



Cloud Development, 2021 fall. Homework 8

Report

Azure DevOps

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Almaty 2021

Tasks

- ☒ Create a simple web app.
- ☒ Commit it in the Azure DevOps project.
- ☒ Create a CI process using Pipelines and a CD process using Releases. You can use pure YAML or Classic way (using graphical interface).
- ☒ As a result, your application has to be published as a Azure Web App when Release will be completed.
- ☒ Make sure your Azure Web App reflects any changes you are making in your IDE (Visual Studio Code) and committing.

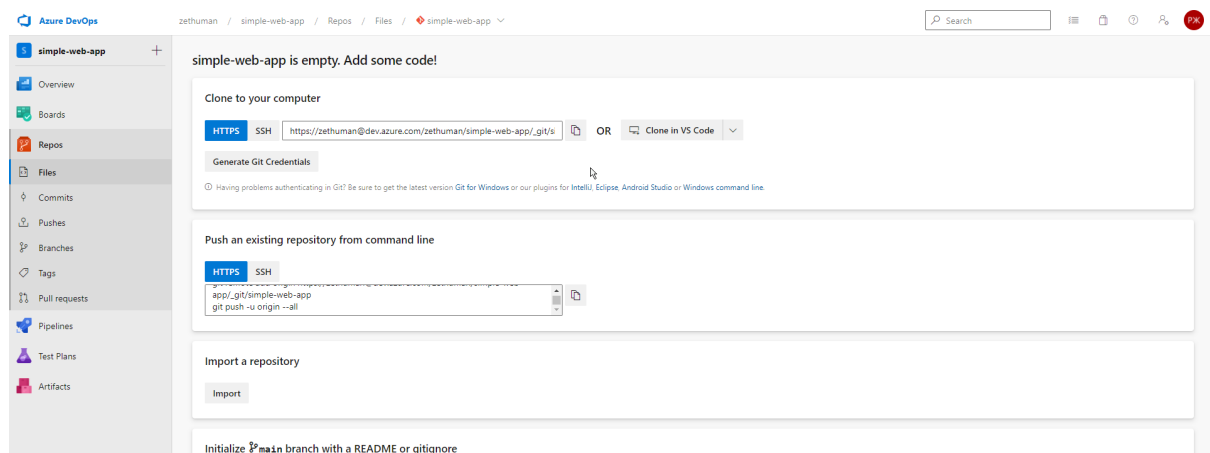
Extra things

- ☒ Configure self host for CI/CD pulls

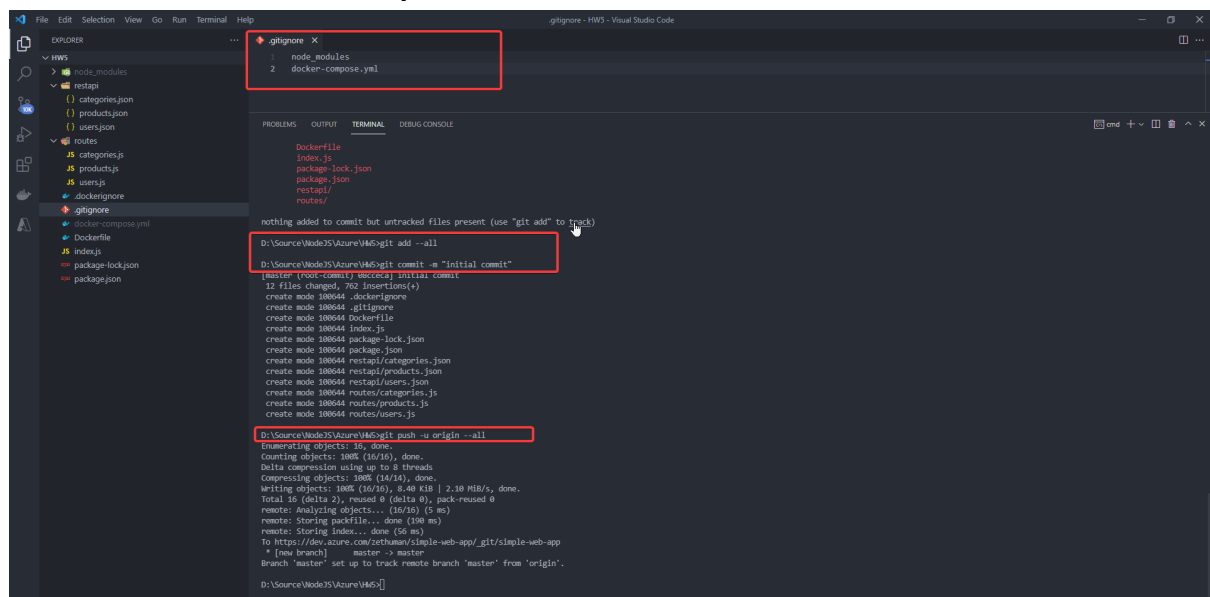
Report

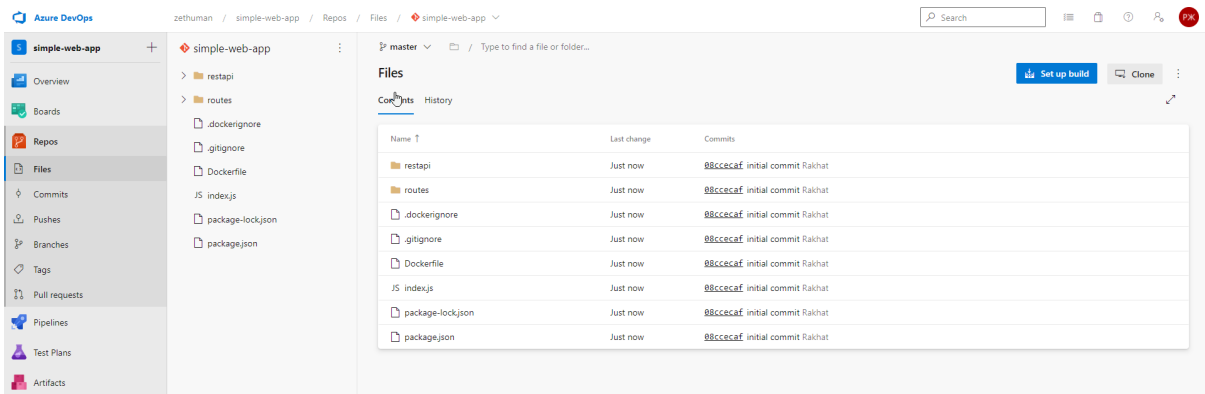
Create a simple web app (an application created for 5 homework will be used)

Create project in Azure DevOps



Commit it in the Azure DevOps





Create Web App on Portal

Build and deploy to Docker Hub

```

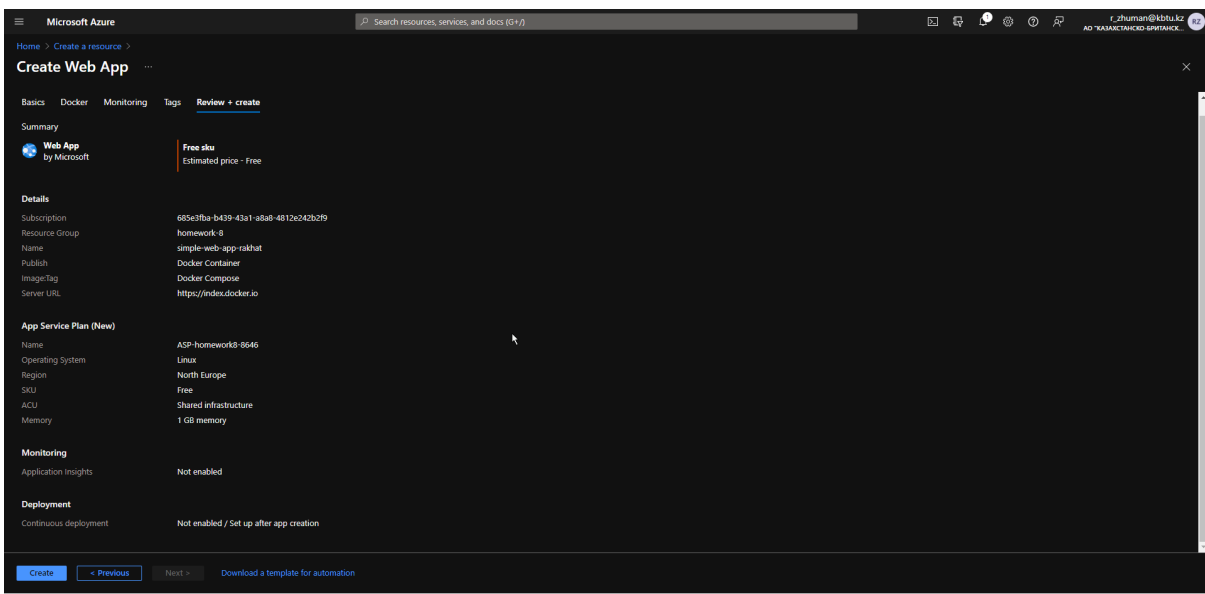
D:\Source\NodeJS\Azure\VM5>docker build -t zethuman/fakeapi:hw5 .
[+] Building 7.7s (18/19) FINISHED
-> [internal] load build definition from Dockerfile 0.15s
-> -- transferring dockerfile: 163B 0.05s
-> [internal] load .dockerignore 0.05s
