Docker Compose

Compose

Compose Docker Compose YML YML

`YAML`

Compose

- Dockerfile
- docker-compose.yml
- docker-compose up

`docker-compose.yml`

```
# yaml
version: '3'
services:
  web:
    build: .
    ports:
   - "5000:5000"
    volumes:
   - .:/code
    - logvolume01:/var/log
    links:
   - redis
  redis:
    image: redis
volumes:
  logvolume01: {}
```

Compose

Linux

Linux Github compose-releases

`Docker Compose`

```
$ sudo curl -L "https://github.com/docker/compose/releases/download/1.24.1/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/docker-compose
```

Compose 1.24.1

```
$ sudo chmod +x /usr/local/bin/docker-compose
```

```
$ sudo ln -s /usr/local/bin/docker-compose /usr/bin/docker-compose
```

```
$ docker-compose --version
cker-compose version 1.24.1, build 4667896b
```

`alpine` `py-pip` `python-dev` `libffi-dev` `openssl-dev` gc `libc-dev` `make`

macOS

Mac `Docker` `Docker Toolbox` `Compose` `Docker` `Compose` `Docker` MacOS Docker

windows PC

Windows `Docker` `Docker Toolbox` `Compose` `Docker` Wi `Compose` `Docker` Windows Docker

1

```
$ mkdir composetest
$ cd composetest
```

app.py

`composetest/app.py`

```
import time

import redis
from flask import Flask
```

```
app = Flask(__name__)
cache = redis.Redis(host='redis', port=6379)



def get_hit_count():
    retries = 5
    while True:
        try:
            return cache.incr('hits')
        except redis.exceptions.ConnectionError as exc:
            if retries == 0:
                raise exc
            retries -= 1
            time.sleep(0.5)



@app.route('/')
def hello():
    count = get_hit_count()
    return 'Hello World! I have been seen {} times.\n'.format(count)
```

redis redis 6379

composetest requirements.txt

```
flask
redis
```

2 Dockerfile

composetest Dockerfile

```
FROM python:3.7-alpine
WORKDIR /code
ENV FLASK_APP app.py
ENV FLASK_RUN_HOST 0.0.0.0
RUN apk add --no-cache gcc musl-dev linux-headers
COPY requirements.txt requirements.txt
RUN pip install -r requirements.txt
COPY . .
```

```
CMD ["flask", "run"]
```

Dockerfile

- FROM python:3.7-alpine: Python 3.7
- WORKDIR /code: /code
- ```
  ENV FLASK_APP app.py
  ENV FLASK_RUN_HOST 0.0.0.0
  ```
  flask
- RUN apk add --no-cache gcc musl-dev linux-headers: gcc MarkupSafe SQLAlchemy P
- ```
  COPY requirements.txt requirements.txt
  RUN pip install -r requirements.txt
  ```
  requirements.txt Python
- COPY . .: .
- CMD ["flask", "run"]: flask run

3 docker-compose.yml

docker-compose.yml

docker-compose.yml

```
# yaml
version: '3'
services:
  web:
    build: .
    ports:
     - "5000:5000"
  redis:
    image: "redis:alpine"
```

Compose web redis

- web web Dockerfile 5000 Flask Web 5000
- redis redis Docker Hub Redis

4 Compose

```
docker-compose up
```

-d

```
docker-compose up -d
```

yml

version

yml compose

build

webapp ./dir/Dockerfile

```
version: "3.7"
services:
  webapp:
    build: ./dir
```

Dockerfile args

```
version: "3.7"
services:
  webapp:
    build:
      context: ./dir
      dockerfile: Dockerfile-alternate
      args:
        buildno: 1
      labels:
        - "com.example.description=Accounting webapp"
        - "com.example.department=Finance"
        - "com.example.label-with-empty-value"
      target: prod
```

- context
- dockerfile Dockerfile
- args
- labels

- target

cap_add cap_drop

```
cap_add:
  - ALL #

cap_drop:
  - SYS_PTRACE #    ptrace
```

cgroup_parent

    cgroup

```
cgroup_parent: m-executor-abcd
```

command

```
command: ["bundle", "exec", "thin", "-p", "3000"]
```

container_name

```
container_name: my-web-container
```

depends_on

- docker-compose up db redis web
- docker-compose up SERVICE SERVICE docker-compose up web db redi
- docker-compose stop web db redis

```
version: "3.7"
services:
  web:
    build: .
    depends_on:
      - db
      - redis
  redis:
```

```
    image: redis
  db:
    image: postgres
```

web redis db

deploy

swarm

```
version: "3.7"
services:
  redis:
    image: redis:alpine
    deploy:
      mode replicated
      replicas: 6
      endpoint_mode: dnsrr
      labels:
        description: "This redis service label"
      resources:
        limits:
          cpus: '0.50'
          memory: 50M
        reservations:
          cpus: '0.25'
          memory: 20M
      restart_policy:
        condition: on-failure
        delay: 5s
        max_attempts: 3
        window: 120s
```

