DevOps Case Study

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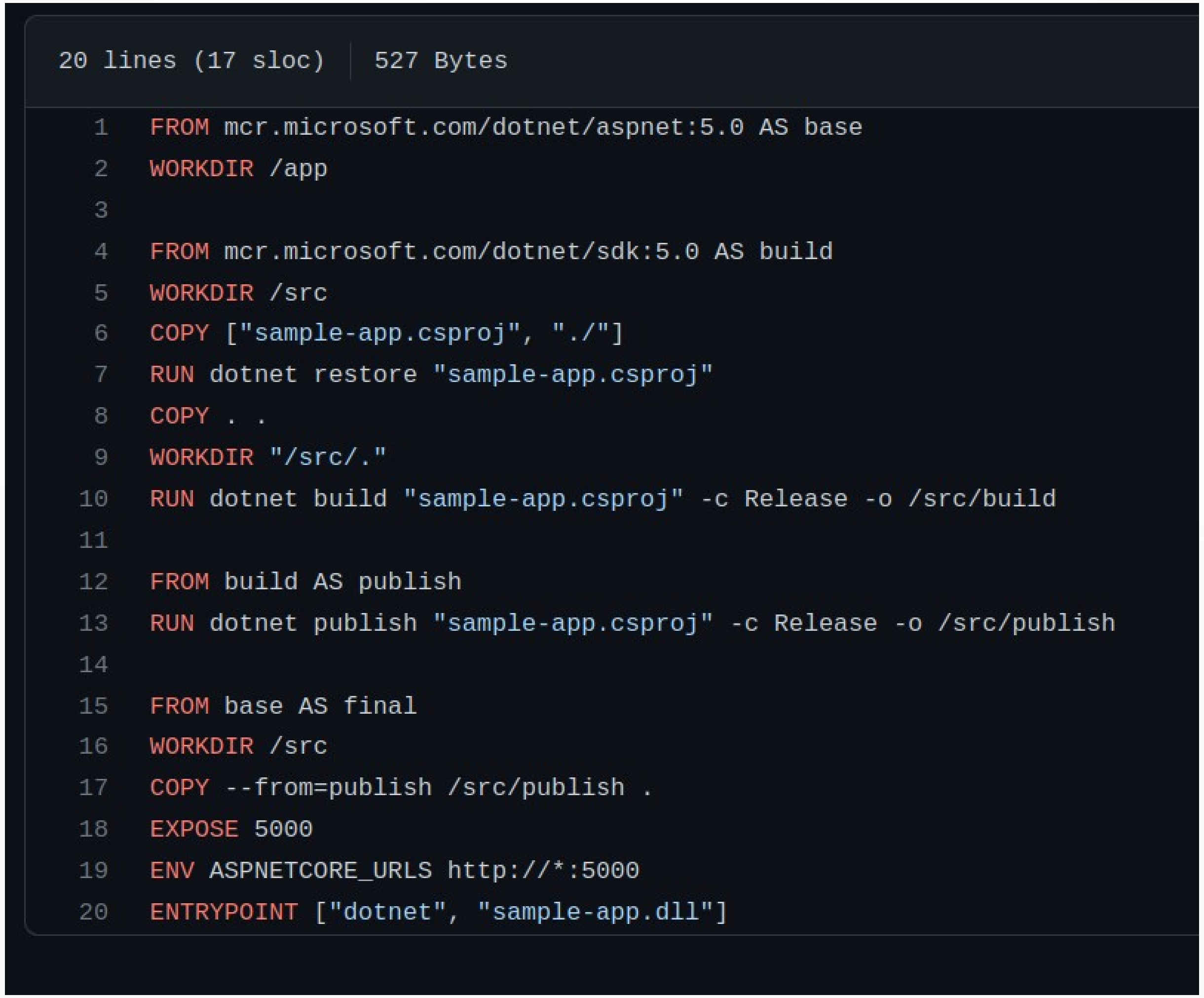
Task Plan:

- Dockerfile create,
- Kubernetes files configuration,
- CI pipeline,
- CD pipeline,
- Examine environment

