

Abstract geometric lines and polygons in the top-left corner of the slide.

Build & Deploy with Github Actions

Github 저장소 만들기

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere?

[Import a repository.](#)

Required fields are marked with an asterisk (*).

Owner *



Repository name *



github-actions-demo

✔ github-actions-demo is available.

Great repository names are short and memorable. Need inspiration? How about [supreme-goggles](#) ?

Description (optional)



Public

Anyone on the internet can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Initialize this repository with:



Add a README file

This is where you can write a long description for your project. [Learn more about READMEs.](#)

Add .gitignore

.gitignore template: Java ▾

Choose which files not to track from a list of templates. [Learn more about ignoring files.](#)

Choose a license

License: None ▾

A license tells others what they can and can't do with your code. [Learn more about licenses.](#)

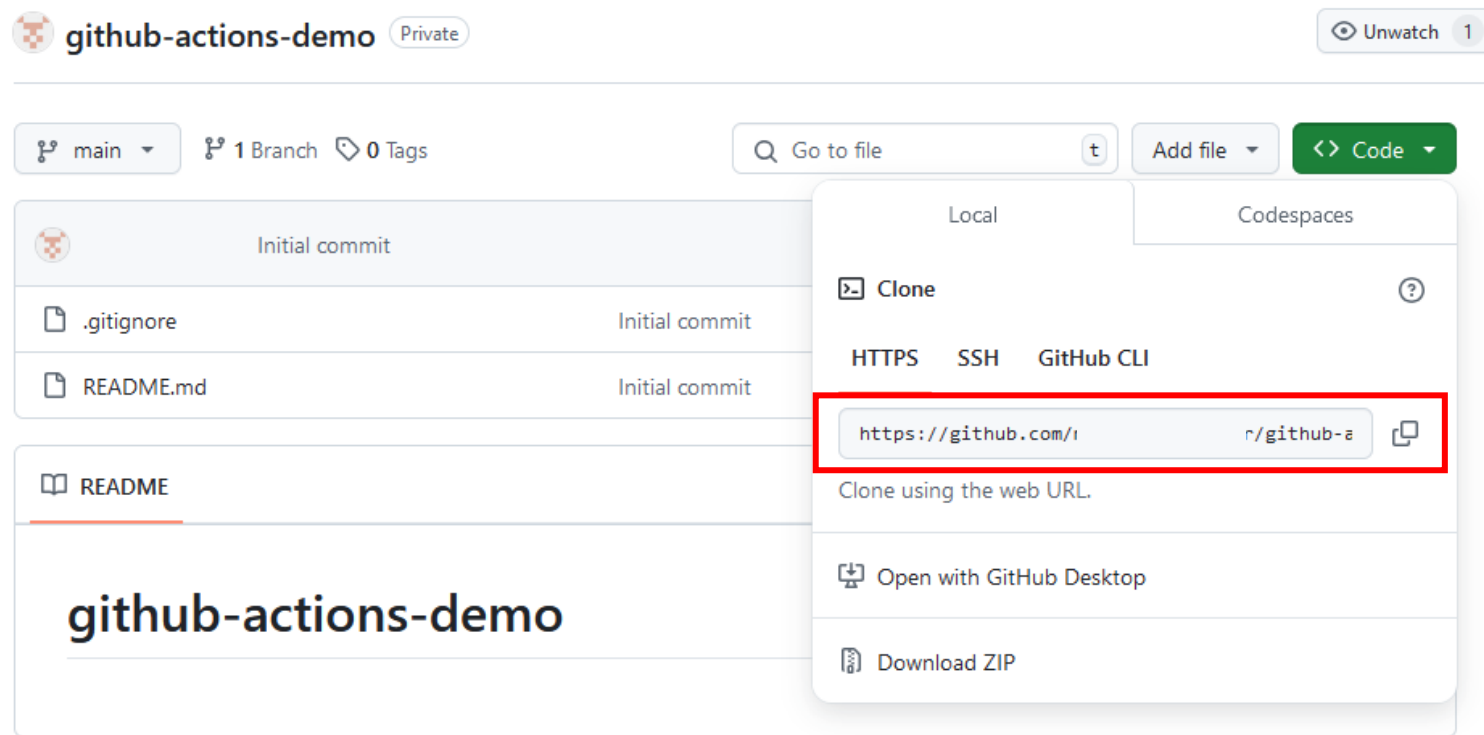
This will set main as the default branch. Change the default name in your [settings](#).



