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bit.ly/gha-java



bit.ly/gha-typescript



bit.ly/gha-java

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GitHub Actions in Action

Christian Baumann

Who is that guy?

Christian Baumann

Software Tester



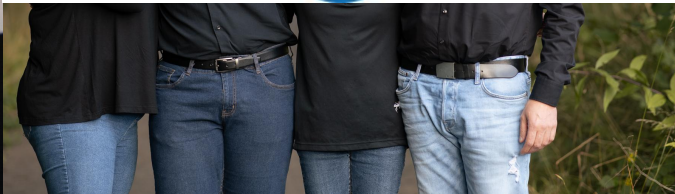
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AgileTD Ambassador



Background

- GitHub was founded in 2008
- acquired by MS in 2018
- hosting service for software development & version control using Git
- **Actions**: platform for continuous integration and continuous delivery (CI/CD)
- **workflows** can be triggered by any kind of triggers (**events**)
- virtual machines are provided to run workflows

Why Use GitHub Actions?

- No extra tooling needed
- Tight GitHub ecosystem integration
→ PRs, issues, releases
- Event-driven flexibility → Automate beyond CI/CD
(e.g., issue triage, repo management)
- Reusable, shareable workflows
→ Leverage community & marketplace actions

When to Use GitHub Actions?

- Working inside GitHub and want seamless automation
- Quick setup without external CI/CD tools needed
- When leveraging GitHub-hosted runners for faster execution
- If you want to reuse community actions instead of writing everything from scratch

Benefits

- no installation → no maintenance
- faster execution → faster cycle time
- support for many languages, frameworks, environments
- applies DRY principle
- huge community & marketplace



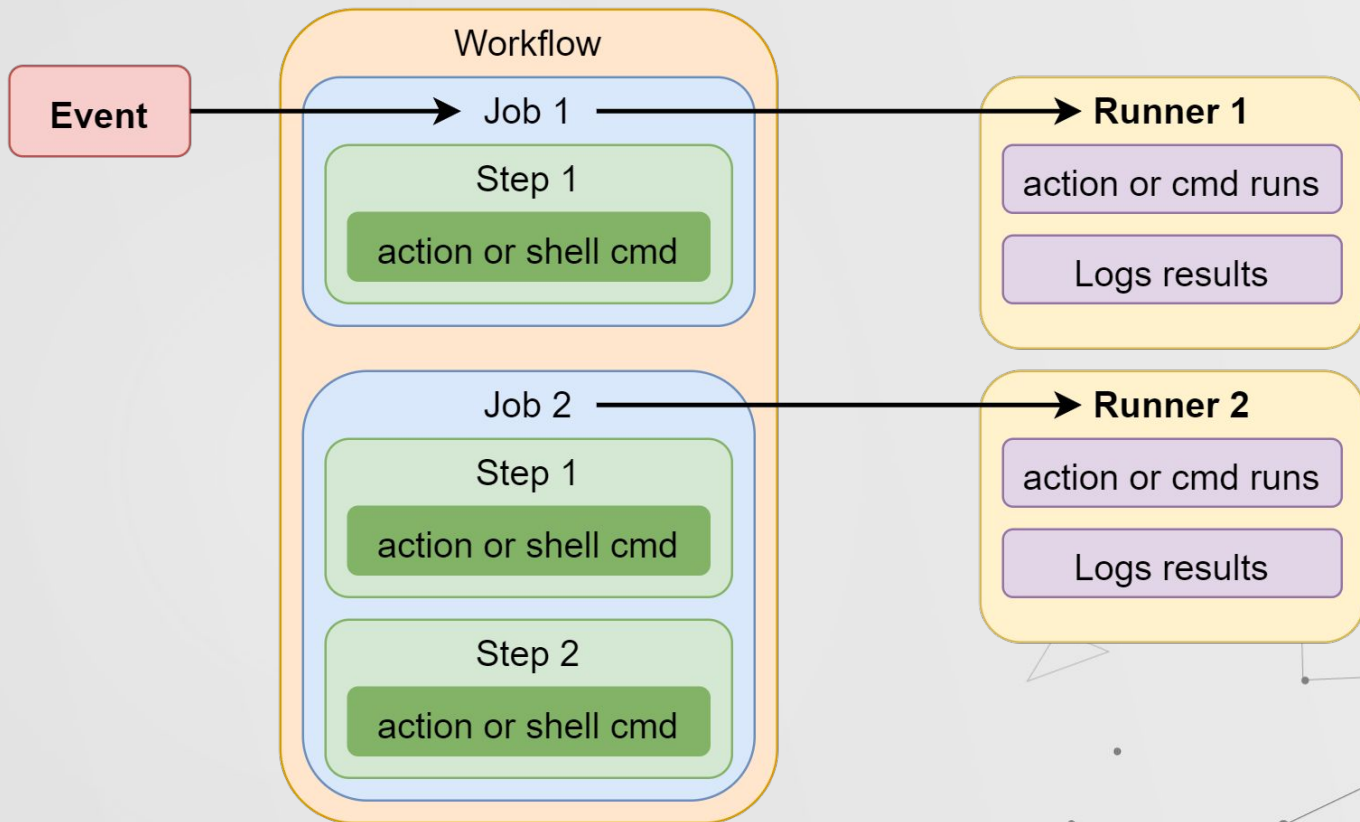
When to not use GitHub Actions?