-> -- transferring context: 34B 0.05s
-> [internal] load metadata for docker.io/library/node:14-alpine 2.55s
-> [auth] library/node:pull token for registry-1.docker.io 0.05s
-> [internal] load build context 0.15s
-> -- transferring context: 68.92kB 0.15s
-> [1/4] FROM docker.io/library/node:14-alpine@sha256:7bcf83eeb97a25465cb385b015606c22e926f548cbd117f85b7196df8aa8d29 0.15s
-> CACHED [2/4] WORKDIR /usr/src/app 0.05s
-> [3/4] COPY . /usr/src/app 0.05s
-> [4/4] RUN npm install 4.65s
-> exporting to image 0.25s
-> exporting layers 0.25s
-> writing image sha256:b9e8a833429968384f6cd0ee3b52489fdd5c2d3d185ed330d8b65ceb88a72539 0.05s
-> naming to docker.io/zethuman/fakeapi:hw5 0.05s

Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them

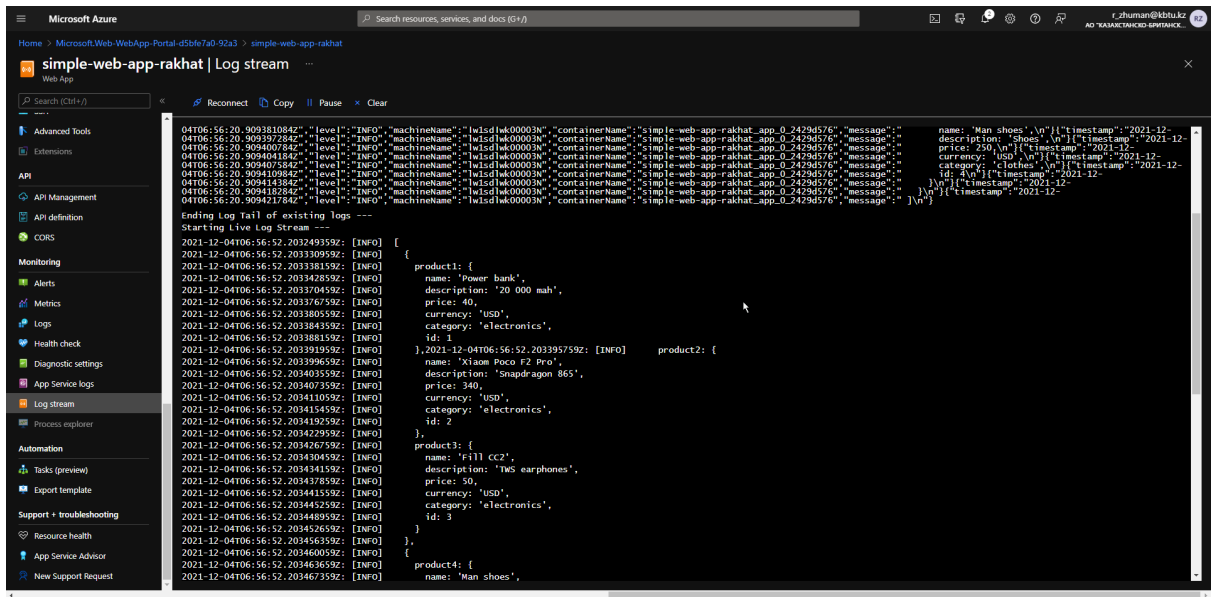
D:\Source\NodeJS\Azure\VM5>docker push zethuman/fakeapi:hw5
The push refers to repository [docker.io/zethuman/fakeapi]
e8c4949d86a7: Pushed
85fbb865afdb: Pushed
449b6bb61e14: Pushed
3c9a689350fc: Mounted from library/node
3b62cd0bae8d: Mounted from library/node
841a51b34172: Mounted from library/node
1a058d5342cc: Layer already exists
hw5: digest: sha256:7816cab3df7160644be857833dd5b56f56bde20909284429bd8820e928d2e6e4 size: 1785