You are creating a private repository in your personal account.

Create repository

로컬 저장소 만들기



관리자: 명령 프롬프트

```
D:\Wresearch>git clone https://github.com/.../github-actions-demo.git
Cloning into 'github-actions-demo' ...
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (4/4), done.
```

로컬 저장소에 샘플 프로젝트 복사 및 원격 저장소에 적용

로컬 디스크 (D:) > research > github-actions-demo

| 이름 | 유형 | 크기 |
|------------|-----------------|-----|
| ^ | | |
| .git | 파일 폴더 | |
| lmsweb | 파일 폴더 | |
| .gitignore | 텍스트 문서 | 1KB |
| README.md | Markdown 원본 ... | 1KB |

관리자: 명령 프롬프트

```
D:\research>cd github-actions-demo
```

```
D:\research\github-actions-demo>git add .  
warning: in the working copy of 'lmsweb/.gitignore',
```

```
D:\research\github-actions-demo>git commit -m "add sample project"  
[main e0bee6f] add sample project  
67 files changed, 34606 insertions(+)  
create mode 100644 lmsweb/.gitignore
```

```
D:\research\github-actions-demo>git push origin main  
Enumerating objects: 94, done.  
Counting objects: 100% (94/94), done.  
Delta compression using up to 8 threads  
Compressing objects: 100% (81/81), done.
```

branch 만들기

main branch를 기반으로 deploy-demo branch 생성

관리자: 명형 프로젝트

```
D:\Wresearch\github-actions-demo>git branch --list
```

```
* main
```

```
D:\Wresearch\github-actions-demo>git branch deploy-demo main
```

```
D:\Wresearch\github-actions-demo>git branch --list
```

```
deploy-demo
```

```
* main
```

```
D:\Wresearch\github-actions-demo>git checkout deploy-demo
```

```
Switched to branch 'deploy-demo'
```

```
D:\Wresearch\github-actions-demo>git branch --list
```

```
* deploy-demo
```

```
main
```

```
D:\Wresearch\github-actions-demo>git push origin deploy-demo
```

```
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
```

```
remote:
```

```
remote: Create a pull request for 'deploy-demo' on GitHub by visiting:
```

```
remote:      https://github.com/          /github-actions-demo/pull/new/deploy-demo
```

```
remote:
```

```
To https://github.com/          /github-actions-demo.git
```

```
* [new branch]      deploy-demo -> deploy-demo
```

github-actions-demo Private

main 2 Branches 0 Tags

Switch branches/tags

Find or create a branch...

Branches Tags

✓ main

default

deploy-demo

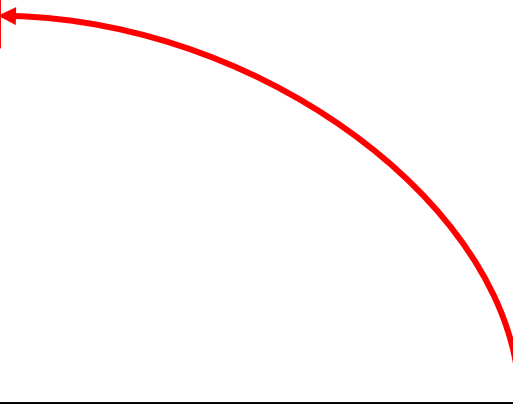
View all branches

github-actions-demo

프로젝트에 Dockerfile 추가

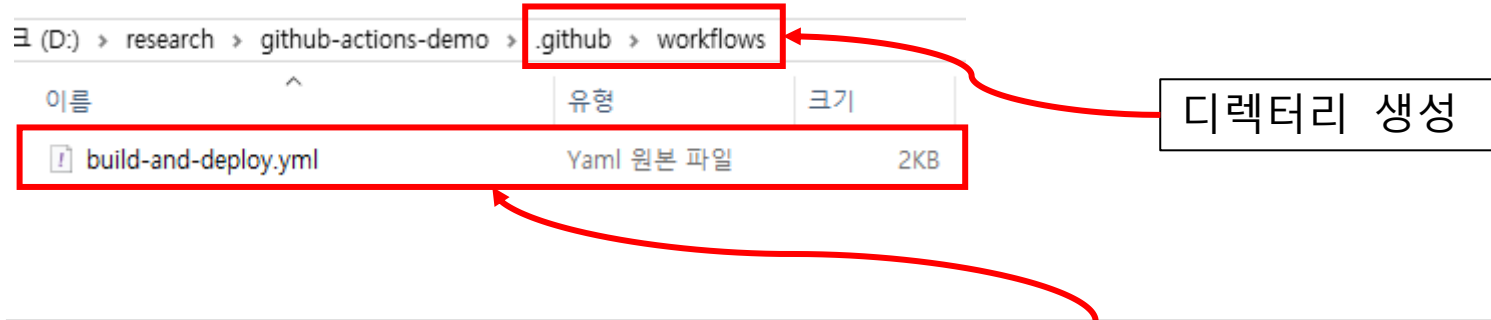
크 (D:) > research > github-actions-demo > lmsweb

