Project end report

Description of the CI/CD pipeline

The pipeline uses a Docker image with docker-compose installed.

The pipeline has three stages – test, build and deploy.

The test stage uses a separate *docker-compose-test.yml* for running tests in a test docker-compose environment identical to the actual docker-compose environment. The stage consists of a *before_script* script part where the services are built and started. In the actual *script*-part, the *tests*-service is started to run the tests against the test environment. Finally, the test environment is brought down in the *after_script*-part.

The build stage simply builds the actual docker-compose system if the tests were successful. Then the system is deployed locally by starting the built containers. The API gateway can be accessed locally after the pipeline from *localhost:8081*.

Instructions for testing (also in README.md)

Requires Linux (tested on Ubuntu 18.04 LTS) and Docker engine release 17.12.0+ (due to Compose file format being 3.5).

Clone the repository and do the following steps in the root of the cloned repository.

- Build and run local Gitlab instance and Gitlab runner with: *sudo docker-compose -f docker-compose-gitlab.yml up --build -d* (NOTE: in my testing, the first time setup can take 10+ minutes and in the end, the gitlab-web container exits. Bringing it up again however works)
- Once Gitlab instance has started (startup can take a few minutes), navigate to http://localhost:8080/ on a browser
- Change password of user *root*, login and create a project
- Navigate to *http://localhost:8080/root/${project}/settings/ci_cd* to get a registration token for the Gitlab runner

- Modify *gitlab-runner-register.sh* to have the token
- Run the registration script with *./gitlab-runner-register.sh*
- Add the address of the new Gitlab git repository as a remote with e.g.: *git remote add gitlab http://localhost:8080/root/${project}.git*
- Push the code to the gitlab remote
- Find the pipeline running in Gitlab
- After the pipeline has completed, the system is deployed locally and the API gateway can be accessed from *localhost:8081*

Example pipeline runs

1. Test job failing after adding a new test

NOTE: build and deploy jobs skipped due to test job failing

```
Running with gitlab-runner 13.5.0 (ece86343)
  on docker-stable ca-Azj3b
Preparing the "docker" executor
00:57
Using Docker executor with image tmaier/docker-compose:19.03 ...
Starting service docker:dind ...
Using locally found image version due to if-not-present pull policy
Using docker image sha256:6f19136cf89d49aee8fa560eaab20e034c6ee17bbce55a9d33e1fbe5baa35b03 for docker:dind with digest docker@sha256:4972457c6a8a4309f9796fc3c8fd288923045ba0e214c102d92b70be99e249d1 ...
Waiting for services to be up and running...
*** WARNING: Service runner-ca-azj3b-project-2-concurrent-0-780cead1e578c81a-docker-0 probably didn't start properly.
Health check error:
service "runner-ca-azj3b-project-2-concurrent-0-780cead1e578c81a-docker-0-wait-for-service" timeout
Health check container logs:
Service container logs:
2020-12-04T10:43:55.000699019Z Generating RSA private key, 4096 bit long modulus (2 primes)
2020-12-04T10:43:55.871245589Z
.......................................................................................................................................................................
....................++++
2020-12-04T10:43:56.082917049Z ....................................................++++
2020-12-04T10:43:56.083263150Z e is 65537 (0x010001)
2020-12-04T10:43:56.096143121Z Generating RSA private key, 4096 bit long modulus (2 primes)
2020-12-04T10:43:56.312311806Z ....................................................++++
2020-12-04T10:43:56.417518282Z ..........................++++
2020-12-04T10:43:56.417963885Z e is 65537 (0x010001)
2020-12-04T10:43:56.443088422Z Signature ok
```

2020-12-04T10:43:56.443110822Z subject=CN = docker:dind server

2020-12-04T10:43:56.443250523Z Getting CA Private Key

2020-12-04T10:43:56.454702486Z /certs/server/cert.pem: OK

2020-12-04T10:43:56.458897509Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T10:43:56.546017686Z ....++++

2020-12-04T10:43:56.829097638Z ....++++

2020-12-04T10:43:56.829429239Z e is 65537 (0x010001)

2020-12-04T10:43:56.851166659Z Signature ok

2020-12-04T10:43:56.851189459Z subject=CN = docker:dind client

2020-12-04T10:43:56.851256859Z Getting CA Private Key

2020-12-04T10:43:56.862420920Z /certs/client/cert.pem: OK

2020-12-04T10:43:56.865223036Z mount: permission denied (are you root?)

2020-12-04T10:43:56.865245636Z Could not mount /sys/kernel/security.

2020-12-04T10:43:56.865250336Z AppArmor detection and --privileged mode might break.

2020-12-04T10:43:56.866271541Z mount: permission denied (are you root?)

****

Using locally found image version due to if-not-present pull policy

Using docker image sha256:52c6717a7b88537df3c82ccf217844d83f205862c0c10b951503900b8e0f85bb for tmaier/docker-compose:19.03 with digest tmaier/docker-compose@sha256:e8502b48bc86ffb7ceeb9fc5b2988b0f8767c85735b442897b5902976220b497 ...

Preparing environment

00:04

Running on runner-ca-azj3b-project-2-concurrent-0 via gitlab-runner1...

Getting source from Git repository

00:06

Fetching changes with git depth set to 50...

Reinitialized existing Git repository in /builds/root/Gitlab-CI-CD-Project/.git/

Checking out bb6fde2e as master...

Skipping Git submodules setup

Executing "step_script" stage of the job script

05:25

$ docker-compose -f docker-compose-test.yml -p ci_test build --no-cache

rabbitmq uses an image, skipping

Building orig

Step 1/6 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/6 : WORKDIR /original

 ---> Running in bf9f5a063741

Removing intermediate container bf9f5a063741

 ---> c3ab711162f2

Step 3/6 : COPY . .