```

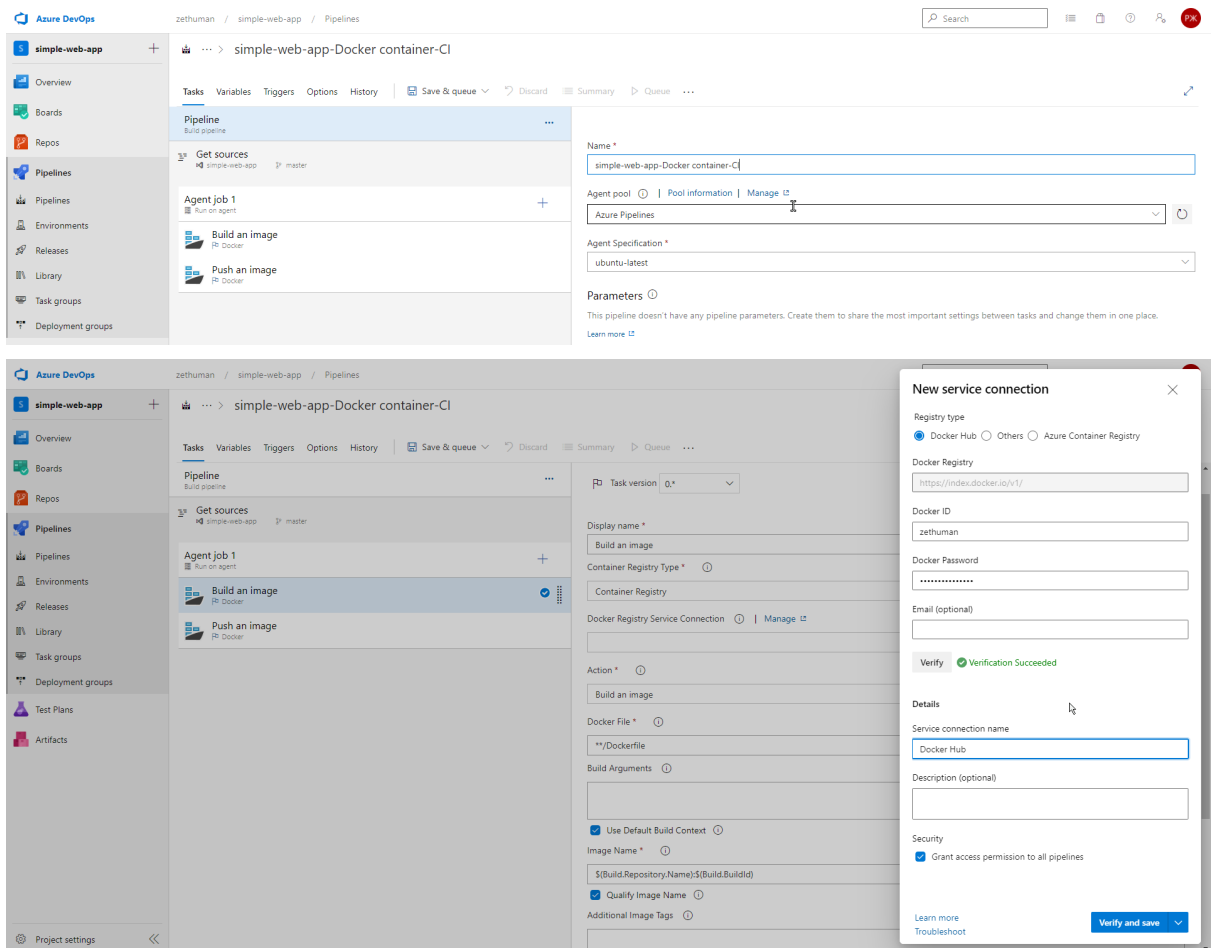
Create web app with container



Check logs



Create a CI process using Pipelines General settings



Azure DevOps interface showing the configuration for a Docker container CI pipeline. The pipeline is named "simple-web-app-Docker container-CI" and is currently in the "Build pipeline" state. The pipeline structure shows three tasks: "Get sources", "Build an image", and "Push an image". The "Build an image" task is selected, and its configuration is displayed on the right.

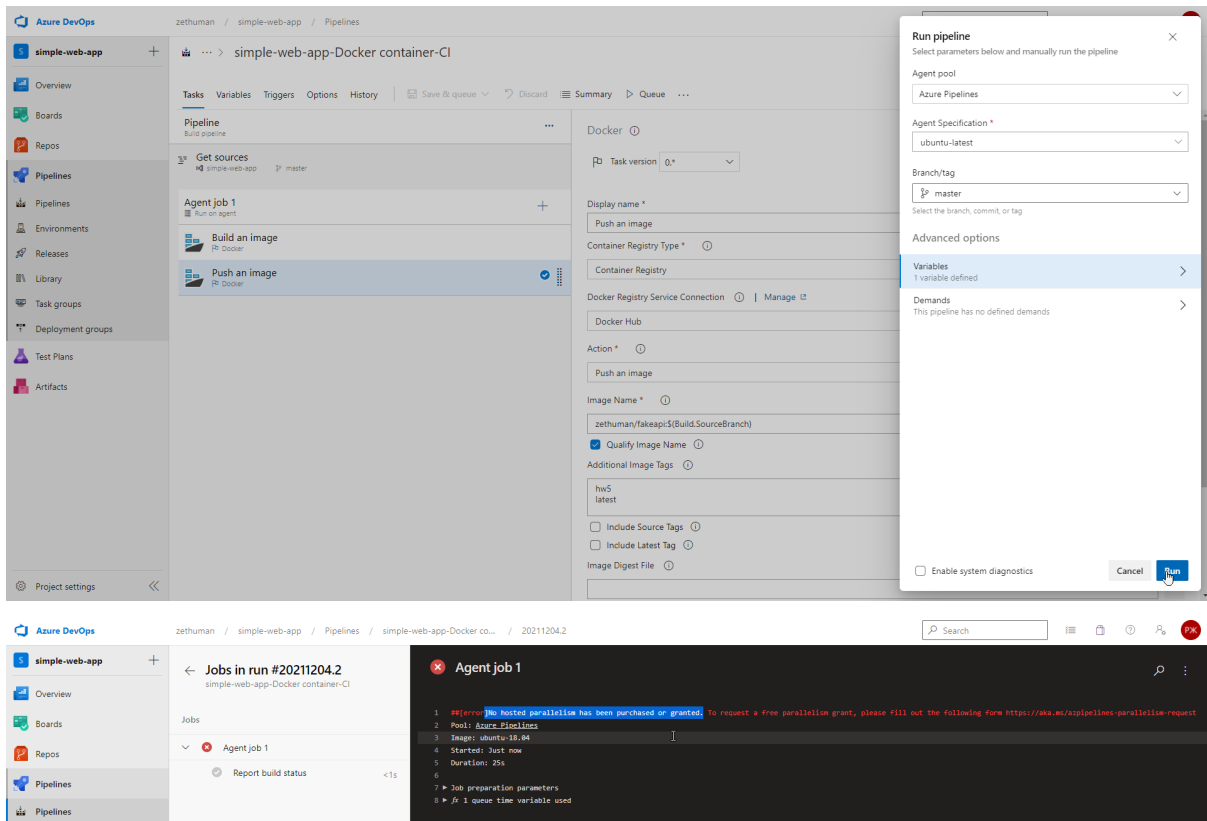
Pipeline Configuration:

- Task version:** 0.*
- Display name:** Build an image
- Container Registry Type:** Container Registry
- Docker Registry Service Connection:** Docker Hub
- Action:** Build an image
- Docker File:** Dockerfile
- Build Arguments:** (Empty)
- Use Default Build Context:** ☒
- Image Name:** zethuman/fakeapi:latest
- Qualify Image Name:** ☒
- Additional Image Tags:** (Empty)

Azure DevOps interface showing the configuration for a Docker container CI pipeline. The pipeline is named "simple-web-app-Docker container-CI" and is currently in the "Build pipeline" state. The pipeline structure shows three tasks: "Get sources", "Build an image", and "Push an image". The "Push an image" task is selected, and its configuration is displayed on the right.