| 이름 | 유형 | 크기 |
|-----------------|-----------------|-----|
| .gradle | 파일 폴더 | |
| .idea | 파일 폴더 | |
| gradle | 파일 폴더 | |
| src | 파일 폴더 | |
| .gitignore | 텍스트 문서 | 1KB |
| build.gradle | Gradle 원본 파일 | 1KB |
| Dockerfile | 파일 | 1KB |
| gradlew | 파일 | 9KB |
| gradlew.bat | Windows 배치 파일 | 3KB |
| HELP.md | Markdown 원본 ... | 2KB |
| settings.gradle | Gradle 원본 파일 | 1KB |



```
FROM eclipse-temurin:17-jdk-alpine
WORKDIR /app
COPY ./build/libs/lmsweb-0.0.1-SNAPSHOT.jar lmsweb.jar
EXPOSE 8080
CMD ["java", "-jar", "lmsweb.jar"]
```

Github Actions Workflow 만들기



```
name: Build and Deploy

on:
  push:
    branches: [deploy-demo]

jobs:
  build:
    runs-on: [ubuntu-latest]
    steps:
      - name: Checkout source
        uses: actions/checkout@v3
      - name: Setup Java
        uses: actions/setup-java@v3
        with:
          distribution: 'temurin'
          java-version: '17'
```

Github Actions Workflow 만들기 (계속)

▪ workflow 파일 (계속)

```
- name: Build Project
  run: lmsweb/gradlew -p lmsweb bootJar
- name: Login to docker hub
  run: docker login -u ${{secrets.DOCKER_USERNAME}} -p ${{secrets.DOCKER_PASSWORD}}
- name: Build docker image
  run: docker build -t shared1repo1z/lmsweb lmsweb
- name: Publish image to docker hub
  run: docker push shared1repo1z/lmsweb:latest
```

deploy:

needs: build

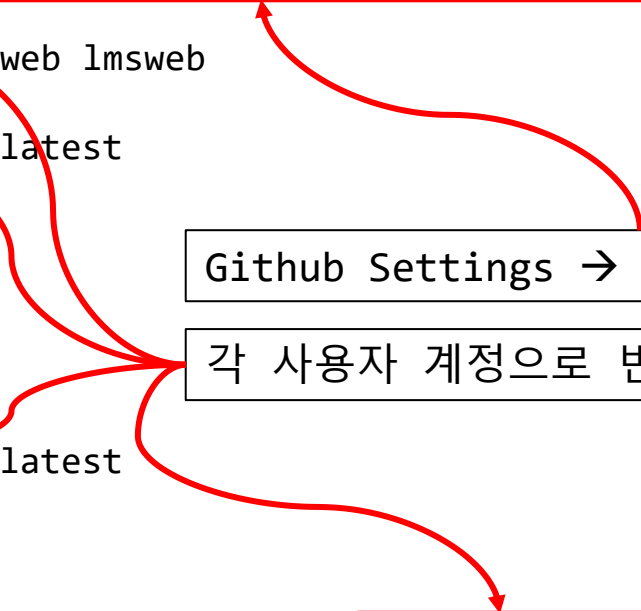
runs-on: [aws-ec2]

steps:

```
- name: Pull Image from docker hub
  run: docker pull shared1repo1z/lmsweb:latest
- name: Delete old container
  run: docker rm -f lmsweb-container
- name: Run docker container
  run: docker run -d -p 8080:8080 --name lmsweb-container shared1repo1z/lmsweb
```