Dockerfile Create

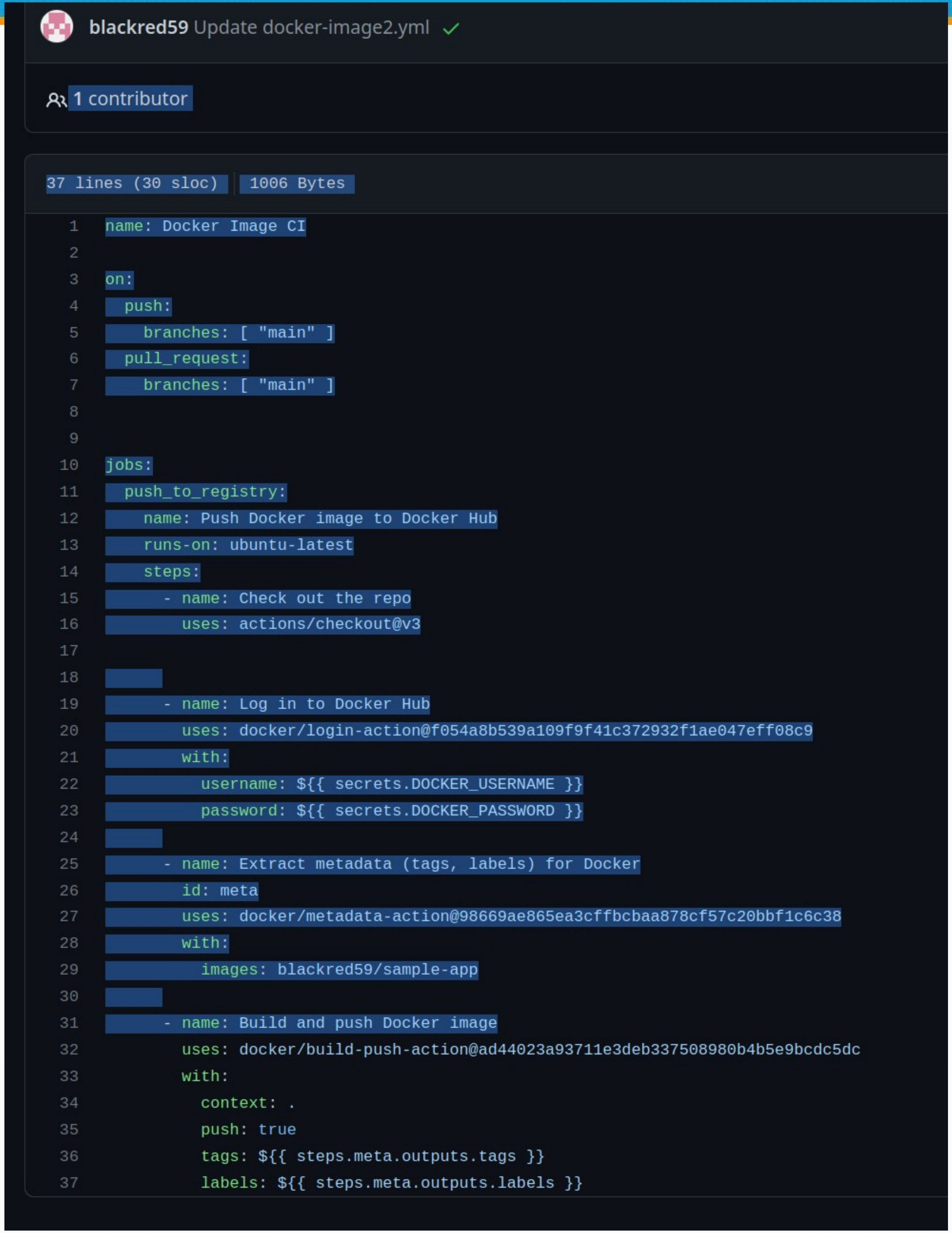
- Dockerfile was created according to link. (https://github.com/blackred59/weatherForecastSampleApp/blob/main/Dockerfile)
- 

20 lines (17 sloc) | 527 Bytes

```dockerfile
FROM mcr.microsoft.com/dotnet/aspnet:5.0 AS base
WORKDIR /app

FROM mcr.microsoft.com/dotnet/sdk:5.0 AS build
WORKDIR /src
COPY ["sample-app.csproj", "./"]
RUN dotnet restore "sample-app.csproj"
COPY . .
WORKDIR "/src/."
RUN dotnet build "sample-app.csproj" -c Release -o /src/build

FROM build AS publish
RUN dotnet publish "sample-app.csproj" -c Release -o /src/publish

FROM base AS final
WORKDIR /src
COPY --from=publish /src/publish .
EXPOSE 5000
ENV ASPNETCORE_URLS http://*:5000
ENTRYPOINT ["dotnet", "sample-app.dll"]
```

CI Pipeline

- I prefer Github actions. Because it is free for me.
- If the main branch is updated, it start.
- https://github.com/blackred59/weatherForecastSampleApp/blob/main/.github/workflows/docker-image2.yml



