GitHub Actions

Automate your workflow from idea to production.

About Platform

- GitHub Actions makes it easy to automate all your software workflows, now with world-class CI/CD. Build, test, and deploy your code right from GitHub. Make code reviews, branch management, and issue triaging work the way you want.

Plan	Storage	Minutes (per month)
GitHub Free	500 MB	2,000
GitHub Pro	1 GB	3,000
GitHub Free for organizations	500 MB	2,000
GitHub Team	2 GB	3,000
GitHub Enterprise Cloud	50 GB	50,000

The Components of GitHub Actions

1. Workflow

A workflow is a programmed process that runs one or more jobs. This configurable process is defined by a YAML file in the **.github/workflows** directory in a repository.

2. Event

An event is a particular activity in a repository. It is like a trigger for workflows.

3. Job

Jobs are a set of steps in a workflow. They are executed under the same runner. Each step is either a shell script or an action.

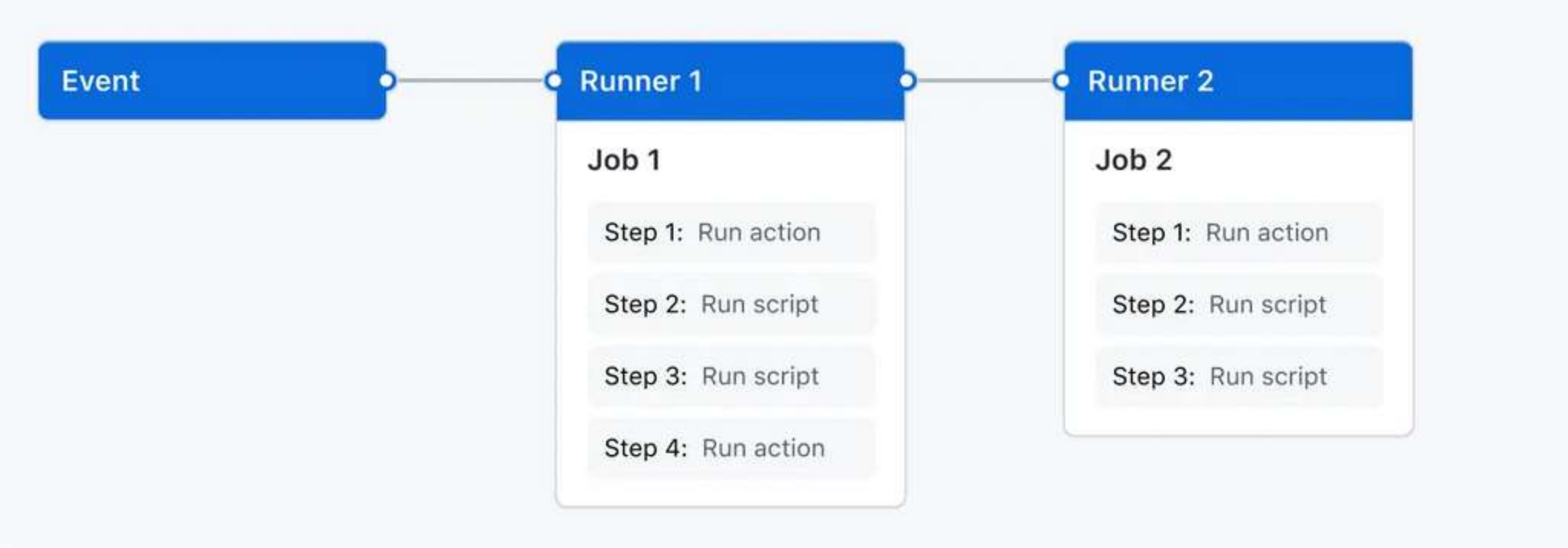
4. Action

An *action* is a custom application for the GitHub Actions platform that performs a complex but frequently repeated task.

5. Runner

A runner is a server that runs your workflows when they're triggered. Each runner can run a single job at a time