Github Settings → Security에 등록

각 사용자 계정으로 변경



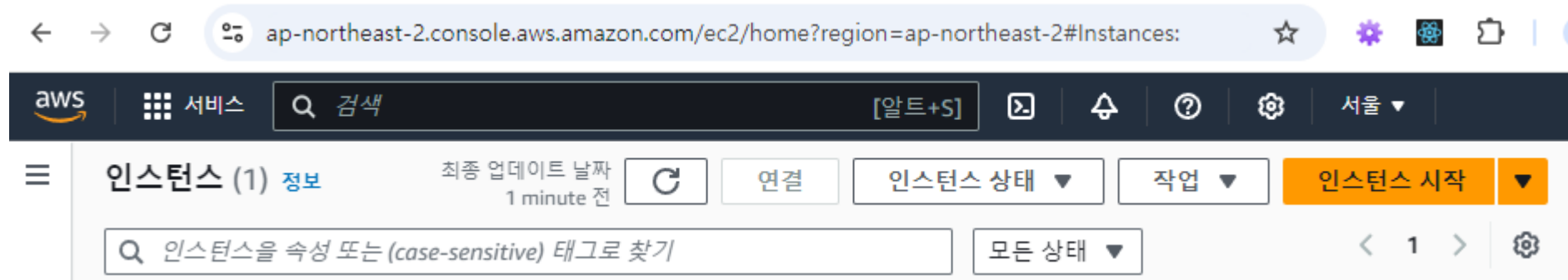
Github Secrets 환경 변수에 Docker Hub 계정 정보 등록

The image shows the GitHub Actions 'Secrets and variables' interface. Red boxes and arrows highlight the steps to add repository secrets:

- The **Settings** tab in the top navigation bar is highlighted.
- The **Secrets and variables** section in the left sidebar is highlighted.
- The **New repository secret** button is highlighted.
- Two screenshots on the right show the 'Actions secrets / New secret' form. The first shows the 'Name' field set to `DOCKER_USERNAME` and the 'Secret' field containing 'docker-hub username'. The second shows the 'Name' field set to `DOCKER_PASSWORD` and the 'Secret' field containing 'docker-hub password'.
- A large blue arrow points from the 'New repository secret' button to the 'Add secret' button in the second screenshot.
- At the bottom, a table titled 'Repository secrets' shows the secrets that have been added:

| Name | Last updated |
|-----------------|---------------|
| DOCKER_PASSWORD | 1 minute ago |
| DOCKER_USERNAME | 3 minutes ago |

AWS EC2 Machine 만들기



이름 : your-machine-name
Amazon Machine Image (AMI) : Amazon Linux 2003 AMI
인스턴스 유형 : t3.medium
키 페어 이름 : (기존 키 페어 선택 또는 생성)
보안 그룹 : (기존 보안그룹 선택 또는 생성)

i-0f0326225b8c60cb3 ()

[세부 정보](#) | [상태 및 경보](#) | [모니터링](#) | [보안](#) | [네트워킹](#) | [스토리지](#) | [태그](#)

▼ 인스턴스 요약 정보

인스턴스 ID

i-0f0326225b8c60cb3 ()

IPv6 주소

-

퍼블릭 IPv4 주소

54.180.227.164 | [개방 주소법](#)

인스턴스 상태

🟢 실행 중

EC2 Machine에 Docker 등 유틸리티 설치

▪ Docker 설치

```
[ec2-user@ip-172-31-5-53 ~]$ sudo yum update -y
Last metadata expiration check: 0:09:57 ago on Tue Oct 1 06:25:08 2024.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-5-53 ~]$ sudo yum install -y docker
Last metadata expiration check: 0:10:03 ago on Tue Oct 1 06:25:08 2024.
Dependencies resolved.
```

▪ Docker 서비스 시작

```
Complete!
[ec2-user@ip-172-31-5-53 ~]$ sudo systemctl status docker
○ docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; preset: disabled)
   Active: inactive (dead)
 TriggeredBy: ○ docker.socket
   Docs: https://docs.docker.com
[ec2-user@ip-172-31-5-53 ~]$ sudo systemctl start docker
[ec2-user@ip-172-31-5-53 ~]$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; preset: disabled)
   Active: active (running) since Tue 2024-10-01 06:37:51 UTC; 6s ago
 TriggeredBy: ● docker.socket
```