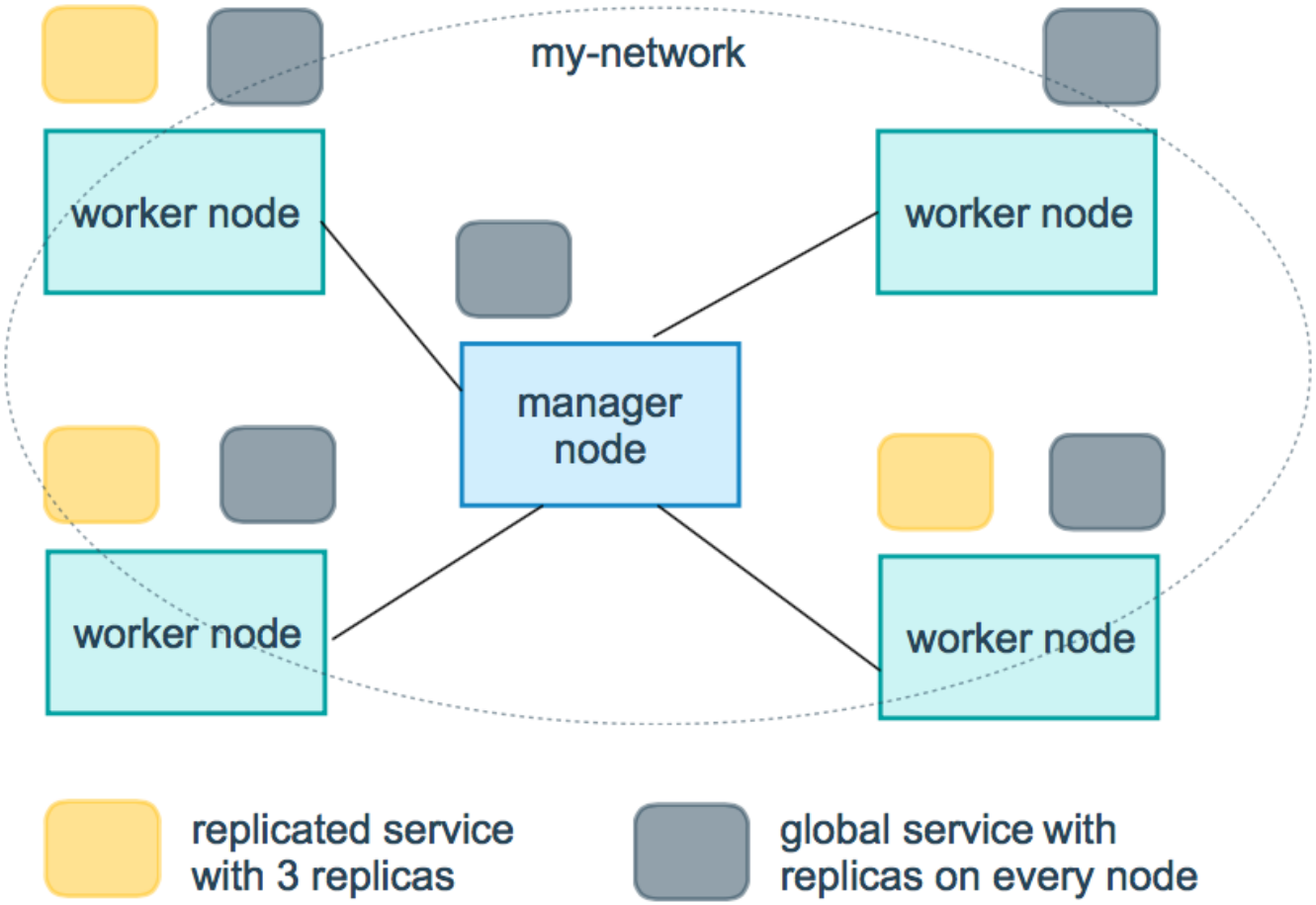
endpoint_mode

```
endpoint_mode: vip
# Docker           ip            ip
endpoint_mode: dnsrr
# DNS    DNSRR              ip       ip
```

labels labels deploy deploy labels

mode

- replicated
- global
- replicated global



replicas mode replicated

resources redis cpu

restart_policy

- condition none on-failure any any
- delay 0
- max_attempts
- window 0
- rollback_config
- parallelism 0
- delay 0s