 ---> c9ab369ec496

Step 4/6 : RUN chmod +x utils/wait-for-it.sh

```
 ---> Running in 4921366f0007

Removing intermediate container 4921366f0007

 ---> 537646c30e90

Step 5/6 : RUN apk update && apk add bash coreutils

 ---> Running in 90044bf38216

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)

(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)

(3/8) Installing ncurses-libs (6.1_p20190105-r0)

(4/8) Installing readline (7.0.003-r1)

(5/8) Installing bash (4.4.19-r1)

Executing bash-4.4.19-r1.post-install

(6/8) Installing libattr (2.4.47-r7)

(7/8) Installing libacl (2.2.52-r5)

(8/8) Installing coreutils (8.30-r0)

Executing busybox-1.29.3-r10.trigger

OK: 17 MiB in 24 packages

Removing intermediate container 90044bf38216

 ---> efdb69f1bf03

Step 6/6 : RUN npm install --silent

 ---> Running in 610fa55b95d5

added 62 packages from 43 contributors and audited 62 packages in 1.79s

found 0 vulnerabilities

Removing intermediate container 610fa55b95d5

 ---> 463672d90463

Successfully built 463672d90463

Successfully tagged ci_test_orig:latest

Building imed

Step 1/6 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/6 : WORKDIR /intermediate

 ---> Running in 8fedbee20e6d

Removing intermediate container 8fedbee20e6d

 ---> 0d1ea3479abc

Step 3/6 : COPY . .

 ---> e2c73d914aab

Step 4/6 : RUN chmod +x utils/wait-for-it.sh

 ---> Running in 8096ffb5afff

Removing intermediate container 8096ffb5afff
```

```
 ---> 7a0d1d3d251d
Step 5/6 : RUN apk update && apk add bash coreutils
 ---> Running in 177cb2fa4bce
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz
v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]
OK: 9777 distinct packages available
(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)
(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)
(3/8) Installing ncurses-libs (6.1_p20190105-r0)
(4/8) Installing readline (7.0.003-r1)
(5/8) Installing bash (4.4.19-r1)
Executing bash-4.4.19-r1.post-install
(6/8) Installing libattr (2.4.47-r7)
(7/8) Installing libacl (2.2.52-r5)
(8/8) Installing coreutils (8.30-r0)
Executing busybox-1.29.3-r10.trigger
OK: 17 MiB in 24 packages
Removing intermediate container 177cb2fa4bce
 ---> cf922d9e0e13
Step 6/6 : RUN npm install --silent
 ---> Running in 73107313099a
added 15 packages from 11 contributors and audited 15 packages in 0.889s
found 0 vulnerabilities
Removing intermediate container 73107313099a
 ---> 4d3f09e05cde
Successfully built 4d3f09e05cde
Successfully tagged ci_test_imed:latest
Building obse
Step 1/6 : FROM node:10.22.1-alpine3.9
 ---> 70dfbff96774
Step 2/6 : WORKDIR /observer
 ---> Running in 3674dc18b938
Removing intermediate container 3674dc18b938
 ---> 39832175d292
Step 3/6 : COPY . .
 ---> 5030bd9e7280
Step 4/6 : RUN chmod +x utils/wait-for-it.sh
 ---> Running in 595ad8427290
Removing intermediate container 595ad8427290
 ---> 592d1344f873
Step 5/6 : RUN apk update && apk add bash coreutils
```

```
 ---> Running in dbff0b88dfcd
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz
v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]
OK: 9777 distinct packages available
(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)
(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)
(3/8) Installing ncurses-libs (6.1_p20190105-r0)
(4/8) Installing readline (7.0.003-r1)
(5/8) Installing bash (4.4.19-r1)
Executing bash-4.4.19-r1.post-install
(6/8) Installing libattr (2.4.47-r7)
(7/8) Installing libacl (2.2.52-r5)
(8/8) Installing coreutils (8.30-r0)
Executing busybox-1.29.3-r10.trigger
OK: 17 MiB in 24 packages
Removing intermediate container dbff0b88dfcd
 ---> 095c1adb8d0d
Step 6/6 : RUN npm install --silent
 ---> Running in c173f0209ff2
added 15 packages from 11 contributors and audited 15 packages in 0.578s
found 0 vulnerabilities
Removing intermediate container c173f0209ff2
 ---> b25977cadfa9
Successfully built b25977cadfa9
Successfully tagged ci_test_obse:latest
Building httpserv
Step 1/3 : FROM node:10.22.1-alpine3.9
 ---> 70dfbff96774
Step 2/3 : WORKDIR /http-service
 ---> Running in da69033c1d4b
Removing intermediate container da69033c1d4b
 ---> ebc6c359253a
Step 3/3 : COPY . .
 ---> bb0ee0727675
Successfully built bb0ee0727675
Successfully tagged ci_test_httpserv:latest
Building api-gateway
Step 1/8 : FROM node:10.22.1-alpine3.9
 ---> 70dfbff96774
Step 2/8 : RUN apk update && apk add   curl   && rm -rf /var/lib/apt/lists/*
 ---> Running in 16017f7ea8e7
```

```
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/5) Installing ca-certificates (20191127-r2)

(2/5) Installing nghttp2-libs (1.35.1-r2)

(3/5) Installing libssh2 (1.9.0-r1)

(4/5) Installing libcurl (7.64.0-r4)

(5/5) Installing curl (7.64.0-r4)

Executing busybox-1.29.3-r10.trigger

Executing ca-certificates-20191127-r2.trigger

OK: 9 MiB in 21 packages

Removing intermediate container 16017f7ea8e7

 ---> 3182697816fb

Step 3/8 : ENV DOCKER_CHANNEL stable

 ---> Running in 0abdca154064

Removing intermediate container 0abdca154064

 ---> a13d2cb00525

Step 4/8 : ENV DOCKER_VERSION 19.03.6

 ---> Running in cdc8136edd0b

Removing intermediate container cdc8136edd0b

 ---> 2911426b94e0

Step 5/8 : RUN curl -fsSL "https://download.docker.com/linux/static/${DOCKER_CHANNEL}/x86_64/docker-
${DOCKER_VERSION}.tgz"   | tar -xzC /usr/local/bin --strip=1 docker/docker

 ---> Running in 807dd7ca4861

Removing intermediate container 807dd7ca4861

 ---> 2faa7a206800

Step 6/8 : WORKDIR /api-gateway

 ---> Running in 5eac2b95f689

Removing intermediate container 5eac2b95f689

 ---> 9aad44f4ffec

Step 7/8 : COPY . .

 ---> 95b38915f8aa

Step 8/8 : RUN npm install --silent

 ---> Running in 846a20323239

added 52 packages from 41 contributors and audited 52 packages in 1.244s

1 package is looking for funding

  run `npm fund` for details

found 0 vulnerabilities

Removing intermediate container 846a20323239

 ---> 7adf6b8262d1

Successfully built 7adf6b8262d1
```

