

Improvement of Continuous Integration / Development Pipeline using Github Actions

U.S. Citizenship and Immigration Services
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coding it forward >

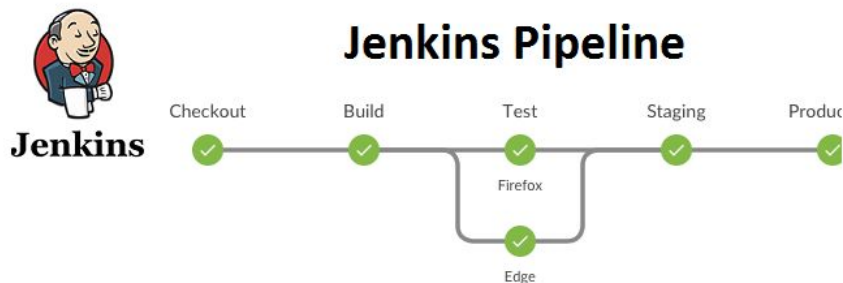


U.S. Citizenship
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Services

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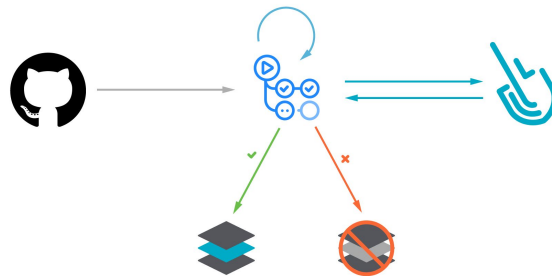
Migration Motivation

- Current CI/CD pipeline is Jenkins
 - Helps automate the parts of software development related to building, testing, and deploying
- Right now USCIS engineers rely on a lot of third party applications, trying to minimize too many dependencies
- Try to centralize software development into as little applications / tools as possible



Introduce Github Actions!

- Engineers are already using Github as their version control system of choice
- Therefore, introduce Github actions to assist in CI / CD pipeline
 - Can take advantage of seamless integration with existing GitHub repositories and workflows
 - Serverless instead of manually setting up machine like Jenkins
 - Personalized customization
 - Integration with other Github features very easily!



What actions are being automated?

- Start drafting YAML file to run steps in Ruby on Rails applications that will check...
 - If correct version of Ruby was installed
 - Vulnerability scanner on Ruby on Rails applications with Brakeman
 - Check for other vulnerabilities with Bundler Audit
 - Run automated tests for Ruby code with rspec
 - Upload code coverage from unit tests using Simple Cov Library

```
.github > workflows > code_health.yml
1  name: verify code health
2  on: push
3
4  jobs:
5    rubocop:
6      runs-on: self-hosted
```

Running Actions Live

- <https://git.uscis.dhs.gov/GLOBAL/son-of-oscar/actions/runs/65744>

The screenshot displays the GitHub Actions interface for the repository 'GLOBAL / son-of-oscar'. The workflow 'code_health.yml' is shown as successful, triggered by a push from 'Immorale pushed'. The workflow consists of four jobs: rubocop (25s), brakeman (23s), bundler_audit (18s), and rspec (1m 7s). The total duration of the workflow is 2m 23s. The artifacts section shows a file named 'simplecov-reports' with a size of 744 KB. The rspec summary is also visible at the bottom.

GLOBAL / son-of-oscar Public

<> Code Issues 20 Pull requests Discussions Actions Projects 1 Wiki Security 1 Insights Settings

<- verify code health

try simple cov with 80 percent threshold #85

Summary

Jobs

- rubocop
- brakeman
- bundler_audit
- rspec

Run details

Workflow file

Triggered via push 2 hours ago

Immorale pushed d28ce91 35-review-code-coverage

Status Success Total duration 2m 23s Artifacts 1

code_health.yml

on: push

- rubocop 25s
- brakeman 23s
- bundler_audit 18s
- rspec 1m 7s

Artifacts

Produced during runtime

Name	Size
simplecov-reports	744 KB

rspec summary

Next Steps

- Automate additional checks and plug ins that we want to run automatically by adding to the YAML file
 - Current YAML file primarily deals with [code health](#)
- Right now automated continuous development and integration is being done for current repositories
 - Can expand CI/CD development for other repositories in USCIS organization by using current YAML file as a reference
- Start reaching out to teams to move away from Jenkins CI/CD development

Reflection

- Grew more comfortable with pairing engineering techniques
- Learned about Ruby on Rails development and importance of self imposed checks before pushing code
- Demystified the civic technology experience!
- Grew more comfortable in my skills and when to reach out for help



Thank You!

Special thanks to JC, Sean, and everyone else in the Global team!