- failure_action continue pause pause
- monitor (ns|us|ms|s|m|h) 0s
- max_failure_ratio 0
- order stop-first start-first stop-first
- update_config
- parallelism
- delay
- failure_action continue rollback pause pause
- monitor (ns|us|ms|s|m|h) 0s
- max_failure_ratio
- order stop-first start-first stop-first

V3.4

devices

```
devices:
  - "/dev/ttyUSB0:/dev/ttyUSB0"
```

dns

DNS

```
dns: 8.8.8.8


dns:
  - 8.8.8.8
  - 9.9.9.9
```

dns_search

DNS

```
dns_search: example.com


dns_search:
  - dc1.example.com
  - dc2.example.com
```

entrypoint

entrypoint

```
entrypoint: /code/entrypoint.sh
```

```
entrypoint:
    - php
    - -d
    - zend_extension=/usr/local/lib/php/extensions/no-debug-non-zts-20100525/xdebug.so
    - -d
    - memory_limit=-1
    - vendor/bin/phpunit
```

env_file

```
env_file: .env
```

```
env_file:
  - ./common.env
  - ./apps/web.env
  - /opt/secrets.env
```

environment

YML True False

```
environment:
  RACK_ENV: development
  SHOW: 'true'
```

expose

```
expose:
 - "3000"
 - "8000"
```

extra_hosts

docker client --add-host

```
extra_hosts:
 - "somehost: 162. 242. 195. 82"
 - "otherhost: 50. 31. 209. 229"
```

/etc/hosts ip

```
162. 242. 195. 82  somehost
50. 31. 209. 229   otherhost
```

healthcheck

docker

```
healthcheck:
  test: ["CMD", "curl", "-f", "http: //localhost"] #
  interval: 1m30s #
  timeout: 10s #
  retries: 3 #
  start_period: 40s #
```

image

```
image: redis
image: ubuntu: 14. 04
image: tutum/influxdb
image: example-registry. com: 4000/postgresql
image: a4bc65fd #   id
```

logging

driver json-file

```
driver: "json-file"
driver: "syslog"
driver: "none"
```

json-file

```
```

```
logging:
  driver: json-file
  options:
    max-size: "200k" #       200k
    max-file: "10" #   10
```

syslog syslog-address

```
logging:
  driver: syslog
  options:
    syslog-address: "tcp://192.168.0.42:123"
```

network_mode

```
network_mode: "bridge"
network_mode: "host"
network_mode: "none"
network_mode: "service:[service name]"
network_mode: "container:[container name/id]"
```

networks

networks

```
services:
  some-service:
    networks:
      some-network:
        aliases:
         - alias1
      other-network:
        aliases:
         - alias2
networks:
  some-network:
    # Use a custom driver
    driver: custom-driver-1
  other-network:
    # Use a custom driver which takes special options
```

```
    driver: custom-driver-2
```

aliases

restart

- no
- always
- on-failure 0
- unless-stopped Docker

```
restart: "no"
restart: always
restart: on-failure
restart: unless-stopped
```

swarm restart_policy

secrets

```
version: "3.1"
services:

mysql:
  image: mysql
  environment:
    MYSQL_ROOT_PASSWORD_FILE: /run/secrets/my_secret
  secrets:
    - my_secret

secrets:
  my_secret:
    file: ./my_secret.txt
```

security_opt

schema

```
security-opt
  - label:user:USER   #
```

```
  - label: role: ROLE    #
  - label: type: TYPE    #
  - label: level: LEVEL  #
```

stop_grace_period

SIGTERM (stop_signal) SIGKILL

```
stop_grace_period: 1s #    1
stop_grace_period: 1m30s #    1   30
```

10

stop_signal

SIGTERM

SIGUSR1 SIGTERM

```
stop_signal: SIGUSR1
```

sysctls

```
sysctls:
  net.core.somaxconn: 1024
  net.ipv4.tcp_syncookies: 0

sysctls:
  - net.core.somaxconn=1024
  - net.ipv4.tcp_syncookies=0
```

tmpfs

```
tmpfs: /run

tmpfs:
  - /run
  - /tmp
```

ulimits

ulimit

```
ulimits:
  nproc: 65535
  nofile:
    soft: 20000
    hard: 40000
```

volumes

```
version: "3.7"
services:
  db:
    image: postgres:latest
    volumes:
      - "/localhost/postgres.sock:/var/run/postgres/postgres.sock"
      - "/localhost/data:/var/lib/postgresql/data"
```

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