Successfully tagged ci_test_api-gateway:latest

Building tests

Step 1/9 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/9 : RUN apk update && apk add   curl   && rm -rf /var/lib/apt/lists/*

 ---> Running in e3b5fc1aed90

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/5) Installing ca-certificates (20191127-r2)

(2/5) Installing nghttp2-libs (1.35.1-r2)

(3/5) Installing libssh2 (1.9.0-r1)

(4/5) Installing libcurl (7.64.0-r4)

(5/5) Installing curl (7.64.0-r4)

Executing busybox-1.29.3-r10.trigger

Executing ca-certificates-20191127-r2.trigger

OK: 9 MiB in 21 packages

Removing intermediate container e3b5fc1aed90

 ---> 62935a0b15ca

Step 3/9 : ENV DOCKER_CHANNEL stable

 ---> Running in 50c9ea378ae7

Removing intermediate container 50c9ea378ae7

 ---> 762cae2964cc

Step 4/9 : ENV DOCKER_VERSION 19.03.6

 ---> Running in b24b287064e1

Removing intermediate container b24b287064e1

 ---> 9d34c2c46270

Step 5/9 : RUN curl -fsSL "https://download.docker.com/linux/static/${DOCKER_CHANNEL}/x86_64/docker-${DOCKER_VERSION}.tgz" | tar -xzC /usr/local/bin --strip=1 docker/docker

 ---> Running in 3ed00064fc06

Removing intermediate container 3ed00064fc06

 ---> 5794f29c84f4

Step 6/9 : COPY api-gateway/app.js api-gateway/

 ---> 87c003c863c4

Step 7/9 : COPY http-service/app.js http-service/

 ---> 15e01efc19e7

Step 8/9 : COPY tests/ package-lock.json package.json ./

 ---> 91f169785c56

Step 9/9 : RUN npm install --silent

 ---> Running in b43ecb30eff8

added 644 packages from 426 contributors and audited 645 packages in 11.41s

```
31 packages are looking for funding
  run `npm fund` for details
found 0 vulnerabilities
Removing intermediate container b43ecb30eff8
 ---> 894cdfb14cb1
Successfully built 894cdfb14cb1
Successfully tagged ci_test_tests:latest
$ docker-compose -f docker-compose-test.yml -p ci_test up -d rabbitmq orig imed obse httpserv api-gateway
Creating network "ci_test_test-network" with the default driver
Creating rabbitmq-test ...
Creating imed-test    ...
Creating orig-test    ...
Creating obse-test    ...
Creating httpserv-test ...
Creating api-gateway-test ...
$ sleep 30
$ docker-compose -f docker-compose-test.yml -p ci_test run --rm tests
Creating ci_test_tests_run ...
> gitlab-ci-cd-project@1.0.0 test /
> jest
PASS http-service/app.test.js
FAIL api-gateway/app.test.js (43.227 s)
  ● PUT /state › Test setting system's state to INIT while system is down

    expect(received).toBe(expected) // Object.is equality

    Expected: 200
    Received: 500

      139 |    // Set system's state to INIT to start all containers
      140 |    const res = await server.put("/state/INIT");
    > 141 |    expect(res.status).toBe(200);
          |                       ^
      142 |
      143 |    const started_containers = res.body.started_containers;
      144 |
      at Object.test (api-gateway/app.test.js:141:24)
Test Suites: 1 failed, 1 passed, 2 total
Tests:       1 failed, 8 passed, 9 total
Snapshots:   0 total
Time:        43.865 s
Ran all test suites.
npm ERR! code ELIFECYCLE
npm ERR! errno 1
npm ERR! gitlab-ci-cd-project@1.0.0 test: `jest`
npm ERR! Exit status 1
```

```
npm ERR!

npm ERR! Failed at the gitlab-ci-cd-project@1.0.0 test script.

npm ERR! This is probably not a problem with npm. There is likely additional logging output above.

npm ERR! A complete log of this run can be found in:

npm ERR!     /root/.npm/_logs/2020-12-04T10_50_04_289Z-debug.log

Cleaning up file based variables

00:07

ERROR: Job failed: exit code 1
```