EC2 Machine에 Docker 등 유틸리티 설치

- ec2-user에 docker 실행 권한 부여

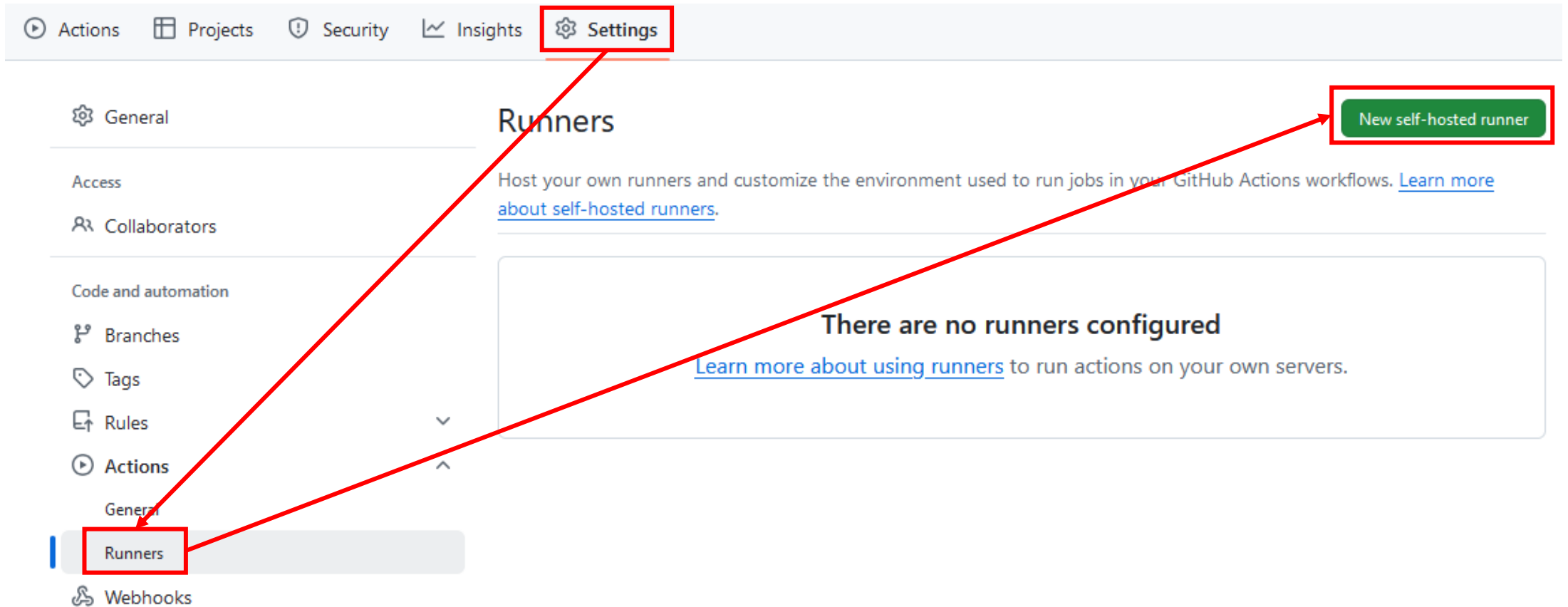
```
[ec2-user@ip-172-31-5-53 ~]$  
[ec2-user@ip-172-31-5-53 ~]$  
[ec2-user@ip-172-31-5-53 ~]$  
[ec2-user@ip-172-31-5-53 ~]$ sudo usermod -a -G docker ec2-user
```

- ec2 machine에서 exit 실행 후 다시 접속

- dotnet-sdk 설치

```
[ec2-user@ip-172-31-5-53 ~]$ sudo yum install -y dotnet-sdk-6.0  
Last metadata expiration check: 0:27:16 ago on Tue Oct 1 06:25:08 2024.  
Dependencies resolved.  
-----
```

Github Actions Runner 등록



Github Actions Runner 등록 (계속)

[Runners](#) / Add new self-hosted runner · ml-dl-instructor/github-actions-demo

Adding a self-hosted runner requires that you download, configure, and execute the GitHub Actions Runner. By downloading and configuring the GitHub Actions Runner, you agree to the [GitHub Terms of Service](#) or [GitHub Corporate Terms of Service](#), as applicable.

