Cheat-Sheet: debian + docker + portainer + nginx → LAMP → SSL/TLS + load balancer (database query)

Debian Docker Cheat_Sheet_Docker gist_docker_code_examples Portainer nginx

Apache MySQL PHP

Dockerfile-php-mysqli

```
FROM php:apache-bullseye
LABEL maintainer="ricardofc <ricardofc.sistemas@gmail.com>"

##MySQLi
RUN docker-php-ext-install mysqli

##Apache2
RUN apt-get update \
 && apt-get -y install ssl-cert && make-ssl-cert generate-default-snakeoil \
 && a2dissite 000-default \
 && a2ensite default-ssl \
 && a2enmod ssl \
 && rm -rf /var/lib/apt/lists/*

##Packages
RUN apt-get update \
 && apt-get -y install vim iputils-ping iproute2 netcat \
 && rm -rf /var/lib/apt/lists/*

#Scripts
ENTRYPOINT apachectl -D FOREGROUND
```

Dockerfile-phpmyadmin

```
FROM phpmyadmin
LABEL maintainer="ricardofc <ricardofc.sistemas@gmail.com>"

##Apache2
RUN apt-get update \
 && apt-get -y install ssl-cert && make-ssl-cert generate-default-snakeoil \
 && a2dissite 000-default \
 && a2ensite default-ssl \
 && a2enmod ssl \
 && rm -rf /var/lib/apt/lists/*

##Packages
RUN apt-get update \
 && apt-get -y install vim iputils-ping iproute2 netcat \
 && rm -rf /var/lib/apt/lists/*
```
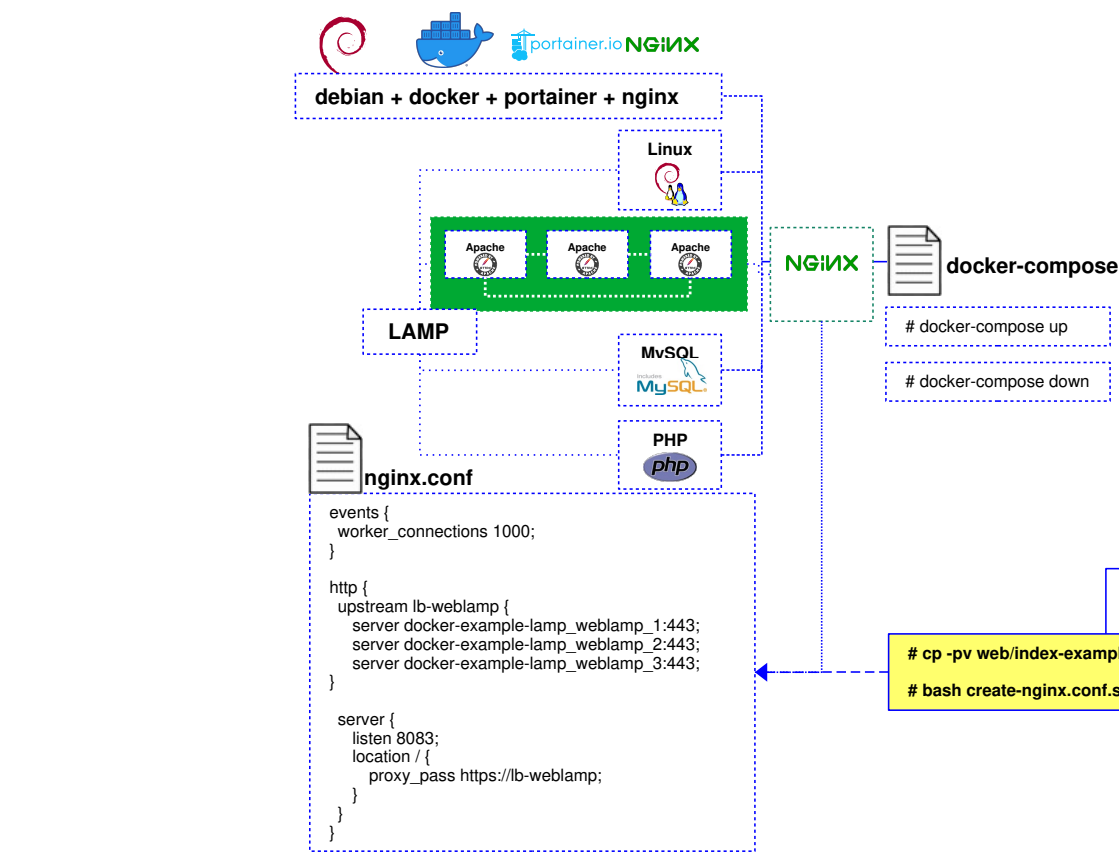
debian + docker + portainer + nginx