2. A successful pipeline with all tests passing

1. Test job

```
Running with gitlab-runner 13.5.0 (ece86343)

  on docker-stable ca-Azj3b

Preparing the "docker" executor

00:56

Using Docker executor with image tmaier/docker-compose:19.03 ...

Starting service docker:dind ...

Using locally found image version due to if-not-present pull policy

Using docker image sha256:6f19136cf89d49aee8fa560eaab20e034c6ee17bbce55a9d33e1fbe5baa35b03 for docker:dind with digest docker@sha256:4972457c6a8a4309f9796fc3c8fd288923045ba0e214c102d92b70be99e249d1 ...

Waiting for services to be up and running...

*** WARNING: Service runner-ca-azj3b-project-2-concurrent-0-d47b5cb80cb9944b-docker-0 probably didn't start properly.

Health check error:

service "runner-ca-azj3b-project-2-concurrent-0-d47b5cb80cb9944b-docker-0-wait-for-service" timeout

Health check container logs:

Service container logs:

2020-12-04T19:22:56.062161231Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:22:56.168271672Z ........................++++

2020-12-04T19:22:56.472542279Z ......................................................................++++

2020-12-04T19:22:56.472930279Z e is 65537 (0x010001)

2020-12-04T19:22:56.487073798Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:22:56.532429159Z ..........++++

2020-12-04T19:22:56.899730549Z ...................................................................................++++

2020-12-04T19:22:56.900158950Z e is 65537 (0x010001)

2020-12-04T19:22:56.969430542Z Signature ok

2020-12-04T19:22:56.969469642Z subject=CN = docker:dind server

2020-12-04T19:22:56.969565042Z Getting CA Private Key

2020-12-04T19:22:56.984012662Z /certs/server/cert.pem: OK

2020-12-04T19:22:56.989793669Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:22:57.083732295Z .......................++++

2020-12-04T19:22:57.376964285Z ..............................................................................++++

2020-12-04T19:22:57.377308785Z e is 65537 (0x010001)

2020-12-04T19:22:57.398174013Z Signature ok
```

2020-12-04T19:22:57.398193213Z subject=CN = docker:dind client

2020-12-04T19:22:57.398195913Z Getting CA Private Key

2020-12-04T19:22:57.409472928Z /certs/client/cert.pem: OK

2020-12-04T19:22:57.659461761Z mount: permission denied (are you root?)

2020-12-04T19:22:57.659481061Z Could not mount /sys/kernel/security.

2020-12-04T19:22:57.659483661Z AppArmor detection and --privileged mode might break.

2020-12-04T19:22:57.660534062Z mount: permission denied (are you root?)

****

Using locally found image version due to if-not-present pull policy

Using docker image sha256:52c6717a7b88537df3c82ccf217844d83f205862c0c10b951503900b8e0f85bb for tmaier/docker-compose:19.03 with digest tmaier/docker-compose@sha256:e8502b48bc86ffb7ceeb9fc5b2988b0f8767c85735b442897b5902976220b497 ...

Preparing environment

00:05

Running on runner-ca-azj3b-project-2-concurrent-0 via gitlab-runner1...

Getting source from Git repository

00:06

Fetching changes with git depth set to 50...

Reinitialized existing Git repository in /builds/root/Gitlab-CI-CD-Project/.git/

Checking out 820988d7 as master...

Skipping Git submodules setup

Executing "step_script" stage of the job script

06:05

$ docker-compose -f docker-compose-test.yml -p ci_test build --no-cache

rabbitmq uses an image, skipping

Building orig

Step 1/6 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/6 : WORKDIR /original

 ---> Running in 65f2d522e720

Removing intermediate container 65f2d522e720

 ---> 244ab2135d80

Step 3/6 : COPY . .

 ---> e15f20e10300

Step 4/6 : RUN chmod +x utils/wait-for-it.sh

 ---> Running in 1eb2fea6152a

Removing intermediate container 1eb2fea6152a

 ---> 49b00e0cc08c

Step 5/6 : RUN apk update && apk add bash coreutils

 ---> Running in c6958d527ce2

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

```
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3/community]
OK: 9777 distinct packages available
(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)
(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)
(3/8) Installing ncurses-libs (6.1_p20190105-r0)
(4/8) Installing readline (7.0.003-r1)
(5/8) Installing bash (4.4.19-r1)
Executing bash-4.4.19-r1.post-install
(6/8) Installing libattr (2.4.47-r7)
(7/8) Installing libacl (2.2.52-r5)
(8/8) Installing coreutils (8.30-r0)
Executing busybox-1.29.3-r10.trigger
OK: 17 MiB in 24 packages
Removing intermediate container c6958d527ce2
 ---> 7336d02ea3f3
Step 6/6 : RUN npm install --silent
 ---> Running in ed07d38652fa
added 62 packages from 43 contributors and audited 62 packages in 1.699s
found 0 vulnerabilities
Removing intermediate container ed07d38652fa
 ---> 904edcbd0b34
Successfully built 904edcbd0b34
Successfully tagged ci_test_orig:latest
Building imed
Step 1/6 : FROM node:10.22.1-alpine3.9
 ---> 70dfbff96774
Step 2/6 : WORKDIR /intermediate
 ---> Running in 935aacfdc349
Removing intermediate container 935aacfdc349
 ---> 9bdb3e26867b
Step 3/6 : COPY . .
 ---> c8bad89d26a1
Step 4/6 : RUN chmod +x utils/wait-for-it.sh
 ---> Running in 20da963d6266
Removing intermediate container 20da963d6266
 ---> d6dc996883f4
Step 5/6 : RUN apk update && apk add bash coreutils
 ---> Running in 331ddfbf21a9
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz
v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]
OK: 9777 distinct packages available
```

```
(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)

(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)

(3/8) Installing ncurses-libs (6.1_p20190105-r0)

(4/8) Installing readline (7.0.003-r1)

(5/8) Installing bash (4.4.19-r1)

Executing bash-4.4.19-r1.post-install

(6/8) Installing libattr (2.4.47-r7)

(7/8) Installing libacl (2.2.52-r5)

(8/8) Installing coreutils (8.30-r0)

Executing busybox-1.29.3-r10.trigger

OK: 17 MiB in 24 packages

Removing intermediate container 331ddfbf21a9

 ---> 0f1fb63c7a1f

Step 6/6 : RUN npm install --silent

 ---> Running in 167f3c3d948e

added 15 packages from 11 contributors and audited 15 packages in 0.901s

found 0 vulnerabilities

Removing intermediate container 167f3c3d948e

 ---> 1f7838b0bb6b

Successfully built 1f7838b0bb6b

Successfully tagged ci_test_imed:latest

Building obse

Step 1/6 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/6 : WORKDIR /observer

 ---> Running in f79582636f91

Removing intermediate container f79582636f91

 ---> 77585c5fa063

Step 3/6 : COPY . .

 ---> b38e0636d152

Step 4/6 : RUN chmod +x utils/wait-for-it.sh

 ---> Running in 355723be0691

Removing intermediate container 355723be0691

 ---> 7cb45320fdde

Step 5/6 : RUN apk update && apk add bash coreutils

 ---> Running in 7a43ec6953a0

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)

(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)
```