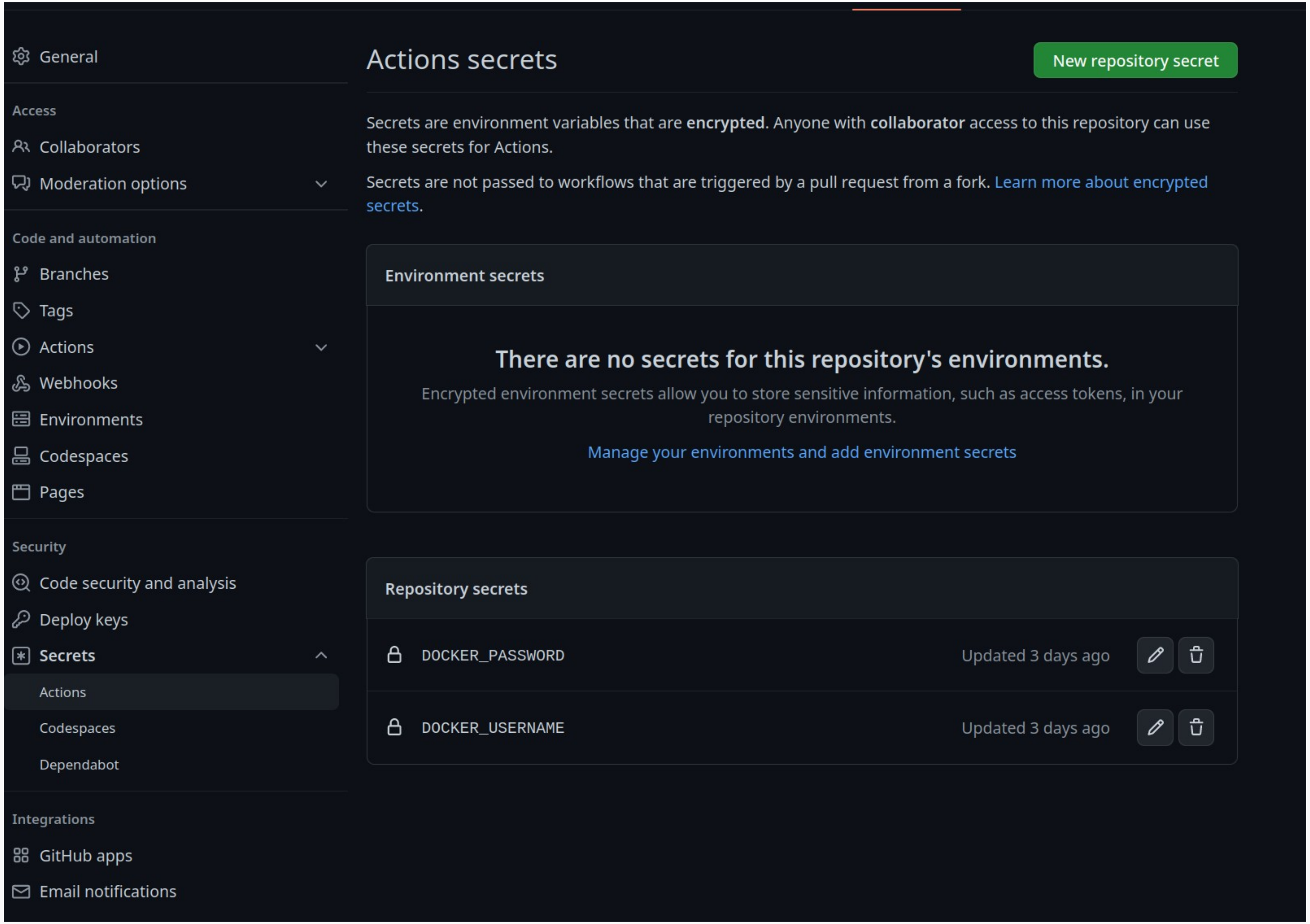
blackred59 Update docker-image2.yml ✓

1 contributor

37 lines (30 sloc) | 1006 Bytes

```yaml
name: Docker Image CI

on:
  push:
    branches: [ "main" ]
  pull_request:
    branches: [ "main" ]


jobs:
  push_to_registry:
    name: Push Docker image to Docker Hub
    runs-on: ubuntu-latest
    steps:
      - name: Check out the repo
        uses: actions/checkout@v3


      - name: Log in to Docker Hub
        uses: docker/login-action@f054a8b539a109f9f41c372932f1ae047eff08c9
        with:
          username: ${{ secrets.DOCKER_USERNAME }}
          password: ${{ secrets.DOCKER_PASSWORD }}

      - name: Extract metadata (tags, labels) for Docker
        id: meta
        uses: docker/metadata-action@98669ae865ea3cffbcbaa878cf57c20bbf1c6c38
        with:
          images: blackred59/sample-app

      - name: Build and push Docker image
        uses: docker/build-push-action@ad44023a93711e3deb337508980b4b5e9bcdc5dc
        with:
          context: .
          push: true
          tags: ${{ steps.meta.outputs.tags }}
          labels: ${{ steps.meta.outputs.labels }}
```

Docker Repo Credentials Configure



Actions secrets

Secrets are environment variables that are **encrypted**. Anyone with **collaborator** access to this repository can use these secrets for Actions.

Secrets are not passed to workflows that are triggered by a pull request from a fork. Learn more about encrypted secrets.

