

REFERENSI CEPAT GITHUB ACTIONS

Workflow, trigger, job, secret, caching, artifact

Dasar Workflow

Workflow Minimal

```
# .github/workflows/ci.yml
name: CI
on: push
jobs:
  build:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v4
      - run: echo "Hello from CI"
```

Konsep Utama

Workflow File YAML di `.github/workflows/` yang mendefinisikan otomatisasi
Event Trigger yang memulai workflow (push, PR, jadwal, dll.)
Job Kumpulan step yang berjalan di runner yang sama
Step Tugas individual — menjalankan perintah atau menggunakan action
Runner VM yang menjalankan job (`ubuntu-latest`, `macos-latest`, `windows-latest`)
Action Unit kode yang bisa digunakan ulang, direferensikan dengan `uses`:

Trigger

Event Umum

```
on:
  push:
    branches: [main]
  pull_request:
    branches: [main]
  schedule:
    - cron: "0 6 * * 1" # every Monday 6 AM UTC
  workflow_dispatch: # manual trigger
```

Filter Event

branches: Trigger hanya untuk branch tertentu
paths: Trigger hanya saat file yang cocok berubah
tags: Trigger saat push tag (`v*`)
types: [opened, synchronize] Filter tipe aktivitas PR
branches-ignore: Kecualikan branch tertentu
paths-ignore: Kecualikan path file tertentu

Job & Step

Konfigurasi Job

```
jobs:
  test:
    runs-on: ubuntu-latest
    needs: build # depends on build job
    if: github.ref == 'refs/heads/main'
    timeout-minutes: 10
    steps:
      - uses: actions/checkout@v4
      - run: npm test
```

Tipe Step

run: Jalankan perintah shell
uses: Gunakan action yang sudah dipublikasikan
with: Teruskan input ke action
name: Nama tampilan di UI
id: Referensikan output step via `steps.<id>.outputs`
if: Eksekusi kondisional
continue-on-error: true Jangan gagal jika step gagal

Action

Menggunakan Action

```
steps:
  - uses: actions/checkout@v4
  - uses: actions/setup-node@v4
    with:
      node-version: 20
  - uses: ./github/actions/my-action # local action
```

Action Populer

actions/checkout@v4 Checkout kode repository
actions/setup-node@v4 Install Node.js
actions/setup-python@v5 Install Python
actions/upload-artifact@v4 Upload artifact build
actions/download-artifact@v4 Unduh artifact dari job lain
actions/cache@v4 Cache dependensi antar run
actions/github-script@v7 Jalankan JS dengan klien GitHub API

Environment Variable

Mengatur Variabel

```
env:
  NODE_ENV: production # workflow-level
jobs:
  build:
    env:
      CI: true # job-level
    steps:
      - run: echo "$MY_VAR"
        env:
          MY_VAR: hello # step-level
```

Variabel Default

github.sha SHA commit yang memicu workflow
github.ref Ref branch atau tag (`refs/heads/main`)
github.repository Nama owner/repo
github.actor User yang memicu workflow
github.event_name Event yang memicu workflow
runner.os OS runner (`Linux`, `macOS`, `Windows`)

Secret

Menggunakan Secret

```
steps:
  - run: deploy --token "${TOKEN}"
    env:
      TOKEN: ${ secrets.DEPLOY_TOKEN }
  - uses: some/action@v1
    with:
      api-key: ${ secrets.API_KEY }
```

Aturan Secret

secrets.GITHUB_TOKEN Token yang dibuat otomatis, dicakup ke repo
(Settings → Secrets) Tambah secret di pengaturan repo atau org
(Masking) Nilai secret disembunyikan di log secara otomatis
(Environment secrets) Dicapuk ke environment deployment
(Org secrets) Dibagikan ke seluruh repo dalam organisasi

Matrix Strategy

Matrix Build

```
jobs:
  test:
    strategy:
      matrix:
        os: [ubuntu-latest, macos-latest]
        node: [18, 20]
    runs-on: ${ matrix.os }
    steps:
      - uses: actions/setup-node@v4
        with:
          node-version: ${ matrix.node }
```

Opsi Matrix

matrix: Definisikan kombinasi variabel yang akan di-expand
include: Tambah kombinasi tambahan ke matrix
exclude: Hapus kombinasi tertentu
fail-fast: false Lanjutkan job lain jika satu gagal
max-parallel: 2 Batasi job matrix yang berjalan bersamaan

Caching

Cache Dependensi

```
- uses: actions/cache@v4
  with:
    path: ~/.npm
    key: npm-${ hashFiles('package-lock.json') }
    restore-keys: npm-
```

Caching Bawaan

```
- uses: actions/setup-node@v4
  with:
    node-version: 20
    cache: npm # auto-cache for npm/yarn/pnpm
- uses: actions/setup-python@v5
  with:
    python-version: "3.12"
    cache: pip # auto-cache for pip
```

Artifact

Upload & Download

```
- uses: actions/upload-artifact@v4
  with:
    name: build-output
    path: dist/
    retention-days: 7
- uses: actions/download-artifact@v4
  with:
    name: build-output
```

Catatan Artifact

retention-days Hapus otomatis setelah N hari (default 90)
path File atau direktori yang diunggah (mendukung glob)
Lintas-job Upload di satu job, download di job lain dengan `needs`:
compression-level 0 (tidak ada) hingga 9 (maksimal), default 6

Pola Umum

Deployment Kondisional

```
- name: Deploy to production
  if: github.ref == 'refs/heads/main'
  run: ./deploy.sh
- name: Post PR comment
  if: github.event_name == 'pull_request'
  run: gh pr comment $PR --body "Build passed"
```

Eksresi Berguna

success() True jika semua step sebelumnya berhasil
failure() True jika ada step sebelumnya yang gagal
always() Jalankan terlepas dari status (cleanup)
cancelled() True jika workflow dibatalkan
contains(github.ref, 'release') Pemeriksaan contains string
startsWith(github.ref, 'refs/tags') Pemeriksaan prefix string
hashFiles('/lock*')** SHA-256 file (untuk cache key)