(3/8) Installing ncurses-libs (6.1_p20190105-r0)

(4/8) Installing readline (7.0.003-r1)

(5/8) Installing bash (4.4.19-r1)

Executing bash-4.4.19-r1.post-install

(6/8) Installing libattr (2.4.47-r7)

(7/8) Installing libacl (2.2.52-r5)

(8/8) Installing coreutils (8.30-r0)

Executing busybox-1.29.3-r10.trigger

OK: 17 MiB in 24 packages

Removing intermediate container 7a43ec6953a0

 ---> 0920446ef427

Step 6/6 : RUN npm install --silent

 ---> Running in 571cc76bde7d

added 15 packages from 11 contributors and audited 15 packages in 1.062s

found 0 vulnerabilities

Removing intermediate container 571cc76bde7d

 ---> a13da461b409

Successfully built a13da461b409

Successfully tagged ci_test_obse:latest

Building httpserv

Step 1/3 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/3 : WORKDIR /http-service

 ---> Running in 799be5f47460

Removing intermediate container 799be5f47460

 ---> 26dddfb8ba10

Step 3/3 : COPY . .

 ---> f3c99b2d3251

Successfully built f3c99b2d3251

Successfully tagged ci_test_httpserv:latest

Building api-gateway

Step 1/8 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/8 : RUN apk update && apk add   curl   && rm -rf /var/lib/apt/lists/*

 ---> Running in 7d3753fc7b96

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/5) Installing ca-certificates (20191127-r2)

(2/5) Installing nghttp2-libs (1.35.1-r2)

(3/5) Installing libssh2 (1.9.0-r1)

(4/5) Installing libcurl (7.64.0-r4)

(5/5) Installing curl (7.64.0-r4)

Executing busybox-1.29.3-r10.trigger

Executing ca-certificates-20191127-r2.trigger

OK: 9 MiB in 21 packages

Removing intermediate container 7d3753fc7b96

 ---> 7d2b08b151d3

Step 3/8 : ENV DOCKER_CHANNEL stable

 ---> Running in b91aa7f59ea0

Removing intermediate container b91aa7f59ea0

 ---> dcbf4667f3fc

Step 4/8 : ENV DOCKER_VERSION 19.03.6

 ---> Running in 5fbc2c29be79

Removing intermediate container 5fbc2c29be79

 ---> 376367fdaba7

Step 5/8 : RUN curl -fsSL "https://download.docker.com/linux/static/${DOCKER_CHANNEL}/x86_64/docker-${DOCKER_VERSION}.tgz" | tar -xzC /usr/local/bin --strip=1 docker/docker

 ---> Running in 222b47d36217

Removing intermediate container 222b47d36217

 ---> 0649d5167d94

Step 6/8 : WORKDIR /api-gateway

 ---> Running in 603bcda31772

Removing intermediate container 603bcda31772

 ---> 4da29507f0c0

Step 7/8 : COPY . .

 ---> 11561f3ed217

Step 8/8 : RUN npm install --silent

 ---> Running in d62e9730b60c

added 52 packages from 41 contributors and audited 52 packages in 1.726s

1 package is looking for funding

  run `npm fund` for details

found 0 vulnerabilities

Removing intermediate container d62e9730b60c

 ---> e8dafc0728e4

Successfully built e8dafc0728e4

Successfully tagged ci_test_api-gateway:latest

Building tests

Step 1/9 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/9 : RUN apk update && apk add   curl   && rm -rf /var/lib/apt/lists/*

 ---> Running in e7d72e71eaf4

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

```
v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]
OK: 9777 distinct packages available
(1/5) Installing ca-certificates (20191127-r2)
(2/5) Installing nghttp2-libs (1.35.1-r2)
(3/5) Installing libssh2 (1.9.0-r1)
(4/5) Installing libcurl (7.64.0-r4)
(5/5) Installing curl (7.64.0-r4)
Executing busybox-1.29.3-r10.trigger
Executing ca-certificates-20191127-r2.trigger
OK: 9 MiB in 21 packages
Removing intermediate container e7d72e71eaf4
 ---> bc83384fca9d
Step 3/9 : ENV DOCKER_CHANNEL stable
 ---> Running in ecd67f8f0a89
Removing intermediate container ecd67f8f0a89
 ---> 3388ae64f857
Step 4/9 : ENV DOCKER_VERSION 19.03.6
 ---> Running in 5984d897ac95
Removing intermediate container 5984d897ac95
 ---> a575e7fb42a7
Step 5/9 : RUN curl -fsSL "https://download.docker.com/linux/static/${DOCKER_CHANNEL}/x86_64/docker-
${DOCKER_VERSION}.tgz"   | tar -xzC /usr/local/bin --strip=1 docker/docker
 ---> Running in ec4736b2e697
Removing intermediate container ec4736b2e697
 ---> af6ee305965c
Step 6/9 : COPY api-gateway/app.js api-gateway/
 ---> 59b503adfc2e
Step 7/9 : COPY http-service/app.js http-service/
 ---> 6640ff709d04
Step 8/9 : COPY tests/ package-lock.json package.json ./
 ---> 32e4c887965e
Step 9/9 : RUN npm install --silent
 ---> Running in 14364025898e
added 644 packages from 426 contributors and audited 645 packages in 13.175s
31 packages are looking for funding
  run `npm fund` for details
found 0 vulnerabilities
Removing intermediate container 14364025898e
 ---> ab71eac52001
Successfully built ab71eac52001
Successfully tagged ci_test_tests:latest
$ docker-compose -f docker-compose-test.yml -p ci_test up -d rabbitmq orig imed obse httpserv api-gateway
```

```
Creating network "ci_test_test-network" with the default driver
Creating rabbitmq-test ...
Creating obse-test    ...
Creating orig-test    ...
Creating imed-test    ...
Creating httpserv-test ...
Creating api-gateway-test ...
$ sleep 30
$ docker-compose -f docker-compose-test.yml -p ci_test run --rm tests
Creating ci_test_tests_run ...
> gitlab-ci-cd-project@1.0.0 test /
> jest
PASS http-service/app.test.js
PASS api-gateway/app.test.js (65.976 s)
Test Suites: 2 passed, 2 total
Tests:      11 passed, 11 total
Snapshots:  0 total
Time:       66.281 s
Ran all test suites.
Running after_script
00:55
Running after script...
$ docker-compose -f docker-compose-test.yml -p ci_test down
Stopping api-gateway-test ...
Stopping httpserv-test   ...
Stopping imed-test       ...
Stopping orig-test       ...
Stopping obse-test       ...
Stopping rabbitmq-test   ...
Removing api-gateway-test ...
Removing httpserv-test   ...
Removing imed-test       ...
Removing orig-test       ...
Removing obse-test       ...
Removing rabbitmq-test   ...
Removing network ci_test_test-network
Cleaning up file based variables
00:06
Job succeeded
```