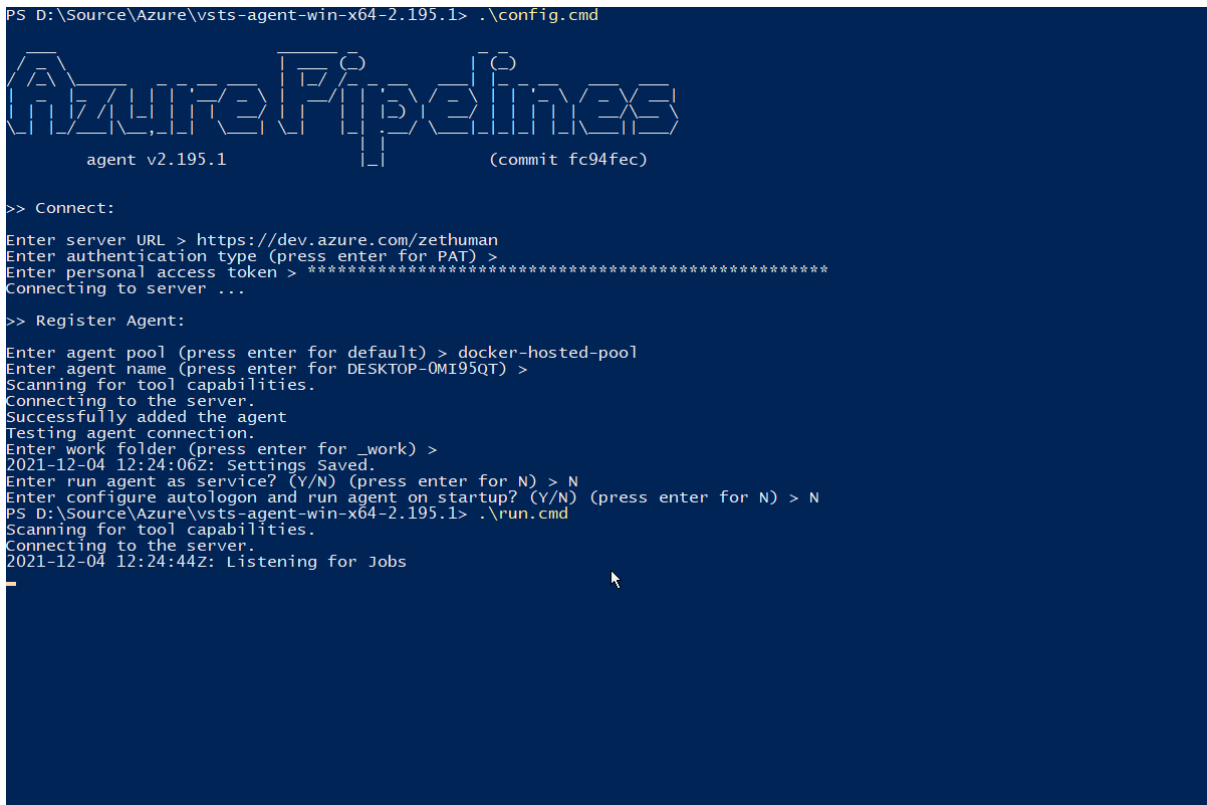
Pipeline Configuration:

- Task version:** 0.*
- Display name:** Push an image
- Container Registry Type:** Container Registry
- Docker Registry Service Connection:** Docker Hub
- Action:** Push an image
- Image Name:** zethuman/fakeapi:latest
- Qualify Image Name:** ☒
- Additional Image Tags:** hw5, latest
- Include Source Tags:** ☐
- Include Latest Tag:** ☐
- Image Digest File:** (Empty)



!!! Requested form to Microsoft, to access parallelism

I decided not to wait, but to raise the host at my place



Azure DevOps / zethuman / Settings / Agent pools / docker-hosted-pool

Organization Settings / zethuman

Search Settings

General

- Overview
- Projects
- Users
- Billing

docker-hosted-pool

Jobs Agents Details Security Settings Maintenance History Analytics

Name	Last run	Current status	Agent version	Enabled
DESKTOP-0MI95QT Online		Idle	2.195.1	On

Update all agents New agent

Azure DevOps / zethuman / simple-web-app / Pipelines

simple-web-app

Overview Boards Repos Pipelines Pipelines Environments Releases Library Task groups Deployment groups Test Plans Artifacts

Project settings

simple-web-app-Docker container-CI

Tasks Variables Triggers Options History Save & queue Discard Summary Queue

Pipeline Build pipeline

Get sources Run on agent

Agent job 1 Run on agent

Build an image Docker

Push an image Docker

docker-hosted-pool

Demands

Name Condition

+ Add

Execution plan

Parallelism

None Multi-configuration Multi-agent

Timeout

0

Job cancel timeout

0

Dependencies

Select dependencies

Additional options

Allow scripts to access the OAuth token

Run this job

Only when all previous jobs have succeeded

Run pipeline

Select parameters below and manually run the pipeline

Save comment

added self hosted pool

Agent pool

docker-hosted-pool

Branch/tag

master

Select the branch, commit, or tag

Advanced options

Variables

1 variable defined

Demands

This pipeline has no defined demands

Enable system diagnostics

Cancel Save and run

Azure DevOps / zethuman / simple-web-app / Pipelines / simple-web-app-Docker container-CI / 20211204.4

simple-web-app

Overview Boards Repos Pipelines Pipelines Environments Releases Library Task groups Deployment groups Test Plans Artifacts

