编程知识

Using docker to build nestjs and Mongo development environment

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brief introduction

This article describes how to use `Docker` build `NestJS` and `MongoDB` Development environment of .

Full project address : [github.com/LeoooY/nest...]

To successfully run the code , And understand how each part works , You need at least a basic understanding of the following knowledge points :

- `JavaScript` & `TypeScript`
- `Docker` Basic use of
- `MongoDB` Basic use of

precondition

- install `Docker` and `Docker-Compose`
- install `NodeJS`

Begin to build

Main steps :

1. establish `NestJS` project
2. Containerization `NestJS` project
3. Use `Docker-Compose` Choreography container
4. stay `NestJS` Connection in project `MongoDB` service

establish `NestJS` project

Introduction | NestJS

```
$ npm i -g @nestjs/cli
$ nest new project-name
 Copy code
```

Use `nest new` After the command is created , `cd` To `project-name` Project root execution `start:dev` .

Open browser access `http://localhost:3000` , Normal access means `NestJS` The project has been created .

Containerization `NestJS` project

In this step , We need the just created `NestJS` The project is packaged into a `Docker` Containers .

1. First, in the `NestJS` Create a new project root directory `Dockerfile` file

```
$ touch Dockerfile
 Copy code
```

2. modify `Dockerfile` The contents of the document

```

# Docker Multistage construction

### DEV Environmental Science  ###
FROM node:14.17.3 AS development

#  Navigate to the container working directory
WORKDIR /usr/src/app
#  Copy package.json
COPY package*.json ./

RUN npm install glob rimraf
RUN npm install --only=development
COPY . .
RUN npm run build


### PROD Environmental Science  ###
FROM node:14.17.3 as production

ARG NODE_ENV=production
ENV NODE_ENV=${NODE_ENV}

WORKDIR /usr/src/app

COPY package*.json ./

RUN \
  npm config set registry https://registry.npm.taobao.org \
  && npm install --only=production

COPY . .

COPY --from=development /usr/src/app/dist ./dist

CMD ["node", "dist/main"]
 Copy code
```

Such a `NestJS` Project `Docker` The image is customized .

> Because there is still `MongoDB` Related container services , We don't use... Directly `Docker` Command to build 、 function , But use `Docker-Compose` Choreography container

Use `Docker-Compose` Choreography container

`Docker-Compose` Of `docker-compose.yml` A configuration file can define a set of associated application containers as a project , In this way, we can easily manage `NestJS` and `MongoDB` Service for .

1. stay `NestJS` Create a new project root directory `docker-compose.yml` file

```
$ touch docker-compose.yml
 Copy code
```

2. modify `docker-compose.yml` The contents of the document

```
version: '3.9'
services:
  dev:
    container_name: server-dev
    image: server-dev:1.0.0
    build:
      context: .
      target: development
      dockerfile: ./Dockerfile
    command: npm run start:debug
    ports:
      - 3000:3000
      - 9229:9229
    networks:
      - server-network
    volumes:
      - .:/usr/src/app
      - /usr/src/app/node_modules
    restart: unless-stopped
    environment:
      MONGO_URL: mongodb
  prod:
    container_name: server-prod
    image: server-prod:1.0.0
    build:
      context: .
      target: production
      dockerfile: ./Dockerfile
    command: npm run start:prod
    ports:
      - 3000:3000
      - 9229:9229
    networks:
      - server-network
    volumes:
      - .:/usr/src/app
      - /usr/src/app/node_modules
    restart: unless-stopped
  mongodb:
    image: mongo:5.0.0
    container_name: server-mongodb
    environment:
      - MONGO_INITDB_ROOT_USERNAME=root
      - MONGO_INITDB_ROOT_PASSWORD=pass12345
    volumes:
      - mongodb-data:/data/db
    networks:
      - server-network
    ports:
      - 27017:27017
    healthcheck:
      test: echo 'db.runCommand("ping").ok' | mongo localhost:27017/test --quiet
      interval: 30s
      timeout: 10s
      retries: 3
    restart: unless-stopped
  mongo-express:
    image: mongo-express
    container_name: server-mongo-express
    environment:
      - ME_CONFIG_MONGODB_SERVER=mongodb
      - ME_CONFIG_MONGODB_ENABLE_ADMIN=true
      - ME_CONFIG_MONGODB_ADMINUSERNAME=root
      - ME_CONFIG_MONGODB_ADMINPASSWORD=pass12345
      - ME_CONFIG_BASICAUTH_USERNAME=admin
      - ME_CONFIG_BASICAUTH_PASSWORD=admin123
    volumes:
      - mongodb-data
    depends_on:
      - mongodb
    networks:
      - server-network
    ports:
      - 8081:8081
    healthcheck:
      test: wget --quiet --tries=3 --spider http://admin:admin123@localhost:8081 || exit 1
      interval: 30s
      timeout: 10s
      retries: 3
    restart: unless-stopped
volumes:
  mongodb-data:
    name: mongodb-data
networks:
  server-network:
 Copy code
```

To this step , We have completed all the steps of containerization , The rest is in `NestJS` De link `MongoDB` service .

stay `NestJS` Connection in project `MongoDB` service

We use `NestJS` The recommended `@nestjs/mongoose` Tools to connect `MongoDB` service .

1. install `@nestjs/mongoose`

```
$ npm install --save @nestjs/mongoose mongoose
# or yarn
$ yarn add -D @nestjs/mongoose mongoose
 Copy code
```

2. Connect `MongoDB` service

`app.module.ts`

```
import { Module } from '@nestjs/common';
import { AppController } from './app.controller';
import { AppService } from './app.service';
import { MongooseModule } from '@nestjs/mongoose';

const url = process.env.MONGO_URL || 'localhost';

@Module({
  controllers: [AppController],
  providers: [AppService],
  imports: [
    MongooseModule.forRoot(
      `mongodb://${url}:27017?serverSelectionTimeoutMS=2000&authSource=admin`,
    ),
  ],
})
export class AppModule {}
 Copy code
```

> It should be noted that we use `mongodb` Connection address `process.env.MONGO_URL` yes `docker-compose.yml` As defined in `mongodb` Address of service , Reference resources Accessing a docker container from another container.

Start project

Now? , We have finished all the configuration work , You can run the project .

start-up `NestJS` service 、 `Mongo` Service and `Mongo-Express` service .

```
$ docker-compose up -d dev mongodb mongo-express
 Copy code
```

> Be careful ： When you use `npm` Installed a new `package` when , Need to use `-V` Parameter to recreate the container `node_modules` Anonymous data volume .

```
$ docker-compose up -d -V dev
 Copy code
```

Check the status of each container

```
$ docker ps
 Copy code
```

View the container's log

```
$ docker logs server-dev
$ docker logs server-dev -f # -f  Used for parameter continuous output logs
 Copy code
```

Into the container `shell`

```
$ docker exec -it server-mongodb bash #  Get into mongo Containers
 Copy code
```

Reference material

- Setting up a NestJS project with Docker for Back-End development
- Containerized development with NestJS and Docker
- How To Run MongoDB as a Docker Container
- Containerize Nest.js+MongoDB application in 5 minutes
- Accessing a docker container from another container
- From inside of a Docker container, how do I connect to the localhost of the machine?
- Docker From introduction to practice
- Eggjs Dockerfile
- `@nestjs/mongoose`
- Docker-compose: node_modules not present in a volume after npm install succeeds
- Top 4 Tactics To Keep Node.js Rockin' in Docker

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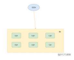

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