2.   Build job

```
Running with gitlab-runner 13.5.0 (ece86343)
  on docker-stable ca-Azj3b
```

Preparing the "docker" executor

00:54

Using Docker executor with image tmaier/docker-compose:19.03 ...

Starting service docker:dind ...

Using locally found image version due to if-not-present pull policy

Using docker image sha256:6f19136cf89d49aee8fa560eaab20e034c6ee17bbce55a9d33e1fbe5baa35b03 for docker:dind with digest docker@sha256:4972457c6a8a4309f9796fc3c8fd288923045ba0e214c102d92b70be99e249d1 ...

Waiting for services to be up and running...

*** WARNING: Service runner-ca-azj3b-project-2-concurrent-0-b3af28a552cd471b-docker-0 probably didn't start properly.

Health check error:

service "runner-ca-azj3b-project-2-concurrent-0-b3af28a552cd471b-docker-0-wait-for-service" timeout

Health check container logs:

Service container logs:

2020-12-04T19:31:12.486533884Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:31:12.703514347Z ....+++++

2020-12-04T19:31:13.278593348Z

....+++++

2020-12-04T19:31:13.278999748Z e is 65537 (0x010001)

2020-12-04T19:31:13.292347446Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:31:13.428994522Z ....+++++

2020-12-04T19:31:13.444142020Z ..+++++

2020-12-04T19:31:13.444560220Z e is 65537 (0x010001)

2020-12-04T19:31:13.696264376Z Signature ok

2020-12-04T19:31:13.696285176Z subject=CN = docker:dind server

2020-12-04T19:31:13.696289576Z Getting CA Private Key

2020-12-04T19:31:13.707420874Z /certs/server/cert.pem: OK

2020-12-04T19:31:13.752094667Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:31:13.918026438Z ....+++++

2020-12-04T19:31:13.940608734Z ....+++++

2020-12-04T19:31:13.940998534Z e is 65537 (0x010001)

2020-12-04T19:31:13.962884430Z Signature ok

2020-12-04T19:31:13.962906330Z subject=CN = docker:dind client

2020-12-04T19:31:13.962909330Z Getting CA Private Key

2020-12-04T19:31:13.973765528Z /certs/client/cert.pem: OK

2020-12-04T19:31:14.017849721Z mount: permission denied (are you root?)

2020-12-04T19:31:14.017869921Z Could not mount /sys/kernel/security.

2020-12-04T19:31:14.017872521Z AppArmor detection and --privileged mode might break.

2020-12-04T19:31:14.018846821Z mount: permission denied (are you root?)

****

Using locally found image version due to if-not-present pull policy

Using docker image sha256:52c6717a7b88537df3c82ccf217844d83f205862c0c10b951503900b8e0f85bb for tmaier/docker-compose:19.03 with digest tmaier/docker-compose@sha256:e8502b48bc86ffb7ceeb9fc5b2988b0f8767c85735b442897b5902976220b497 ...

Preparing environment

00:07

Running on runner-ca-azj3b-project-2-concurrent-0 via gitlab-runner1...

Getting source from Git repository

00:09

Fetching changes with git depth set to 50...

Reinitialized existing Git repository in /builds/root/Gitlab-CI-CD-Project/.git/

Checking out 820988d7 as master...

Skipping Git submodules setup

Executing "step_script" stage of the job script

02:19

$ docker-compose -f docker-compose.yml build --no-cache

rabbitmq uses an image, skipping

Building orig

Step 1/6 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/6 : WORKDIR /original

 ---> Running in 44a919fca58e

Removing intermediate container 44a919fca58e

 ---> d1975b47f496

Step 3/6 : COPY . .

 ---> c74198a623cd

Step 4/6 : RUN chmod +x utils/wait-for-it.sh

 ---> Running in 635c4f6dd4c3

Removing intermediate container 635c4f6dd4c3

 ---> c80c0f5c744b

Step 5/6 : RUN apk update && apk add bash coreutils

 ---> Running in 136e2105a3f5

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)

(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)

(3/8) Installing ncurses-libs (6.1_p20190105-r0)

(4/8) Installing readline (7.0.003-r1)

(5/8) Installing bash (4.4.19-r1)

Executing bash-4.4.19-r1.post-install

(6/8) Installing libattr (2.4.47-r7)

(7/8) Installing libacl (2.2.52-r5)

(8/8) Installing coreutils (8.30-r0)