Project settings

Jobs in run #20211204.4

simple-web-app-Docker container-CI

Jobs

- Agent job 1 42s
- Initialize job <1s
- Checkout simple-web-app@master 2s
- Build an image 11s
- Push an image 27s
- Post-job: Checkout simple-web-app@master <1s
- Finalize Job <1s
- Report build status <1s

Agent job 1

```

1 Pool: docker-hosted-pool
2 Queue: Just now [manage parallel jobs]
3 Agent: DESKTOP-0MI95QT
4 Started: Just now
5 Duration: 42s
6
7 The agent request is already running or has already completed.
8 * Job preparation parameters
9 * /s 1 queue time variable used
10 Job live console data:
11 Starting: Agent Job 1
12 Finishing: Agent Job 1

```

View raw log

Create a CD process using Releases

Azure DevOps interface showing the configuration of a new release pipeline stage.

Navigation: zethuman / simple-web-app / Pipelines / Releases / New release pipeline / Release-1

Left sidebar: simple-web-app, Overview, Boards, Repos, Pipelines, Environments, Library, Task groups, Deployment groups, Test Plans, Artifacts.

Top bar: New release pipeline > Release-1 > Stage 1 (Not deployed)

Stage 1 configuration:

- Display name: Deploy Azure App Service
- Connection type: Azure Resource Manager
- Azure subscription: Azure for Students (685e3fba-b439-43a1-a8a8-4812e242b2f9)
- App Service type: Web App for Containers (Linux)
- App Service name: simple-web-app-rakhat
- Registry or Namespace: zethuman
- Image: fakeapi
- Tag: latest
- Startup command: npm start

Azure DevOps interface showing the execution of a new release pipeline stage.

Navigation: zethuman / simple-web-app / Pipelines / Releases / New release pipeline / Release-2

Left sidebar: simple-web-app, Overview, Boards, Repos, Pipelines, Environments, Library, Task groups, Deployment groups, Test Plans, Artifacts.

Top bar: New release pipeline > Release-2

Release details:

- Manually triggered by Paskar Jyngau on 04.12.2021, 18:39
- Artifacts: _zethuman_fakeapi latest

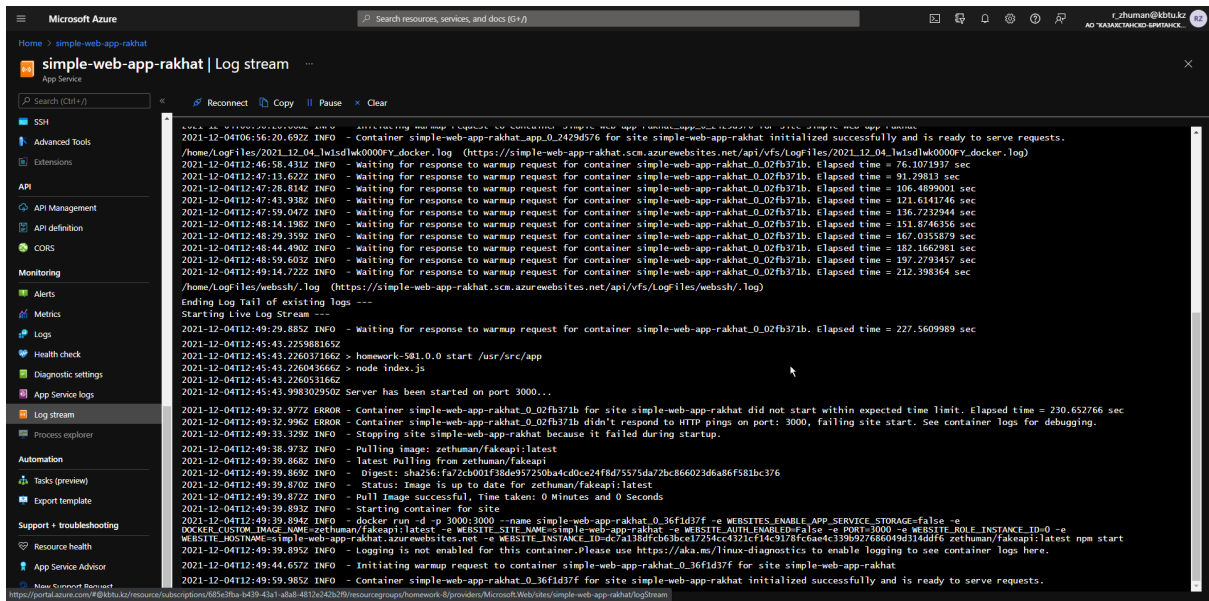
Stages:

- Stage 1: Succeeded on 04.12.2021, 18:42

Stage 1 details:

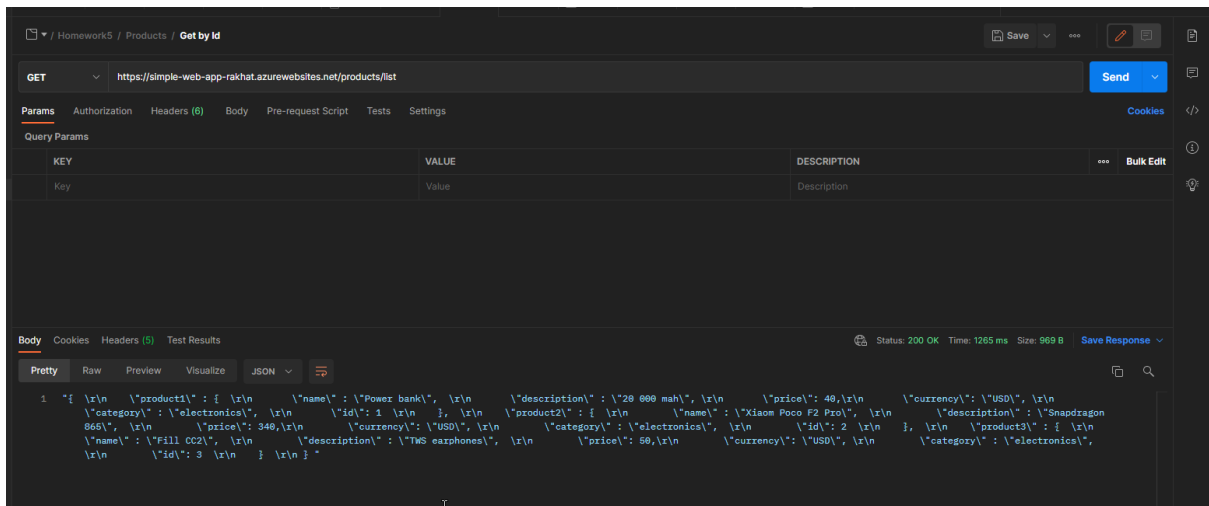
- Summary: Succeeded
- Now at Release-2
- Deployment succeeded on 04.12.2021, 18:42 (3/3 tasks succeeded)
- Manual trigger: Deployment triggered by Paskar Jyngau on 04.12.2021, 18:40
- Associated changes: View commits and work items
- Artifacts: _zethuman_fakeapi / latest

Tests

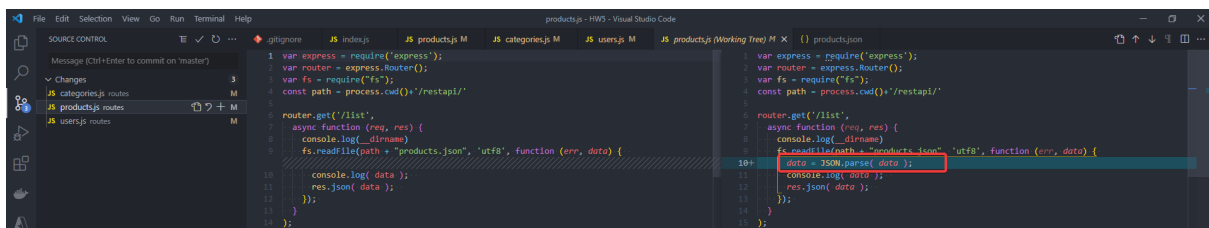


I will add changes to be sure that it works

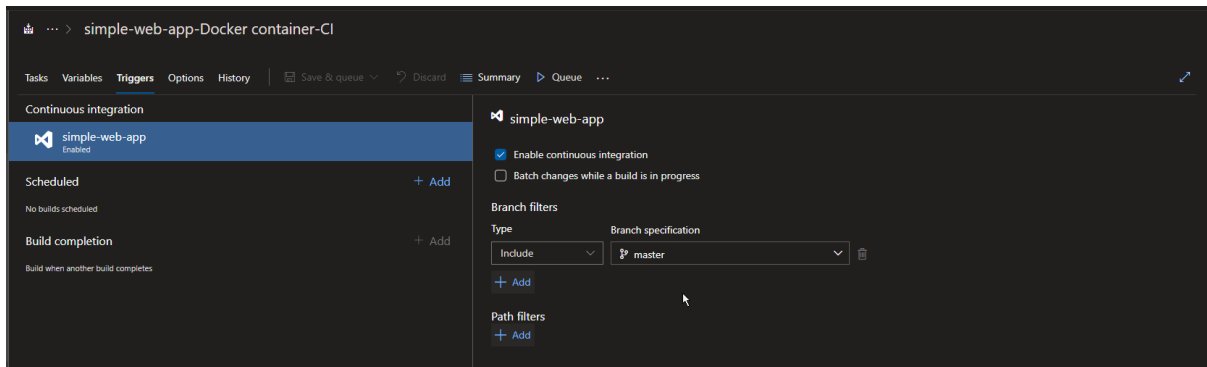
Before commit it return not in JSON format



