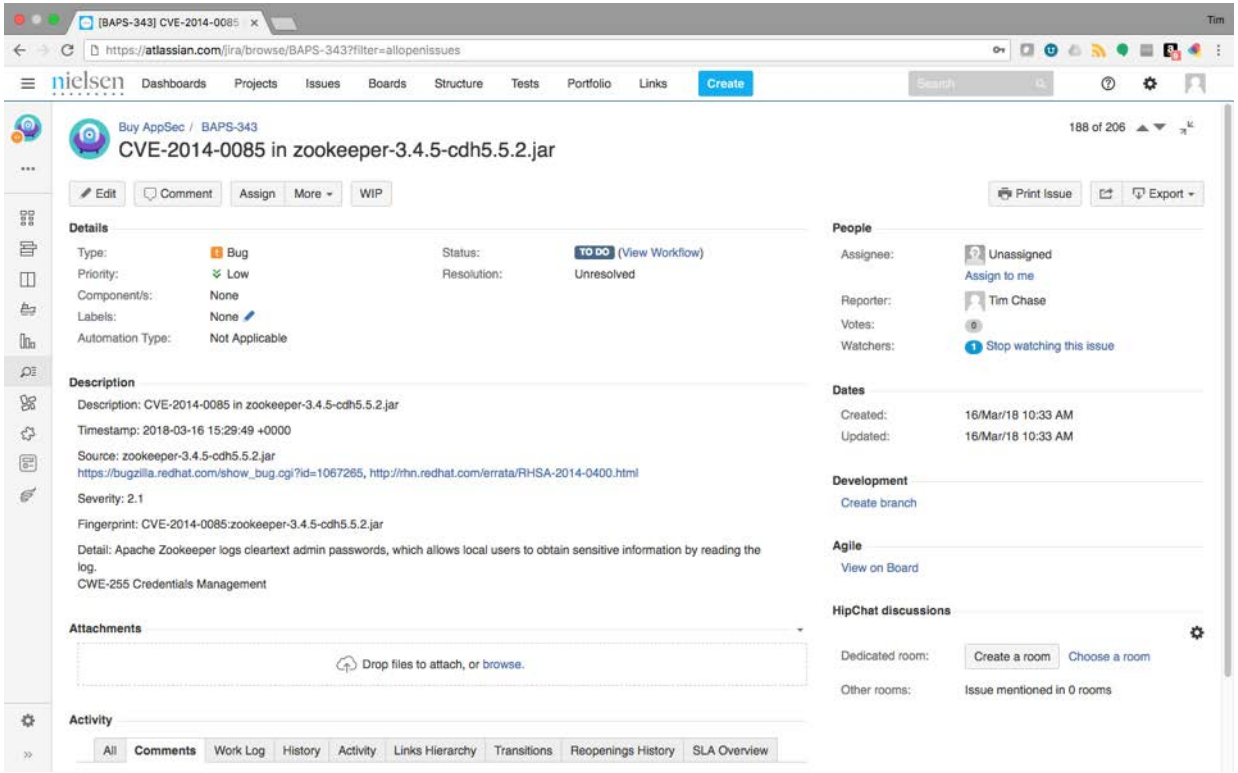
- Decide what tools you want to use
- Decide how to export your data
- Build your command……

```
docker run -v "${PWD}":/src/ --rm owasp/glue -d -t OWASPDependencyCheck -d
/src -f jira --jira-api-url https://adlm.company.com --jira-api-context "/jira" --jira-
username ”userID" --jira-password ”Password123” --jira-project Project
```