Executing busybox-1.29.3-r10.trigger

OK: 17 MiB in 24 packages

```
Removing intermediate container 136e2105a3f5
 ---> 0a72a9006b87
Step 6/6 : RUN npm install --silent
 ---> Running in 276a81748b26
added 62 packages from 43 contributors and audited 62 packages in 1.752s
found 0 vulnerabilities
Removing intermediate container 276a81748b26
 ---> d19ad5a4ce5b
Successfully built d19ad5a4ce5b
Successfully tagged gitlab-ci-cd-project_orig:latest
Building imed
Step 1/6 : FROM node:10.22.1-alpine3.9
 ---> 70dfbff96774
Step 2/6 : WORKDIR /intermediate
 ---> Running in 2d6c43dcf3ba
Removing intermediate container 2d6c43dcf3ba
 ---> 71ea32e01bb1
Step 3/6 : COPY . .
 ---> fb7fea3339d5
Step 4/6 : RUN chmod +x utils/wait-for-it.sh
 ---> Running in 9720e8e26ca7
Removing intermediate container 9720e8e26ca7
 ---> 7da31a28350f
Step 5/6 : RUN apk update && apk add bash coreutils
 ---> Running in c5a300213b0c
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz
v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]
OK: 9777 distinct packages available
(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)
(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)
(3/8) Installing ncurses-libs (6.1_p20190105-r0)
(4/8) Installing readline (7.0.003-r1)
(5/8) Installing bash (4.4.19-r1)
Executing bash-4.4.19-r1.post-install
(6/8) Installing libattr (2.4.47-r7)
(7/8) Installing libacl (2.2.52-r5)
(8/8) Installing coreutils (8.30-r0)
Executing busybox-1.29.3-r10.trigger
OK: 17 MiB in 24 packages
Removing intermediate container c5a300213b0c
 ---> 6ce91016b262
```

```
Step 6/6 : RUN npm install --silent
 ---> Running in 74b38467768a
added 15 packages from 11 contributors and audited 15 packages in 0.871s
found 0 vulnerabilities
Removing intermediate container 74b38467768a
 ---> 5235c6af7142
Successfully built 5235c6af7142
Successfully tagged gitlab-ci-cd-project_imed:latest
Building obse
Step 1/6 : FROM node:10.22.1-alpine3.9
 ---> 70dfbff96774
Step 2/6 : WORKDIR /observer
 ---> Running in 69e88c079e59
Removing intermediate container 69e88c079e59
 ---> 8032c4e78636
Step 3/6 : COPY . .
 ---> 3390a24e4744
Step 4/6 : RUN chmod +x utils/wait-for-it.sh
 ---> Running in 9beaead0422d
Removing intermediate container 9beaead0422d
 ---> 06eb5512b06d
Step 5/6 : RUN apk update && apk add bash coreutils
 ---> Running in f317d93005c5
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz
fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz
v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]
v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]
OK: 9777 distinct packages available
(1/8) Installing ncurses-terminfo-base (6.1_p20190105-r0)
(2/8) Installing ncurses-terminfo (6.1_p20190105-r0)
(3/8) Installing ncurses-libs (6.1_p20190105-r0)
(4/8) Installing readline (7.0.003-r1)
(5/8) Installing bash (4.4.19-r1)
Executing bash-4.4.19-r1.post-install
(6/8) Installing libattr (2.4.47-r7)
(7/8) Installing libacl (2.2.52-r5)
(8/8) Installing coreutils (8.30-r0)
Executing busybox-1.29.3-r10.trigger
OK: 17 MiB in 24 packages
Removing intermediate container f317d93005c5
 ---> bb25eba42d6c
Step 6/6 : RUN npm install --silent
 ---> Running in 7515a6884d28
```

```
added 15 packages from 11 contributors and audited 15 packages in 0.54s

found 0 vulnerabilities

Removing intermediate container 7515a6884d28

 ---> c2e8653f5064

Successfully built c2e8653f5064

Successfully tagged gitlab-ci-cd-project_obse:latest

Building httpserv

Step 1/3 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/3 : WORKDIR /http-service

 ---> Running in 90d1e5c039c6

Removing intermediate container 90d1e5c039c6

 ---> e35c13e6002b

Step 3/3 : COPY . .

 ---> 6bed8a3fa4a5

Successfully built 6bed8a3fa4a5

Successfully tagged gitlab-ci-cd-project_httpserv:latest

Building api-gateway

Step 1/8 : FROM node:10.22.1-alpine3.9

 ---> 70dfbff96774

Step 2/8 : RUN apk update && apk add   curl   && rm -rf /var/lib/apt/lists/*

 ---> Running in c094a29af0ac

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/main/x86_64/APKINDEX.tar.gz

fetch http://dl-cdn.alpinelinux.org/alpine/v3.9/community/x86_64/APKINDEX.tar.gz

v3.9.6-120-g7ba7650582 [http://dl-cdn.alpinelinux.org/alpine/v3.9/main]

v3.9.6-114-ga7f52c345a [http://dl-cdn.alpinelinux.org/alpine/v3.9/community]

OK: 9777 distinct packages available

(1/5) Installing ca-certificates (20191127-r2)

(2/5) Installing nghttp2-libs (1.35.1-r2)

(3/5) Installing libssh2 (1.9.0-r1)

(4/5) Installing libcurl (7.64.0-r4)

(5/5) Installing curl (7.64.0-r4)

Executing busybox-1.29.3-r10.trigger

Executing ca-certificates-20191127-r2.trigger

OK: 9 MiB in 21 packages

Removing intermediate container c094a29af0ac

 ---> f283923e4738

Step 3/8 : ENV DOCKER_CHANNEL stable

 ---> Running in 66c38db1e8b5

Removing intermediate container 66c38db1e8b5

 ---> d6a17892e4bd

Step 4/8 : ENV DOCKER_VERSION 19.03.6

 ---> Running in 37589d8a802e
```

Removing intermediate container 37589d8a802e

 ---> 49f0327ec15d

Step 5/8 : RUN curl -fsSL "https://download.docker.com/linux/static/${DOCKER_CHANNEL}/x86_64/docker-${DOCKER_VERSION}.tgz" | tar -xzC /usr/local/bin --strip=1 docker/docker

 ---> Running in d864ee13e739

Removing intermediate container d864ee13e739

 ---> 70ce7d203d91

Step 6/8 : WORKDIR /api-gateway

 ---> Running in a718497ac515

Removing intermediate container a718497ac515

 ---> c191578fef58

Step 7/8 : COPY . .