Environment secrets

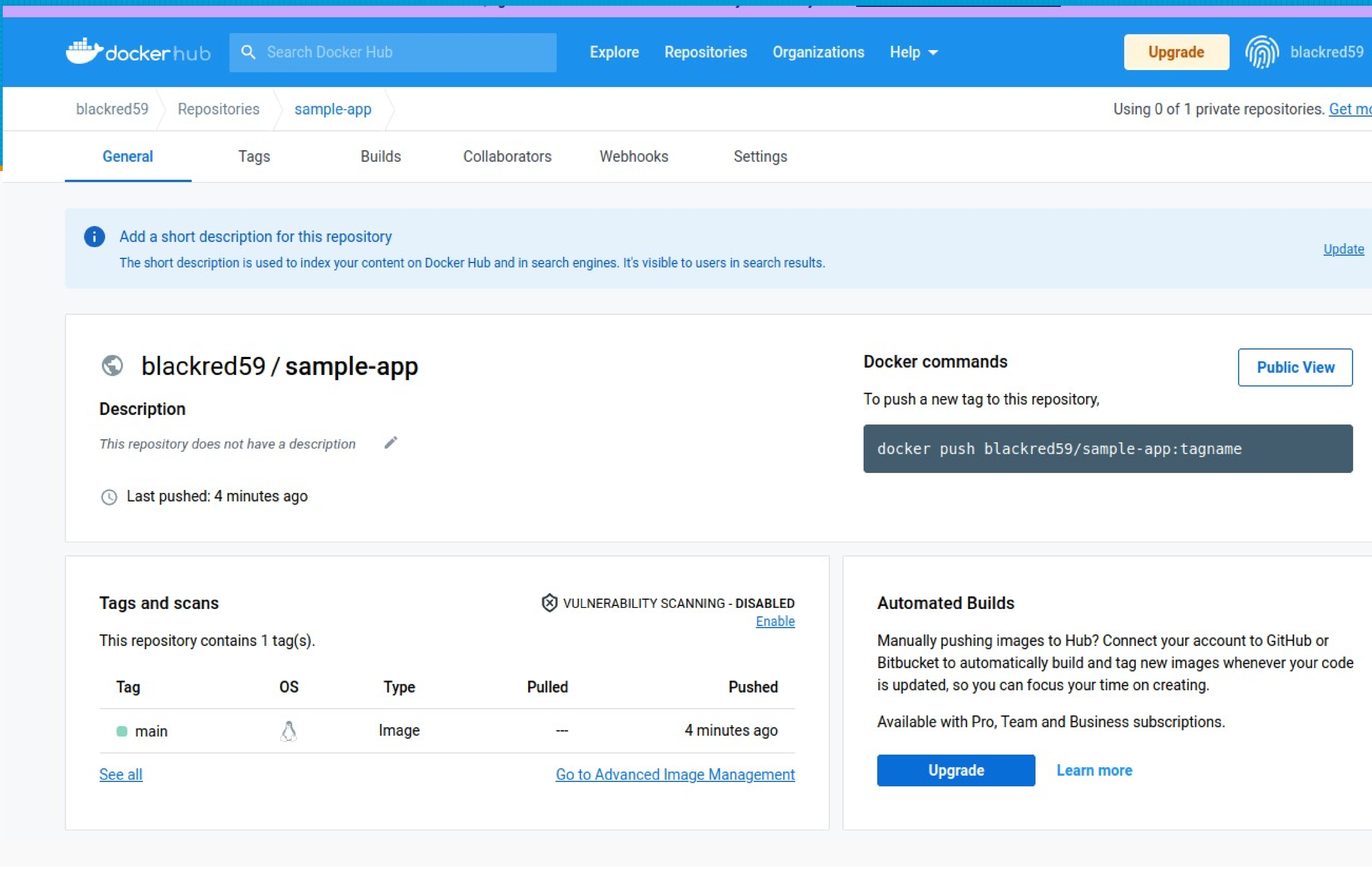
There are no secrets for this repository's environments.

Encrypted environment secrets allow you to store sensitive information, such as access tokens, in your repository environments.

Manage your environments and add environment secrets

Repository secrets

DOCKER_PASSWORD	Updated 3 days ago
DOCKER_USERNAME	Updated 3 days ago



Using 0 of 1 private repositories. Get mo

Add a short description for this repository

The short description is used to index your content on Docker Hub and in search engines. It's visible to users in search results.

blackred59 / sample-app

Description

This repository does not have a description

Last pushed: 4 minutes ago

Docker commands

To push a new tag to this repository,

```
docker push blackred59/sample-app:tagname
```

Tags and scans

VULNERABILITY SCANNING - **DISABLED**

This repository contains 1 tag(s).