Runner image

☐ macOS ☒ Linux ☐ Windows

Architecture

x64

Download

```
# Create a folder
$ mkdir actions-runner && cd actions-runner

# Download the latest runner package
$ curl -o actions-runner-linux-x64-2.319.1.tar.gz -L https://github.com/actions/runner/releases/download/v2.319.1/actions-runner-linux-x64-2.319.1.tar.gz

# Optional: Validate the hash
$ echo "3f6efb7488a183e291fc2c62876e14c9ee732864173734facc85a1fb1744464 actions-runner-linux-x64-2.319.1.tar.gz" | shasum -a 256 -c

# Extract the installer
$ tar xzf ./actions-runner-linux-x64-2.319.1.tar.gz
```

Configure

```
# Create the runner and start the configuration experience
$ ./config.sh --url https://github.com/ml-dl-instructor/github-actions-demo --token A6BXU6PKXMSCXUTQHKBEVTLG7OVZI

# Last step, run it!
$ ./run.sh
```

```
[ec2-user@ip-172-31-5-53 ~]$ mkdir actions-runner && cd actions-runner
```

```
[ec2-user@ip-172-31-5-53 actions-runner]$
```

```
[ec2-user@ip-172-31-5-53 actions-runner]$ curl -o actions-runner-linux-x64-2.319.1.tar.gz -L https://github.com/actions/runner/releases/download/v2.319.1/actions-runner-linux-x64-2.319.1.tar.gz
```

| % Total | % Received | % Xferd | Average Speed | Time | Time | Time | Current |
|---------|------------|---------|---------------|--------|---------|---------|---------|
| | | | Dload | Upload | Total | Spent | Left |
| | | | | | | | Speed |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 100 | 208M | 100 | 208M | 0 | 120M | 0 | 0 |
| | | | | | 0:00:01 | 0:00:01 | 311M |

```
[ec2-user@ip-172-31-5-53 actions-runner]$ tar xzf ./actions-runner-linux-x64-2.319.1.tar.gz
```

Github Actions Runner 등록 (계속)

Runners / Add new self-hosted runner · ml-dl-instructor/github-actions-demo

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Runner image

☐ macOS ☒ Linux ☐ Windows

Architecture

x64

Download

```
# Create a folder
$ mkdir actions-runner && cd actions-runner

# Download the latest runner package
$ curl -o actions-runner-linux-x64-2.319.1.tar.gz -L https://github.com/actions/runner/releases/download/v2.319.1/actions-runner-linux-x64-2.319.1.tar.gz

# Optional: Validate the hash
$ echo "3f6efb7488a183e291fc2c62876e14c9ee732864173734facc85a1bfb1744464 actions-runner-linux-x64-2.319.1.tar.gz" | shasum -a 256 -c

# Extract the installer
$ tar xzf ./actions-runner-linux-x64-2.319.1.tar.gz
```

Configure

```
# Create the runner and start the configuration experience
$ ./config.sh --url https://github.com/ml-dl-instructor/github-actions-demo --token A6BXU6PKXMSCXUTQHKBEVTLG7OVZI

# Last step, run it!
$ ./run.sh
```

```
[ec2-user@ip-172-31-5-53 actions-runner]$
[ec2-user@ip-172-31-5-53 actions-runner]$ ./config.sh --url https://github.com/ml-dl-
```

GitHub Actions

Self-hosted runner registration

Authentication

✓ Connected to GitHub

Runner Registration

Enter the name of the runner group to add this runner to: [press Enter for Default]

Enter the name of runner: [press Enter for ip-172-31-5-53] aws-ec2

This runner will have the following labels: 'self-hosted', 'Linux', 'X64'
Enter any additional labels (ex. label-1,label-2): [press Enter to skip] aws-ec2

✓ Runner successfully added

✓ Runner connection is good

Runner settings

Enter name of work folder: [press Enter for _work]

✓ Settings Saved.