Run Glue


test_services — ec2-user@ip-[redacted]:~ — -bash — 82×24
Tims-MBP:test_services timchase$ docker run -v "${PWD}":/src/ --rm owasp/glue -d -t OWASPDependencyCheck -d /src -f jira --jira-api-url https://[redacted]/jira --jira-username [redacted] --jira-password [redacted] --jira-project BAPS --jira-component defect
Loading scanner...
Logfile nil?
calling scan
Running scanner
Mounting ... /src
Mounting target: /src
Checking about mounting /src with #<Glue::DockerMounter:0x00000022ef6d8>
In Docker mounter, target: /src became: ... wondering if it matched .docker
Checking about mounting /src with #<Glue::FileSystemMounter:0x00000022eeff8>
Mounting /src with #<Glue::FileSystemMounter:0x00000022eeff8>
Mounted /src with #<Glue::FileSystemMounter:0x00000022eeff8>
Processing target.../src
Running tasks in stage: wait
Running tasks in stage: mount
Running tasks in stage: file
Running tasks in stage: code
code - OWASPDependencyCheck - #<Set:0x00000022b4948>
OWASP Dependency Check
Parsing report /src/dependency-check-report.xml
Fingerprint: CVE-2017-8806:postgresql-9.4.1208.jar

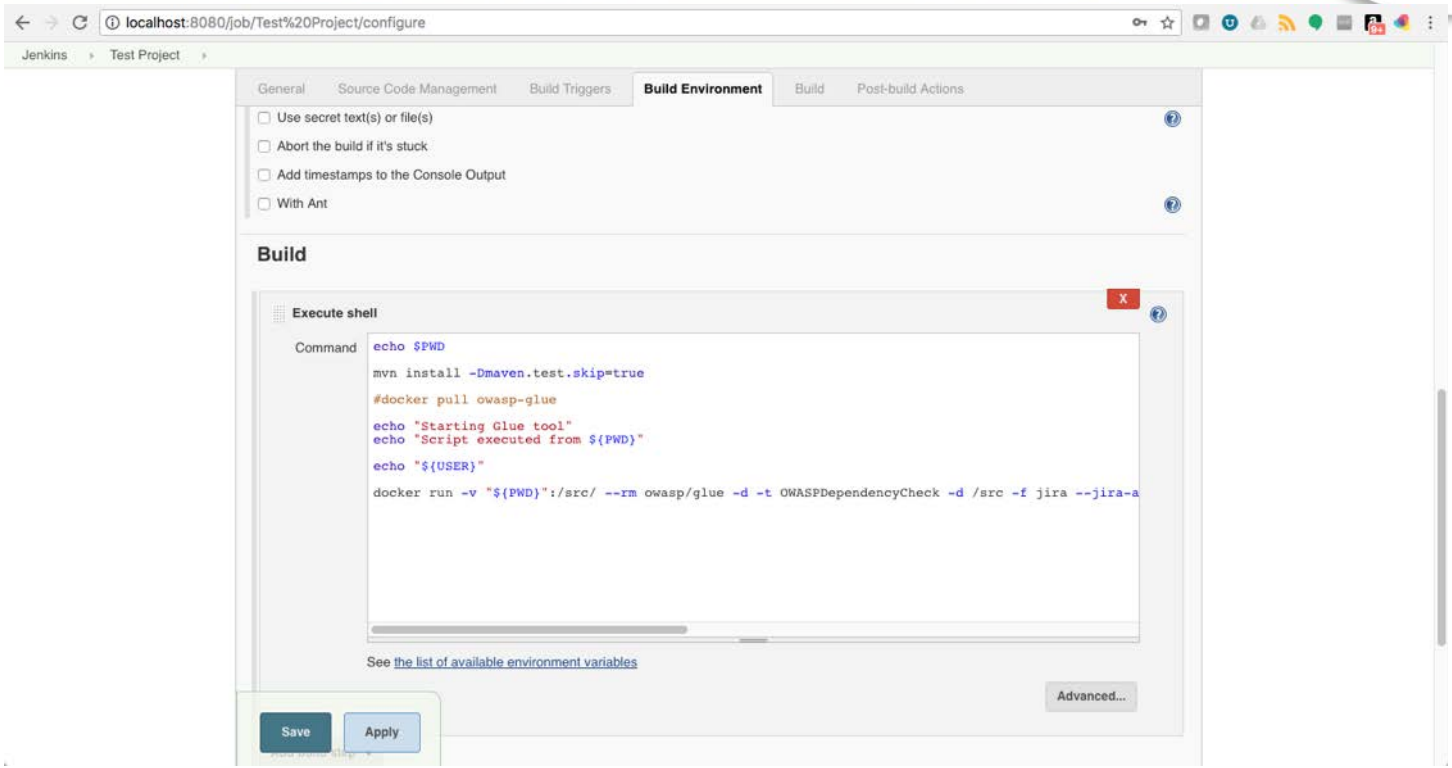
Push Glue to Jira



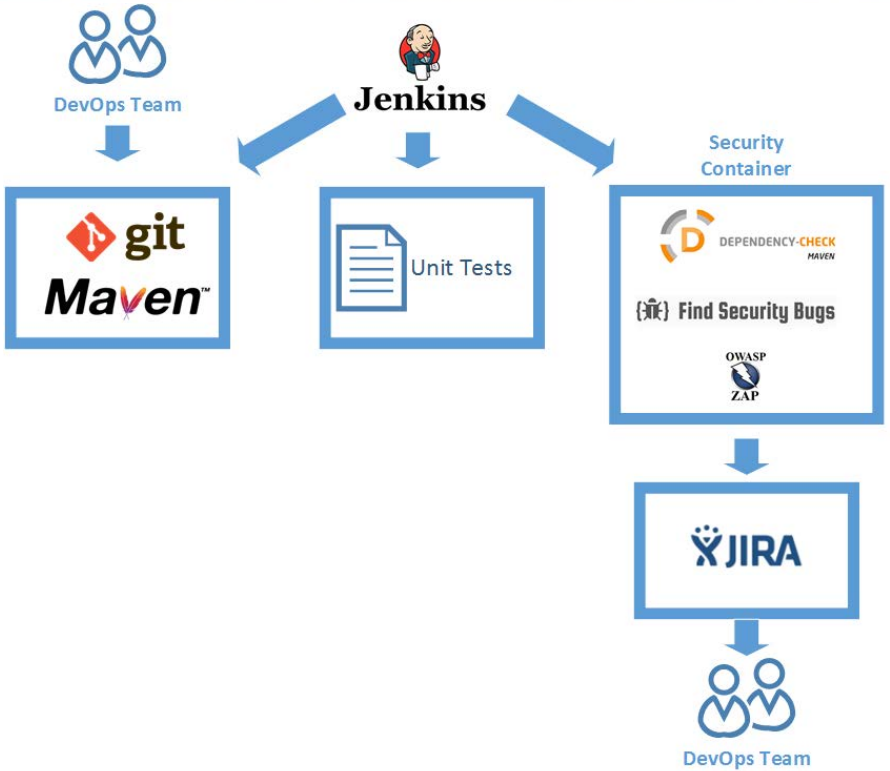
Connect Glue to Jenkins

- To make truly DevOps, connect to automation
- In Jenkins, add a Build Step
- In the build step, execute a shell command that runs your docker command

Connect Glue to Jenkins



Security Container Example



Why a Security Container?

- Easy change of tools
- Easy rollout (i.e. prereq handled)
- Easy update
- Flexible for different environments
- Automated and integrated
- Cost

Where to Start

Start Easy

- One App to test
- Determine Tools for container
- Integrate with Dev Team

Where to Start

- Open source container: OWASP Glue
- Support out of box for many free tools
  - PMD
  - FindSecBugs
  - Brakeman
  - RetireJS
  - Dependency Check

Work to mature solution

- Add more tools
- Add different types of tools
  - Dependency Checks
  - Code quality checks
  - Dynamic scans
  - Gauntlt
- Fail the build

Keys to success

- DevOps mature
- Security champion on teams
- Really smart people
- Really technical people
- Flexibility
- Be OK to fail

Apply What You Have Learned Today

- Next Week
  - Try the solution with one application
- In the next 3 months
  - Determine standard toolset for one group of apps
  - Create and rollout container for similar apps
- In the next 6 months
  - Review success of initial container rollout
  - Determine plan for remaining applications

QUESTIONS