Tag	OS	Type	Pulled	Pushed
🟩 main	🐧	Image	---	4 minutes ago

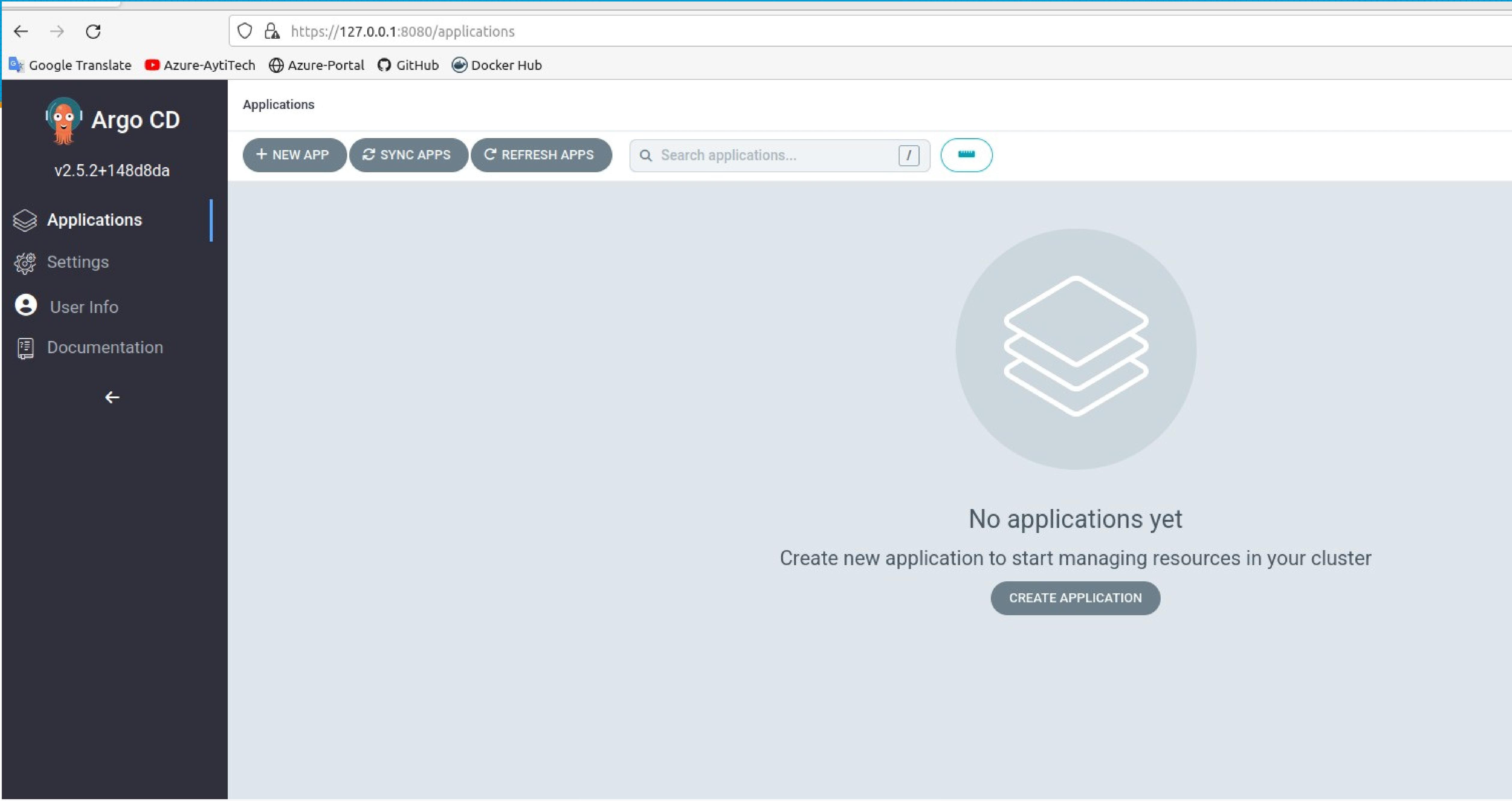
Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions.

CD Pipeline with ArgoCD

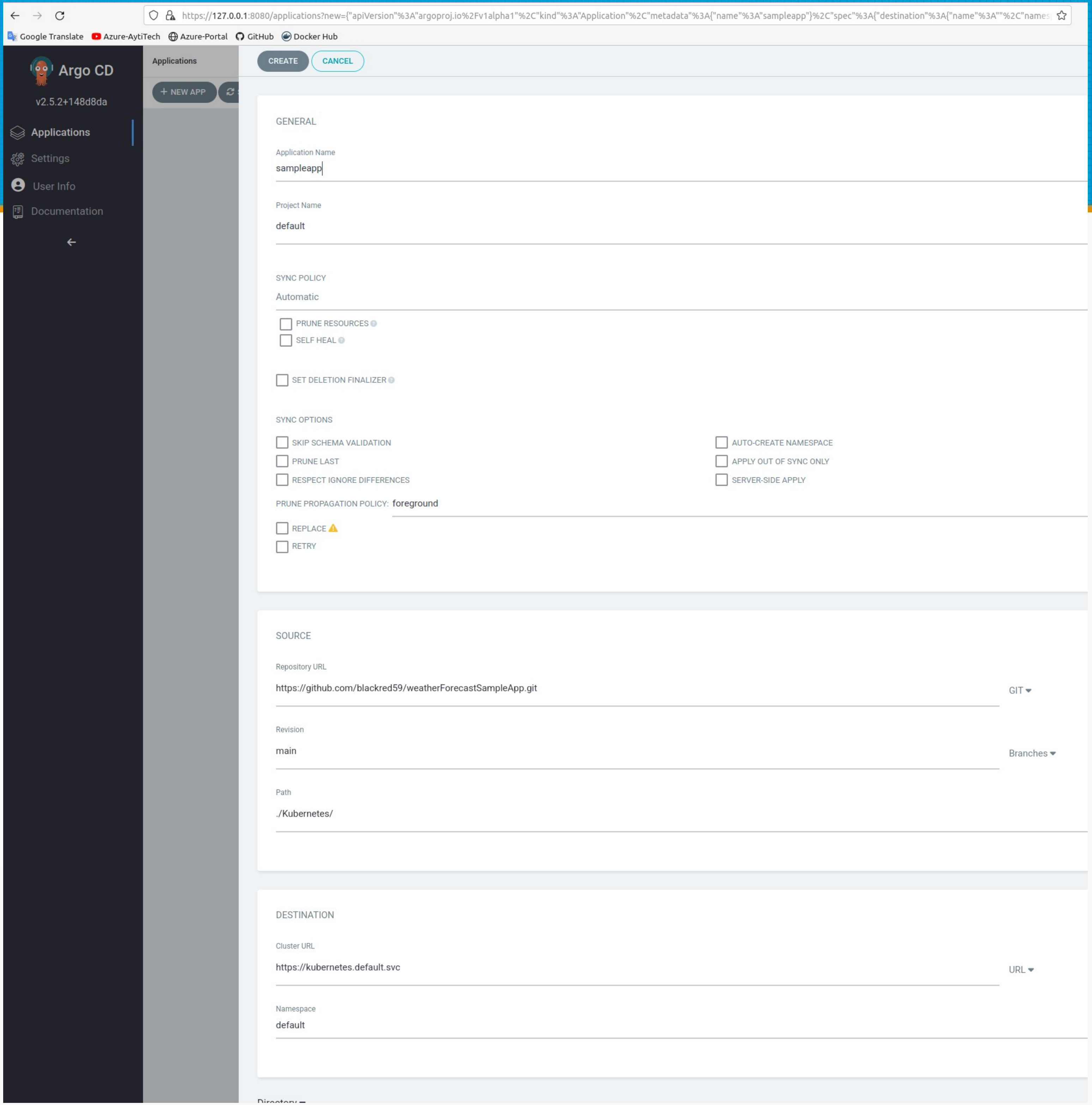
- ArgoCD is a trend Gitops tool. I create CD pipeline with ArgoCD. My kubernetes configurations (https://github.com/blackred59/weatherForecastSampleApp/tree/main/Kubernetes)
- First I installed ArgoCD.