Linux

Apache Apache Apache

LAMP

MvSQL

PHP

nginx.conf

```
events {
  worker_connections 1000;
}

http {
  upstream lb-weblamp {
    server docker-example-lamp_weblamp_1:443;
    server docker-example-lamp_weblamp_2:443;
    server docker-example-lamp_weblamp_3:443;
  }

  server {
    listen 8083;
    location / {
      proxy_pass https://lb-weblamp;
    }
  }
}
```

docker-compose.yml

docker-compose up

docker-compose down

```
version: "3.1"
services:
#https://hub.docker.com/r/portainer/portainer-ce
  PORTAINER:
    image: portainer/portainer-ce:linux-amd64
    container_name: PORTAINER
    restart: always
    security_opt:
      - no-new-privileges:true
    ports:
      - "9443:9443"
    volumes:
      - /etc/localtime:/etc/localtime:ro
      - /var/run/docker.sock:/var/run/docker.sock:ro
      - portainer_data:/data

#https://hub.docker.com/_/mysql
  dbLAMP:
    image: mysql
    container_name: dbLAMP
    command: --default-authentication-plugin=mysql_native_password
    restart: always
    environment:
      MYSQL_DATABASE: "lamp"
      MYSQL_ROOT_PASSWORD: "abc123."
    volumes:
      - ./db:/docker-entrypoint-initdb.d
      - ./conf:/etc/mysql/conf.d
      - lib_data:/var/lib/mysql

#https://hub.docker.com/_/php
  weblamp:
    build:
      context: .
      dockerfile: Dockerfile-php
    restart: always
    expose:
      - "443"
    volumes:
      - ./web:/var/www/html
    links:
      - dbLAMP

#https://hub.docker.com/_/phpmyadmin
  phpmyadminlamp:
    build:
      context: .
      dockerfile: Dockerfile-phpmyadmin
    container_name: phpmyadminLAMP
    restart: always
    ports:
      - "8082:443"
    environment:
      PMA_HOST: dbLAMP

#https://hub.docker.com/_/nginx
  nginx:
    image: nginx:latest
    container_name: nginxLAMP
    volumes:
      - ./nginx.conf:/etc/nginx/nginx.conf:ro
    links:
      - weblamp
    ports:
      - "8083:8083"

volumes:
  lib_data:
  portainer_data:
```
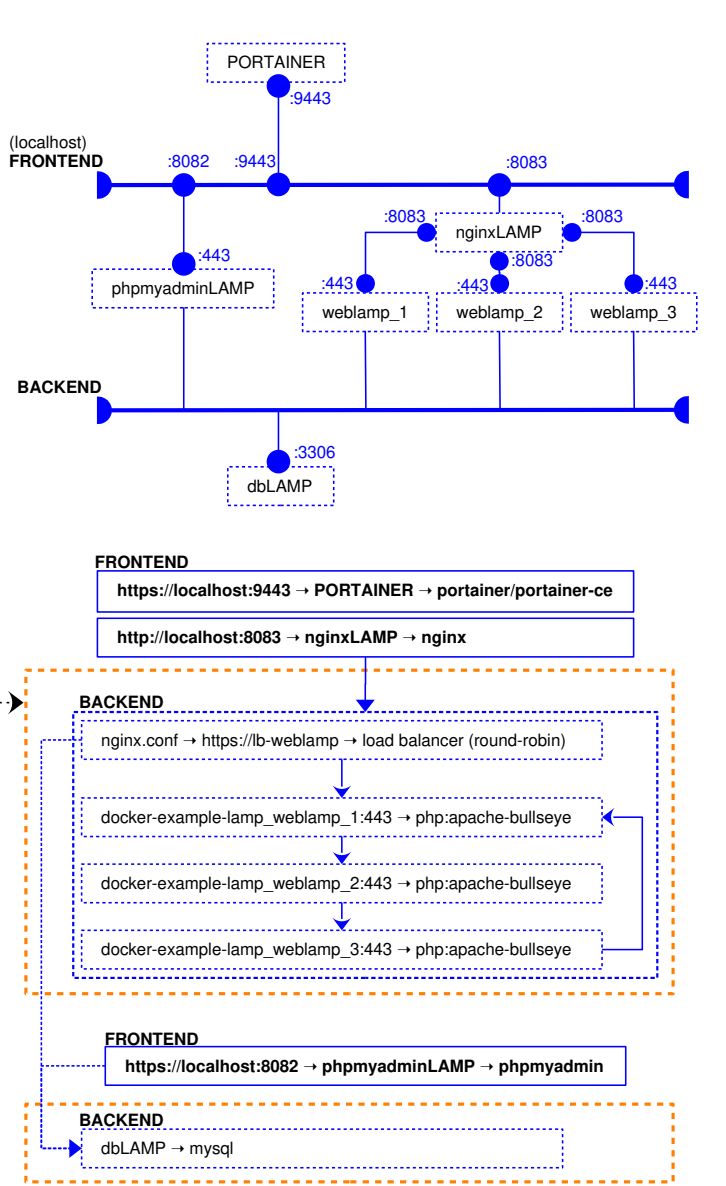
docker-compose-lamp-example5.yml