 ---> 5c3c4ab2cad8

Step 8/8 : RUN npm install --silent

 ---> Running in 3a2fa067c27e

added 52 packages from 41 contributors and audited 52 packages in 1.712s

1 package is looking for funding

  run `npm fund` for details

found 0 vulnerabilities

Removing intermediate container 3a2fa067c27e

 ---> 47acd45ec663

Successfully built 47acd45ec663

Successfully tagged gitlab-ci-cd-project_api-gateway:latest

Cleaning up file based variables

00:06

Job succeeded

3. Deploy job

Running with gitlab-runner 13.5.0 (ece86343)

  on docker-stable ca-Azj3b

Preparing the "docker" executor

00:54

Using Docker executor with image tmaier/docker-compose:19.03 ...

Starting service docker:dind ...

Using locally found image version due to if-not-present pull policy

Using docker image sha256:6f19136cf89d49aee8fa560eaab20e034c6ee17bbce55a9d33e1fbe5baa35b03 for docker:dind with digest docker@sha256:4972457c6a8a4309f9796fc3c8fd288923045ba0e214c102d92b70be99e249d1 ...

Waiting for services to be up and running...

*** WARNING: Service runner-ca-azj3b-project-2-concurrent-0-bc5a6e034b69df45-docker-0 probably didn't start properly.

Health check error:

service "runner-ca-azj3b-project-2-concurrent-0-bc5a6e034b69df45-docker-0-wait-for-service" timeout

Health check container logs:

Service container logs:

2020-12-04T19:39:34.293987404Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:39:34.360276517Z ....++++

2020-12-04T19:39:34.761408858Z ....++++

2020-12-04T19:39:34.761839866Z e is 65537 (0x010001)

2020-12-04T19:39:34.774042108Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:39:35.487702619Z
....++++

2020-12-04T19:39:35.750552314Z ....++++

2020-12-04T19:39:35.750880620Z e is 65537 (0x010001)

2020-12-04T19:39:35.774508787Z Signature ok

2020-12-04T19:39:35.774539888Z subject=CN = docker:dind server

2020-12-04T19:39:35.774717891Z Getting CA Private Key

2020-12-04T19:39:35.785704508Z /certs/server/cert.pem: OK

2020-12-04T19:39:35.788359661Z Generating RSA private key, 4096 bit long modulus (2 primes)

2020-12-04T19:39:36.516979842Z
....++++

2020-12-04T19:39:36.575738202Z ....++++

2020-12-04T19:39:36.576167210Z e is 65537 (0x010001)

2020-12-04T19:39:36.597115023Z Signature ok

2020-12-04T19:39:36.597134624Z subject=CN = docker:dind client

2020-12-04T19:39:36.597330628Z Getting CA Private Key

2020-12-04T19:39:36.608609350Z /certs/client/cert.pem: OK

2020-12-04T19:39:36.611261702Z mount: permission denied (are you root?)

2020-12-04T19:39:36.611278603Z Could not mount /sys/kernel/security.

2020-12-04T19:39:36.611281703Z AppArmor detection and --privileged mode might break.

2020-12-04T19:39:36.612222821Z mount: permission denied (are you root?)

****

Using locally found image version due to if-not-present pull policy

Using docker image sha256:52c6717a7b88537df3c82ccf217844d83f205862c0c10b951503900b8e0f85bb for tmaier/docker-compose:19.03 with digest tmaier/docker-compose@sha256:e8502b48bc86ffb7ceeb9fc5b2988b0f8767c85735b442897b5902976220b497 ...

Preparing environment

00:05

Running on runner-ca-azj3b-project-2-concurrent-0 via gitlab-runner1...

Getting source from Git repository

00:06

Fetching changes with git depth set to 50...

Reinitialized existing Git repository in /builds/root/Gitlab-CI-CD-Project/.git/

Checking out 820988d7 as master...

Skipping Git submodules setup

Executing "step_script" stage of the job script

00:34

$ docker-compose -f docker-compose.yml up -d

Found orphan containers (gitlab-runner1, gitlab-web) for this project. If you removed or renamed this service in your compose file, you can run this command with the --remove-orphans flag to clean it up.

Starting rabbitmq ...

```
Recreating imed   ...
Recreating obse   ...
Recreating orig   ...
Recreating httpserv ...
Recreating api-gateway ...
Cleaning up file based variables
00:06
Job succeeded
```

Main learnings and worst difficulties

When it comes to Gitlab, I learned how to configure a pipeline using *.gitlab-ci.yml* and running it. Also, how to use docker and docker-compose in the pipeline and the usage of a local Gitlab instance and a runner with docker-compose.

I also got to learn some more in-depth things about docker and docker-compose. The main thing was how to run docker inside a docker container (docker in docker) which I used to control the system from the API Gateway container (/state/INIT and /state/SHUTDOWN endpoints specifically).

I also learned new things related to Node and jest. I hadn't used jest much outside of some simple unit tests so making more complicated end to end tests using jest and supertest was interesting and also challenging.

I used regex in the end to end tests and I had to learn and refresh my memory on some more advanced things to be able to check especially the output of the /messages endpoint.

My biggest difficulty was regarding testing during development. The building of the *tests*-container took a long time after every little change, longer than any other container. I never figured out why that is. This slowed down significantly making the tests and figuring out how to make them work when there were problems. Perhaps there would have been a better way to go about this.

Getting understanding of the whole architecture and what I am even supposed to do was also tough. A lot of time was used in getting the architecture to work including docker-compose in the Gitlab CI/CD pipeline and setting up the test environment.

Amount of effort used

~80-100 hours.