No applications yet

Create new application to start managing resources in your cluster

Project Creation



https://127.0.0.1:8080/applications?new={"apiVersion"%3A"argoproj.io%2Fv1alpha1"%2C"kind"%3A"Application"%2C"metadata"%3A{"name"%3A"sampleapp"}%2C"spec"%3A{"destination"%3A{"name"%3A""%2C"names

GENERAL

Application Name
sampleapp

Project Name
default

SYNC POLICY
Automatic

□ PRUNE RESOURCES
□ SELF HEAL

□ SET DELETION FINALIZER

SYNC OPTIONS

□ SKIP SCHEMA VALIDATION
□ PRUNE LAST
□ RESPECT IGNORE DIFFERENCES
□ AUTO-CREATE NAMESPACE
□ APPLY OUT OF SYNC ONLY
□ SERVER-SIDE APPLY

PRUNE PROPAGATION POLICY: foreground

□ REPLACE ⚠
□ RETRY

SOURCE

Repository URL
https://github.com/blackred59/weatherForecastSampleApp.git GIT ▾

Revision
main Branches ▾

Path
./Kubernetes/

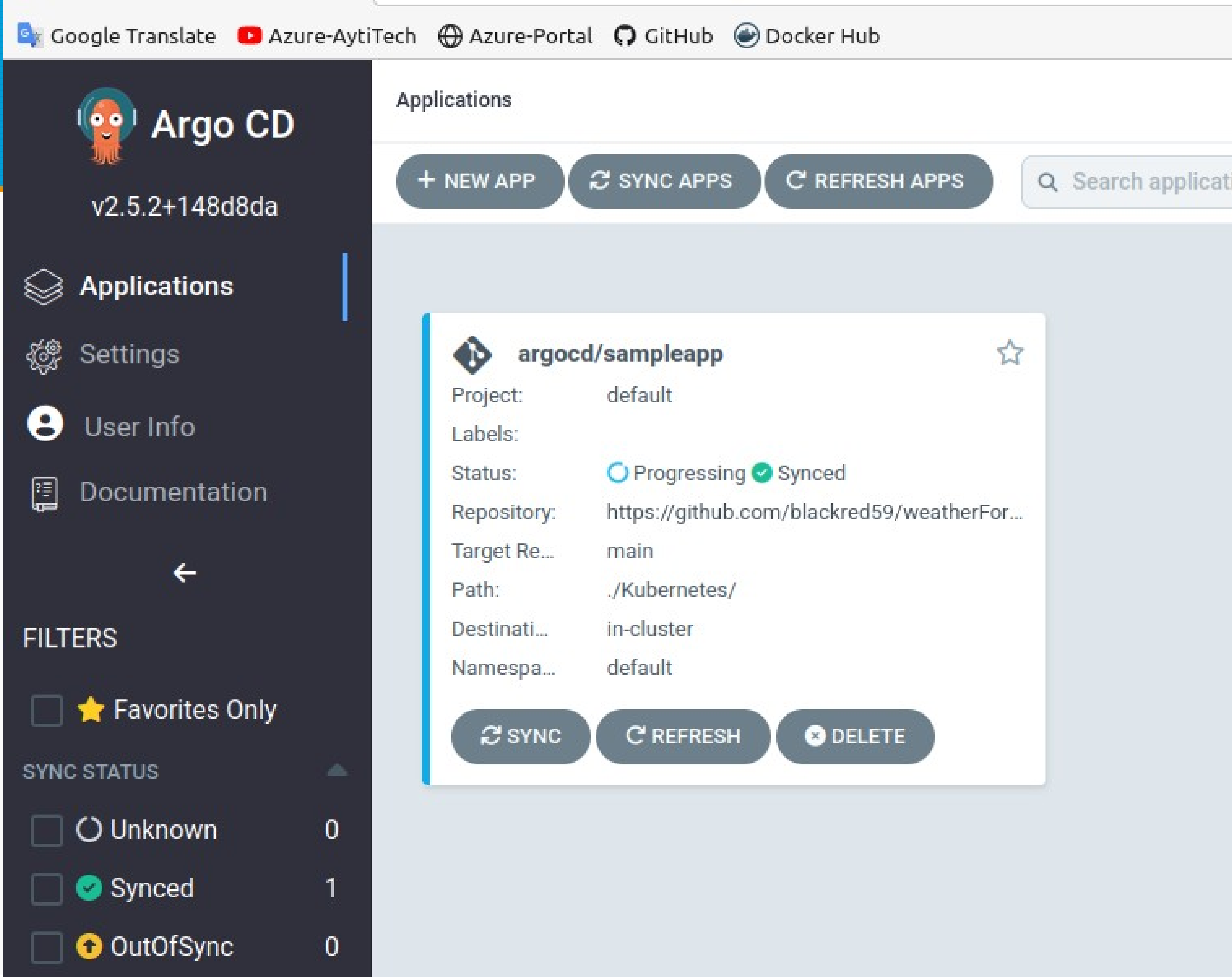
DESTINATION

Cluster URL
https://kubernetes.default.svc URL ▾

Namespace
default

Directory ▾

Sync



argocd/sampleapp

Project: default

Labels:

Status: Progressing ✓ Synced

Repository: https://github.com/blackred59/weatherFor...

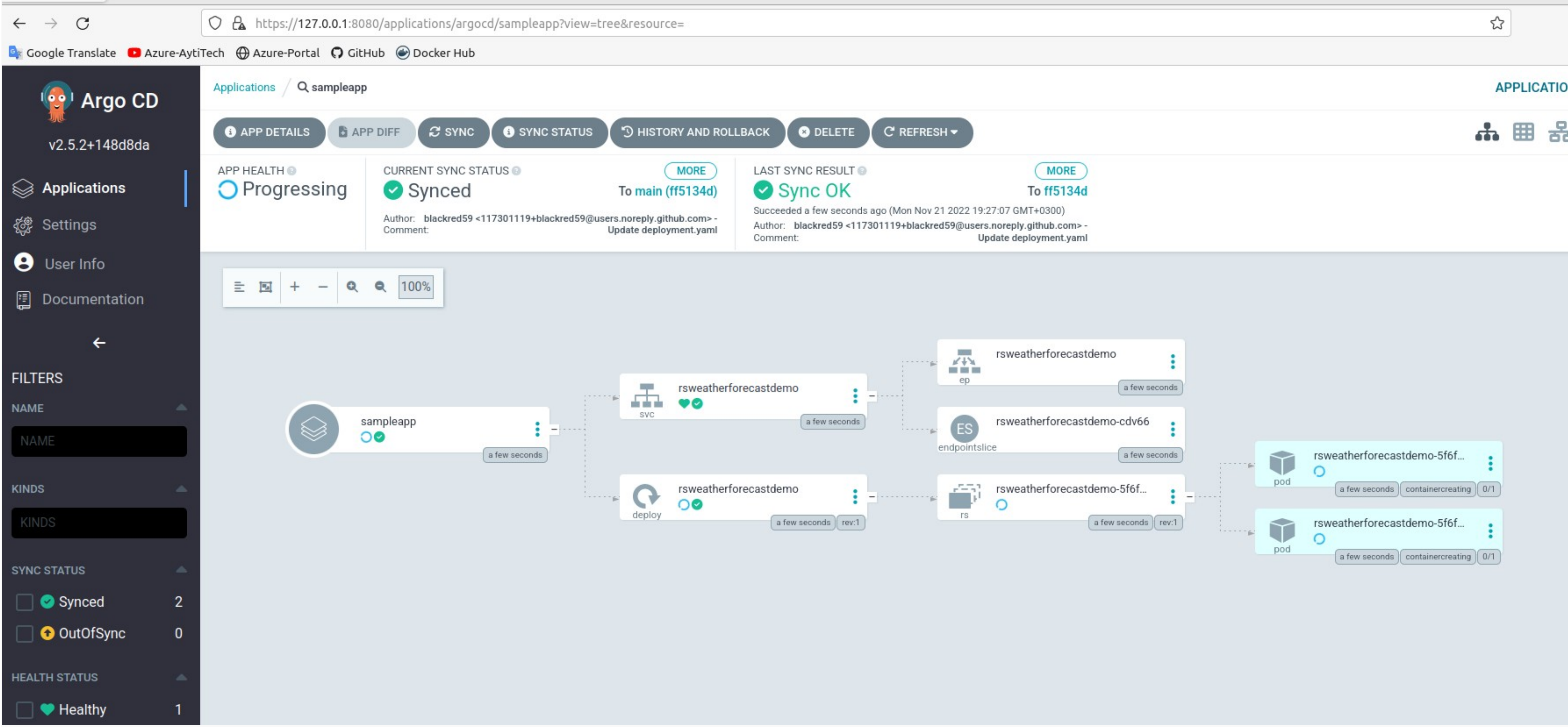
Target Re... main

Path: ./Kubernetes/

Destinati... in-cluster

Namespa... default

Deployment was succcessfull.