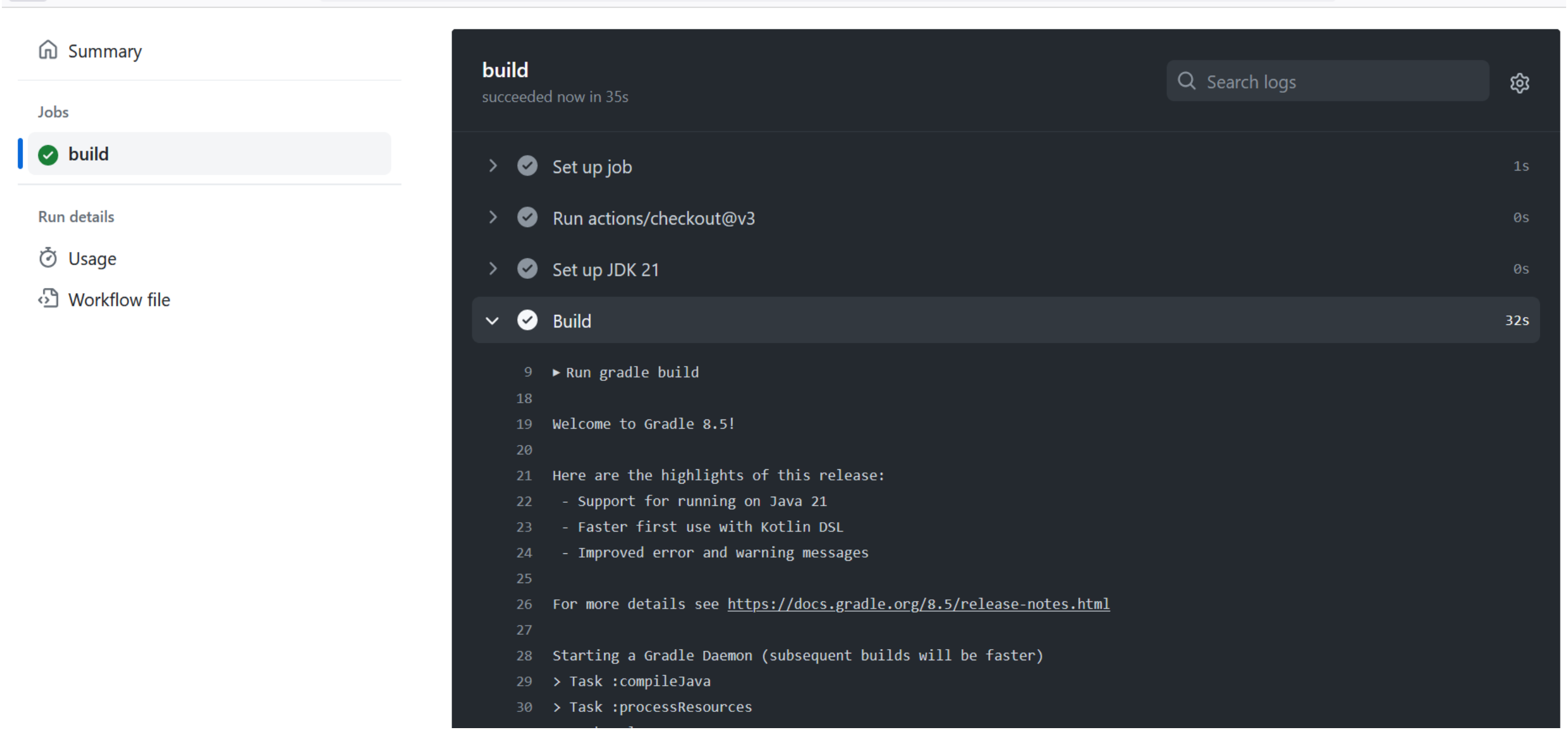
The Components of GitHub Actions



build.yml

```yaml
name: Example of simple Java CI
on:
  push:
    branches: [ "main" ]
  pull_request:
    branches: [ "*" ]
jobs:
  build:
    runs-on: ubuntu-latest
    steps:
    - uses: actions/checkout@v3
    - name: Set up JDK 21
      uses: actions/setup-java@v3
      with:
        java-version: '21'
        distribution: 'temurin'
    - name: Build
      run: gradle build

```


Summary
Jobs
build
Run details
Usage
Workflow file
build
succeeded now in 35s
Search logs
Set up job
1s
Run actions/checkout@v3
0s
Set up JDK 21
0s
Build
32s
9 ▶ Run gradle build
18
19 Welcome to Gradle 8.5!
20
21 Here are the highlights of this release:
22 - Support for running on Java 21
23 - Faster first use with Kotlin DSL
24 - Improved error and warning messages
25
26 For more details see https://docs.gradle.org/8.5/release-notes.html
27
28 Starting a Gradle Daemon (subsequent builds will be faster)
29 > Task :compileJava
30 > Task :processResources

Event Types

page_build

project

project_card

project_column

public

pull_request

pull_request_comment (use issue_comment)

pull_request_review

pull_request_review_comment

pull_request_target

push

registry_package

release

repository_dispatch

schedule

status

… about 35 event types

Sub-types : Issues

```yaml
name: On Issue
on:
  issues:
    types: [opened, edited, closed]
```

Activity types

- `opened`
- `edited`
- `deleted`
- `transferred`
- `pinned`
- `unpinned`
- `closed`
- `reopened`
- `assigned`
- `unassigned`
- `labeled`
- `unlabeled`
- `locked`
- `unlocked`
- `milestoned`
- `demilestoned`

DEMO

GitHub Actions

Tips & Tricks

- **Use Caching in workflow dependency**

Package managers	setup-* action for caching
npm, Yarn, pnpm	setup-node
pip, pipenv, Poetry	setup-python
Gradle, Maven	setup-java
RubyGems	setup-ruby
Go `go.sum`	setup-go

```yaml
name: Example of simple Java CI
on:
  push:
    branches:
        - main
jobs:
  build:
    runs-on: ubuntu-22.04
    steps:
    - uses: actions/checkout@v3
    - name: Set up JDK 21
      uses: actions/setup-java@v3
      with:
        java-version: 21
        distribution: temurin
    - name: Setup Gradle
      uses: gradle/gradle-build-action@v2
      with:
        gradle-version: 8.5

    - name: Execute Gradle build
      run: ./gradlew build

```

Tips & Tricks

- **Reusing workflows**

```yaml
name: Reusable Workflow
on:
  workflow_call:
jobs:
  reusable-workflow:
    runs-on: ubuntu-latest
    steps:
      - run: echo "Step 1"
        shell: bash
      - run: echo "Step 2"
        shell: bash
```

```yaml
reusable-invoke:
  uses: ./.github/workflows/reusable-workflow.yml
```