



docker



```
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```



## **[ - ] docker intro**

[ ] 底层基础: linux 的容器技术  
LXC (linux container)

[ ] 思想: 隔离、封装、重用

- PID namespace—Process identifiers and capabilities
- UTS namespace—Host and domain name
- MNT namespace—File system access and structure
- IPC namespace—Process communication over shared memory
- NET namespace—Network access and structure
- USR namespace—User names and identifiers
- chroot()—Controls the location of the file system root
- cgroups—Resource protection

[ ] 目标: Build, Ship and Run Any App, Anywhere

通过对应用组件的封装、分发、部署、运行等生命周期的管理, 达到应用组件级别的  
“一次封装, 到处运行”



## [ - ] why docker

### [ ] 对开发者而言

- 减少开发环境配置的麻烦
- 允许某些程序运行多个实例
- 软件升级方便
- 保持 host 整洁

### [ ] 对运维而言

- 减少部署的麻烦
- 保证开发环境，测试环境，生产环境一致



## [ - ] docker image

> docker images //list images

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
myxx	api-001	675f632f06c5	4 months ago	1.469 GB
myxx	init04	6457ab226ad8	4 months ago	1.339 GB
ubuntu	14.04	3876b81b5a81	5 months ago	187.9 MB

> docker history myxx:api-001 //list image history

IMAGE	CREATED	CREATED BY	SIZE	COMMENT
675f632f06c5	4 months ago	/bin/bash	130.4 MB	
6457ab226ad8	4 months ago	/bin/bash	130.1 MB	
e6a32b3631de	4 months ago	/bin/bash	130.3 MB	
5e01953fd880	4 months ago	/bin/bash	130.1 MB	
54cdf1ba1e7	4 months ago	/bin/bash	135.7 MB	
d23be72751ec	4 months ago		812.7 MB	Imported from -



## **[ - ] docker image**

```
> docker inspect myxx:api-001    //show image details
```

```
"Id": "sha256:675f632f06c536705a83c0a8c893b31d4ef12faf428f42a9b01fd50ea4aecbe0",
"RepoTags": [
  "myxx:api-001"
],
"RepoDigests": [],
"Parent": "sha256:6457ab226ad8adc048010a3c0f8a6b6ee83c55218ac28a7df561f6d59b1b7017",
"Comment": "",
"Created": "2016-02-19T08:57:16.918417564Z",
"Container": "6e5cc22100262e4108311fe46c917c16294e291802cc284dbd4f4ee03e77cd5d",
"ContainerConfig": {
  "Hostname": "6e5cc2210026",
  "Domainname": "",
  "User": "",
  . . .
```



## **[ - ] docker image**

get image:

- 1> `docker pull ubuntu:14.04` //get image from hub
- 2> `docker load < ubuntu.tar` //load image from tar
- 3> `docker import ubuntu.tar` //create image from tar



## **[ - ] docker image**

create image:

- 1> `docker commit c-name img-name` //save container as image
- 2> `docker build` //create image from dockerfile
- 3> `docker import ubuntu.tar` //create image from tar



## **[ - ] docker image**

build from dockerfile

[1] create a clean dir, include dockerfile & .dockerignore

[2] write dockerfile

[3] docker build -t myxx/api-002

[4] docker push myxx/api-002



## `[-] docker image`

`dockerfile`

`can be resigned by run`

<code>FROM</code>	<code>RUN</code>
	<code>COPY</code>
<code>MAINTAINER</code>	<code>ADD</code>
<code>USER</code>	<code>ONBUILD</code>
<code>VOLUME</code>	
<code>WORKDIR</code>	<code>ENTRYPOINT</code>
<code>ENV</code>	<code>CMD</code>
<code>EXPOSE</code>	

<code>USER</code>
<code>VOLUME</code>
<code>WORKDIR</code>
<code>ENV</code>
<code>EXPOSE</code>
<code>ENTRYPOINT</code>
<code>CMD</code>



## **[ - ] docker image**

dockerfile