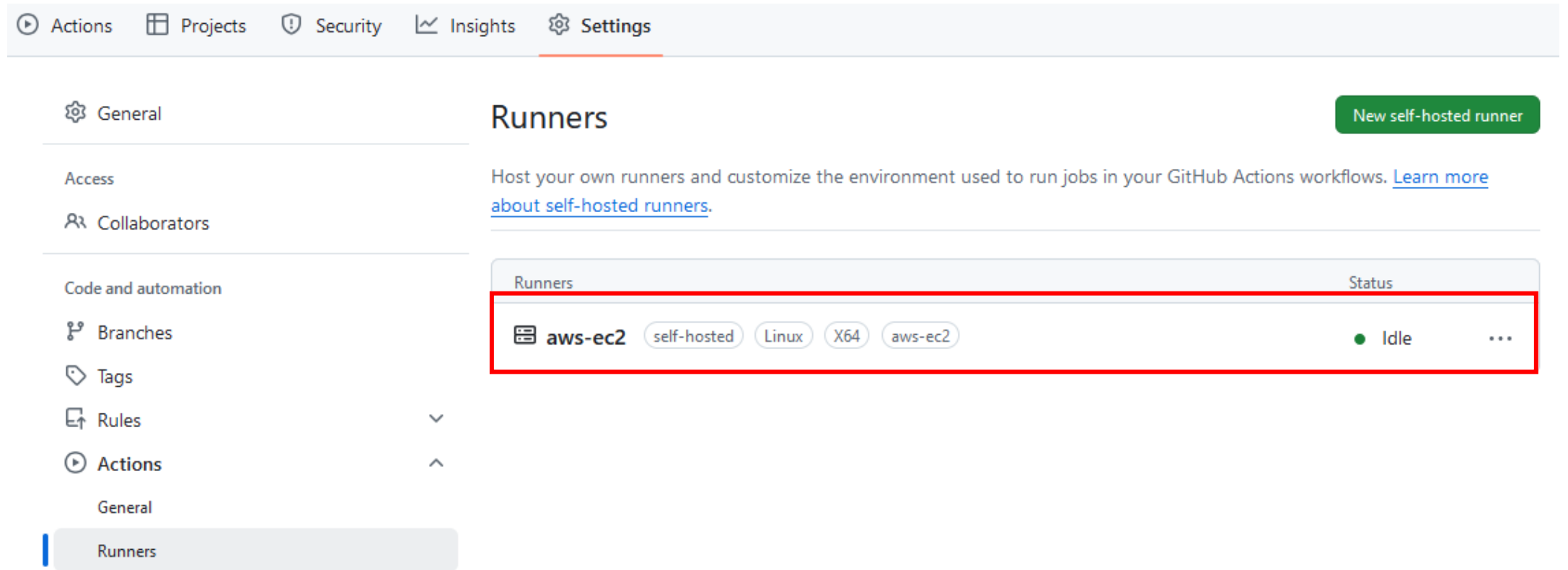
```
[ec2-user@ip-172-31-5-53 actions-runner]$ ./run.sh
```

✓ Connected to GitHub


Current runner version: '2.319.1'
2024-10-01 07:29:16Z: Listening for Jobs

Github Actions Runner 등록 (계속)

■ 등록 확인



The screenshot shows the GitHub Actions configuration interface. The top navigation bar includes 'Actions', 'Projects', 'Security', 'Insights', and 'Settings'. The left sidebar lists various settings categories: 'General', 'Access', 'Collaborators', 'Code and automation', 'Branches', 'Tags', 'Rules', 'Actions', and 'Runners'. The 'Runners' section is currently selected and highlighted with a blue bar. The main content area is titled 'Runners' and includes a 'New self-hosted runner' button. Below this, a table lists the configured runners. A red box highlights the first runner, 'aws-ec2', which is self-hosted, runs on Linux X64, and is currently idle.

| Runners | Status |
|--|------------|
|  aws-ec2 self-hosted Linux X64 aws-ec2 | ● Idle ... |

실행 확인

▪ add → commit → push 실행

▪ github 저장소에서 workflow 실행 확인

The screenshot displays the GitHub Actions interface. At the top, the 'Actions' tab is selected and highlighted with a red box. Below it, the 'All workflows' section shows '4 workflow runs'. One run, titled 'test after reconnect to aws machine' with a green checkmark, is highlighted with a red box. Below this, a table provides details for the selected run:

| Triggered via push 11 minutes ago | Status | Total duration | Billable time | Artifacts |
|---|---------|----------------|---------------|-----------|
| ml-dl-instructor pushed · 7aac36c deploy-demo | Success | 1m 28s | 1m | — |

Below the table, the workflow 'build-and-deploy.yml' is shown with the trigger 'on: push'. A red box highlights the workflow steps: 'build' (50s) and 'deploy' (14s), both marked with green checkmarks. Red arrows indicate the flow from the 'Actions' tab to the workflow run, and then to the specific steps within the workflow.