Fixing and commit



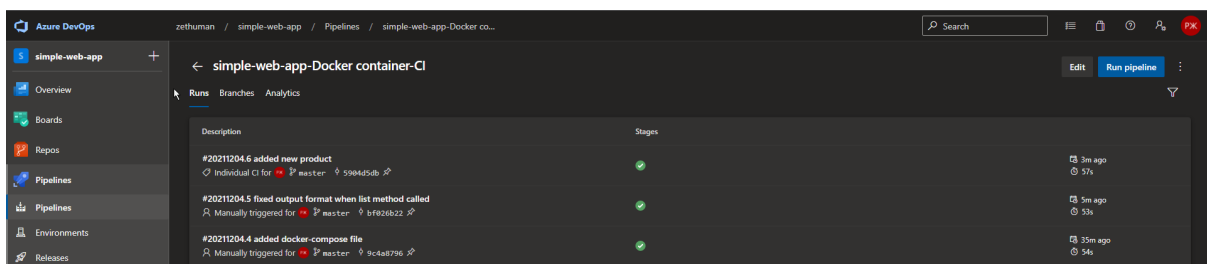
Enabling CI



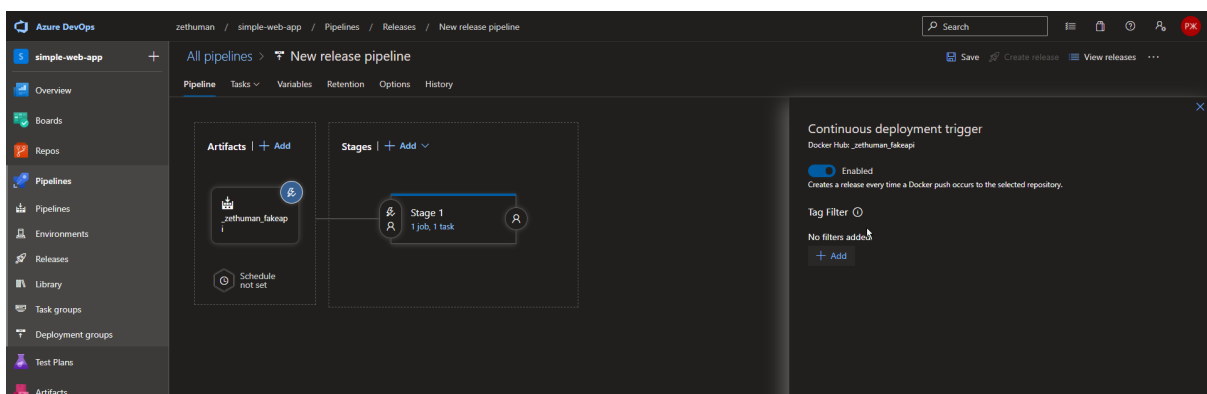
Another commit for trigger

```
D:\Source\NodeJS\AzureVH6S>git add --all
D:\Source\NodeJS\AzureVH6S>git commit -m "added new product"
[master 5904d5d] added new product
1 file changed, 8 insertions(+)
D:\Source\NodeJS\AzureVH6S>git push -u origin
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 481 bytes | 481.00 KiB/s, done.
Total 4 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Analyzing objects... (4/4) (9 ms)
remote: Storing packfile... done (93 ms)
remote: Storing index... done (49 ms)
To https://dev.azure.com/zethuman/simple-web-app/_git/simple-web-app
bf026b2..5904d5d master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
D:\Source\NodeJS\AzureVH6S>
```

Finally get auto trigger for commit



Added auto CD option



The top screenshot shows the Azure DevOps interface for a pipeline named 'simple-web-app-Docker container-CI'. The left sidebar contains navigation links for Overview, Boards, Repos, Pipelines, Environments, Releases, and Library. The main area displays a table of pipeline runs with columns for Description, Stages, and a status icon. The runs are as follows:

Description	Stages	Status	Time
#20211204.7 added another product for check CD Individual CI for master 829178f	1	Failed	Just now
#20211204.6 added new product Individual CI for master 59045db	1	Completed	9m ago
#20211204.5 fixed output format when list method called Manually triggered for master bf826b22	1	Completed	12m ago
#20211204.4 added docker-compose file Manually triggered for master 9c4a8796	1	Completed	42m ago

The bottom screenshot shows the 'New release pipeline' view. The left sidebar is similar to the top one, but with 'Releases' highlighted. The main area displays a table of releases with columns for Release, Created, and Stages. The releases are as follows:

Release	Created	Stages
Release-5 latest	04.12.2021, 19:18:04	Stage 1
Release-3 latest	04.12.2021, 19:17:53	Stage 1
Release-2 latest	04.12.2021, 18:39:54	Stage 1
Release-1 latest	04.12.2021, 17:02:19	Stage 1

After commit return in JSON format

The screenshot shows a REST client interface with a GET request to `https://simple-web-app-rakhat.azurewebsites.net/products/list`. The response is a JSON array of product objects. The status is 200 OK, Time is 1385 ms, and Size is 795 B.

```

{
  "products": [
    {
      "name": "Xiaomi POCO F2 Pro",
      "description": "Snapdragon 865",
      "price": 340,
      "currency": "USD",
      "category": "electronics",
      "id": 2
    },
    {
      "name": "FiiO CC2",
      "description": "TWS earphones",
      "price": 60,
      "currency": "USD",
      "category": "electronics",
      "id": 3
    },
    {
      "name": "Mi band 6",
      "description": "Smart Band",
      "price": 30,
      "currency": "USD",
      "category": "electronics",
      "id": 4
    },
    {
      "name": "Viomvi",
      "description": "Thermos",
      "price": 30,
      "currency": "USD",
      "category": "electronics",
      "id": 5
    }
  ]
}

```

Clean up subscription

The screenshot shows an Azure Cloud Shell terminal. The user has entered the command `az group delete --name homework-8 --no-wait --yes` to delete the resource group 'homework-8'.

```

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

rakhat@Azure:~$ az group delete --name homework-8 --no-wait --yes
rakhat@Azure:~$

```