```
FROM dockerinaction/mailer-base:0.6
ADD [ "./live-impl", "${APPROOT}" ]
RUN apt-get update && \
    apt-get install -y curl python && \
    curl "https://bootstrap.pypa.io/get-pip.py" -o "get-pip.py" && \
    python get-pip.py && \
    pip install awscli && \
    rm get-pip.py && \
    chmod a+x "${APPROOT}/${APP}"
RUN apt-get install -y netcat
USER example:example
CMD [ "mailer@dockerinaction.com", "pager@dockerinaction.com" ]
```



# [ - ] docker container

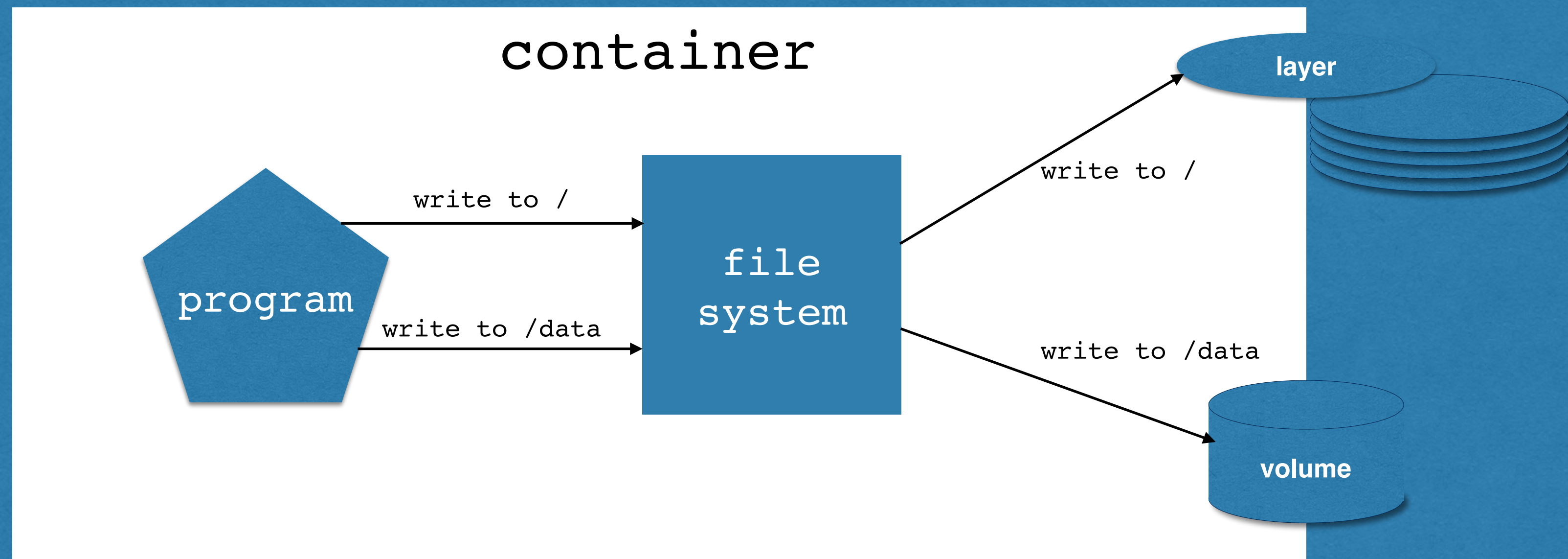
> docker ps -a //list containers

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
7078647de7cc	myxx:api-001	"/bin/bash"	11 weeks ago	Up 5 days	.. .	lf
05dea6183e6d	myxx:api-001	"/bin/bash"	3 months ago	Up 2 days	.. .	zx_docker
3617374baf9c	myxx:api-001	"/bin/bash"	4 months ago	Up 12 days	.. .	zl_console
07d24023137a	myxx:api-001	"/bin/bash"	4 months ago	Up 11 days	.. .	jc