docker-compose -f docker-compose-lamp-example5.yml up –scale weblamp=3

docker-compose -f docker-compose-lamp-example5.yml down

cp -pv web/index-example5.php web/index.php

bash create-nginx.conf.sh weblamp 3

PORTAINER
:9443

(localhost)
FRONTEND :8082 :9443 :8083

:8083 nginxLAMP :8083

:443 :8083

phpmyadminLAMP :443 :443 :443

weblamp_1 weblamp_2 weblamp_3

BACKEND

:3306

dbLAMP

FRONTEND

https://localhost:9443 → PORTAINER → portainer/portainer-ce

http://localhost:8083 → nginxLAMP → nginx

BACKEND

nginx.conf → https://lb-weblamp → load balancer (round-robin)

docker-example-lamp_weblamp_1:443 → php:apache-bullseye

docker-example-lamp_weblamp_2:443 → php:apache-bullseye

docker-example-lamp_weblamp_3:443 → php:apache-bullseye

FRONTEND

https://localhost:8082 → phpmyadminLAMP → phpmyadmin

BACKEND

dbLAMP → mysql

Name	State ↓↑ Filter ▼	Quick Actions	Stack	Image	Created	IP Address	Published Ports
nginxLAMP	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	nginx:latest	2022-04-10 16:15:57	172.24.0.8	8083:8083
docker-example-lamp_weblamp_2	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	docker-example-lamp_weblamp	2022-04-10 16:15:56	172.24.0.6	-
docker-example-lamp_weblamp_3	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	docker-example-lamp_weblamp	2022-04-10 16:15:56	172.24.0.7	-
docker-example-lamp_weblamp_1	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	docker-example-lamp_weblamp	2022-04-10 16:15:55	172.24.0.5	-
phpmyadminLAMP	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	docker-example-lamp_phpmyadminlamp	2022-04-10 16:15:55	172.24.0.2	8082:443
PORTAINER	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	portainer/portainer-ce:linux-amd64	2022-04-10 16:15:55	172.24.0.3	9443:9443
dbLAMP	running	▣ ◎ ⯈ ▬ ▼	docker-example-lamp	mysql	2022-04-10 16:15:55	172.24.0.4	-