- Repo not on GitHub
- Need on-prem execution only
- Strict compliance/security policies
- High execution time/cost concerns
- Complex dependencies/setup required

Components (1)

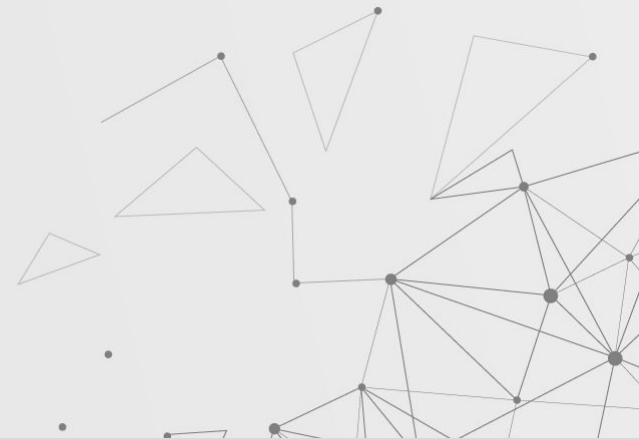
- **Workflow** configurable automated process, runs jobs
- **Event** activity in the repo that's triggerable for a run
- **Job** set of steps in a workflow
- **Step** a shell script or an action
- **Action** custom application that performs a task
- **Runner** server that runs workflows

Components (2)



The workflow file

- ***YAML*** (YAML Ain't Markup Language)
- Whitespaces! - not tabs!
- ***.yaml*** (outdated: ***.yml***)
- learnxinyminutes.com/yaml
- ***.github/workflows***



Events

- Trigger the workflow
- Keyword: **on**
- Examples: **workflow_dispatch**, **scheduled**, **pull_request**, **issues**
- Different types, eg. **pull_request**: **assigned**, **opened**, **closed**
- Can have different branches, eg. **pull_request**

```
on:  
  pull_request:  
    types: [opened, reopened]
```

```
on:  
  workflow_dispatch:
```

```
on:  
  pull_request:  
    branches:  
      - main
```

Jobs

- Sequential steps executing a task
- Keyword: **jobs**
- Unique name
- Run in parallel
- **runs-on** environment
- Multiple steps
- Execute on own runner
- To make dependent: **needs**

```
jobs:
  setup:
    runs-on: ubuntu-latest
    outputs:
      greeting: ${steps.set_greeting.outputs.message}
      target: ${steps.set_target.outputs.message}
    steps:
      - id: set_greeting
        run: echo "message=Hello" >> $GITHUB_OUTPUT
      - id: set_target
        run: echo "message=World" >> $GITHUB_OUTPUT

  display_message:
    runs-on: ubuntu-latest
    needs: setup
    steps:
      - run: echo "${needs.setup.outputs.greeting} \
        ${needs.setup.outputs.target}"
```



setup

0s



display_message

0s

Steps

- Shell script or action
- Keyword **steps**
- Executed on the same runner
- Executed in order
- Depend on each other
- Data can be shared

steps:

- **name:** Checkout repository
uses: actions/checkout@v3
- **name:** Build and run tests
run: |
 ./build.sh
 ./test.sh
shell: bash

actions

- reusable tasks that power jobs & build workflows
- Sources: GitHub, marketplace & own actions
- Keyword **uses**

- **actions:** author
- **checkout:** name
- **@v3:** version

steps:

- **name:** Checkout repository
- uses:** actions/checkout@v3

Exercises

See the repo's
README .md



Thank you! Questions?