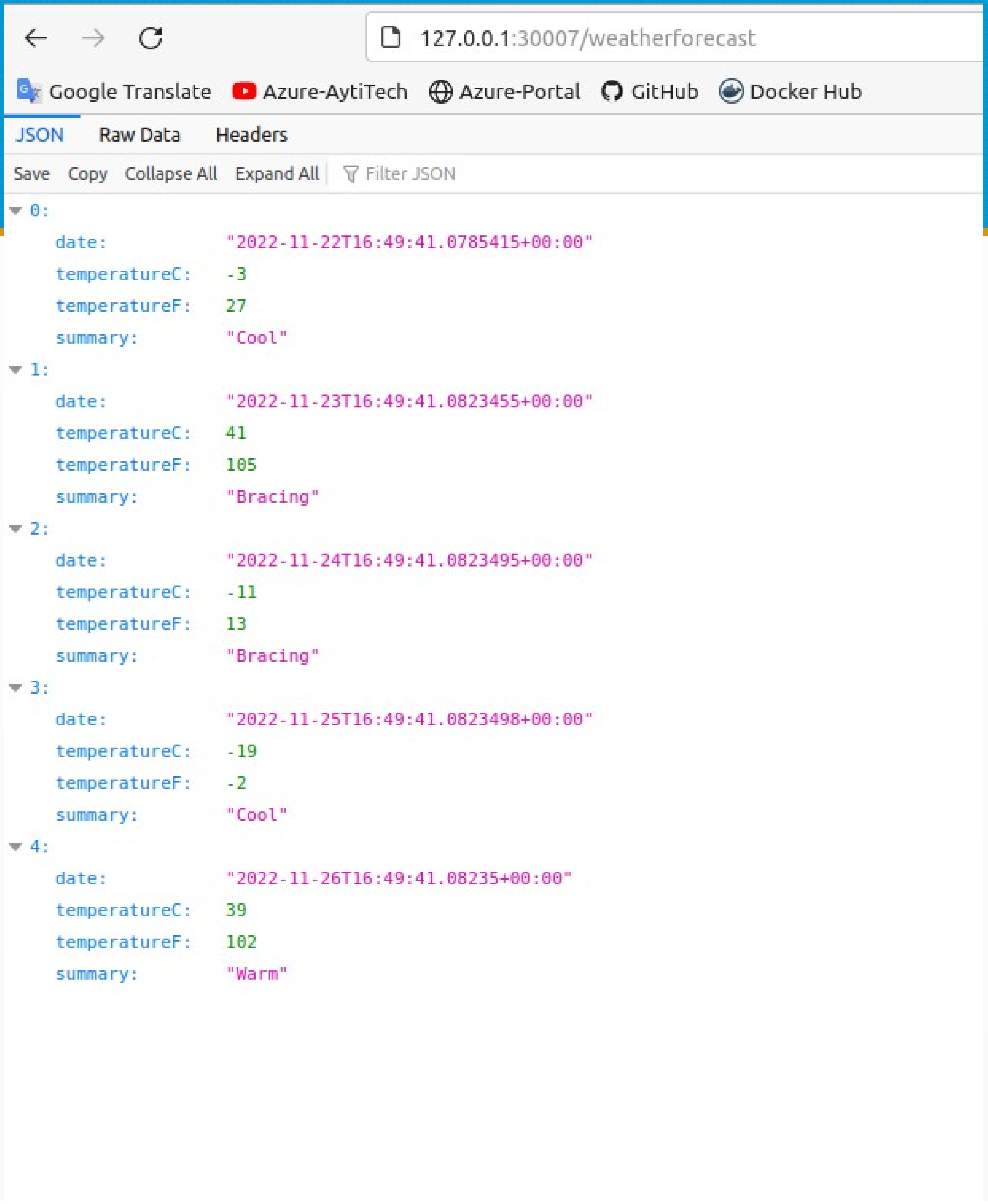
APP HEALTH
Progressing

CURRENT SYNC STATUS
Synced
To main (ff5134d)
Author: blackred59 <117301119+blackred59@users.noreply.github.com> -
Comment: Update deployment.yaml

LAST SYNC RESULT
Sync OK
To ff5134d
Succeeded a few seconds ago (Mon Nov 21 2022 19:27:07 GMT+0300)
Author: blackred59 <117301119+blackred59@users.noreply.github.com> -
Comment: Update deployment.yaml

Access the service

- Service is running on 30007 NodePort.
- http://127.0.0.1:30007/weatherforecast is brings us api.



127.0.0.1:30007/weatherforecast

```
▼ 0:
    date:           "2022-11-22T16:49:41.0785415+00:00"
    temperatureC:   -3
    temperatureF:   27
    summary:        "Cool"
▼ 1:
    date:           "2022-11-23T16:49:41.0823455+00:00"
    temperatureC:   41
    temperatureF:   105
    summary:        "Bracing"
▼ 2:
    date:           "2022-11-24T16:49:41.0823495+00:00"
    temperatureC:   -11
    temperatureF:   13
    summary:        "Bracing"
▼ 3:
    date:           "2022-11-25T16:49:41.0823498+00:00"
    temperatureC:   -19
    temperatureF:   -2
    summary:        "Cool"
▼ 4:
    date:           "2022-11-26T16:49:41.08235+00:00"
    temperatureC:   39
    temperatureF:   102
    summary:        "Warm"
```