48f63ec03ca4	myxx:api-001	"/bin/bash"	4 months ago	Up 12 days	.. .	zl
72cbfd13c2e8	myxx:api-001	"/bin/bash"	4 months ago	Up 4 hours	.. .	tony
05dea6183e6d	myxx:api-001	"/bin/bash"	3 months ago	Up 2 days	.. .	zx_docker
709b86d5197c	myxx:api-001	"/bin/bash"	4 months ago	Exited 2 weeks ago		jctest



## [-] docker container

volume





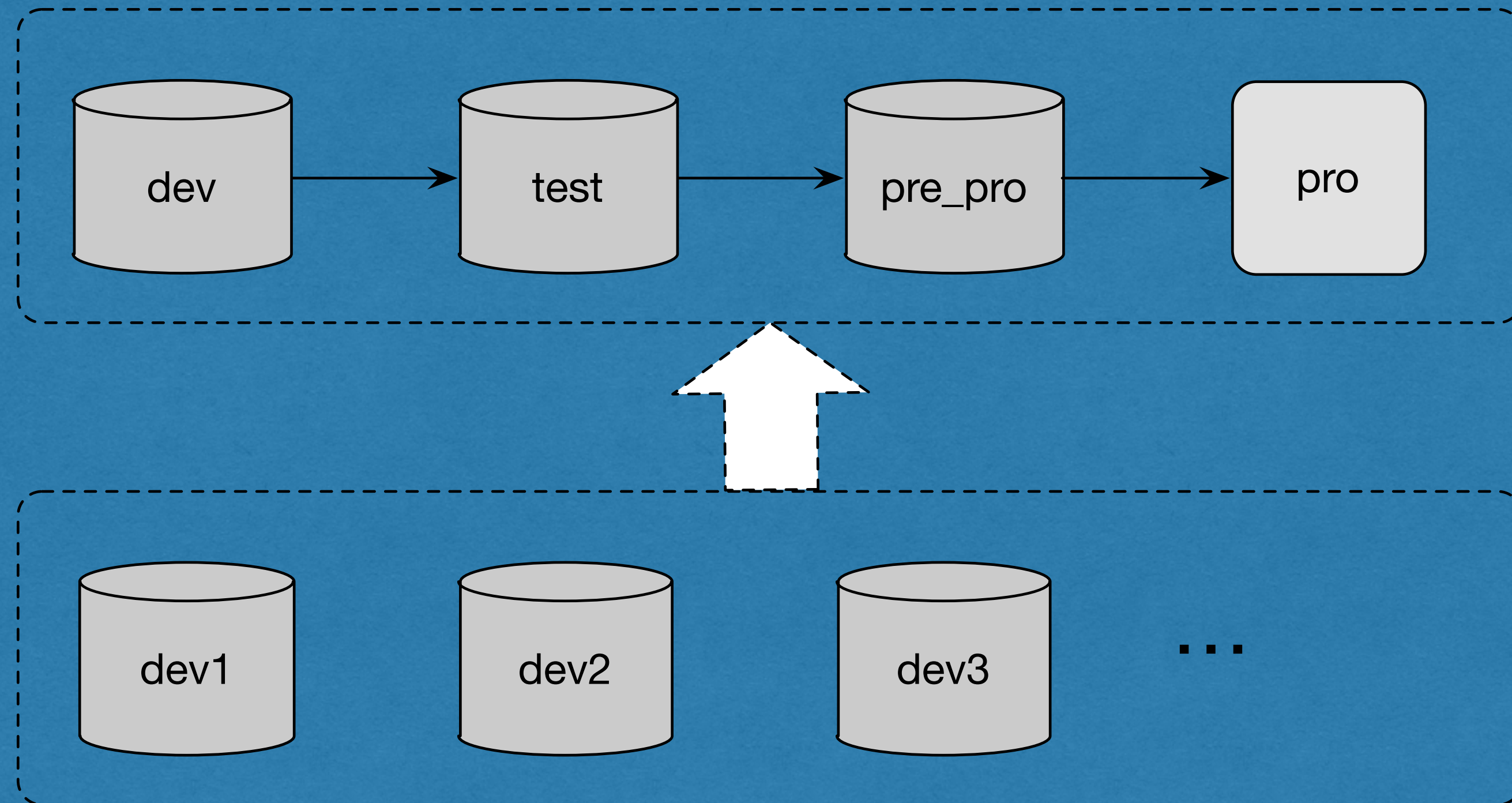
## **[ - ] docker container**

```
> docker run \           //create a container and run it
  -d \                   //detach mode
  --rm \                  //auto remove container when container stops
  --name zlf \            //readable name for container
  -v /home/zlf/myxx:/data/myxx \      //volume map
  -v /home/zlf/logs:/home/logs \      //volume map
  -v /home/zlf/mysql:/var/lib/mysql \ //volume map
  -P \                     //auto port map
  -w /data/myxx \          //set workdir
  myxx:api-002             //image name

> docker rm zlf
```

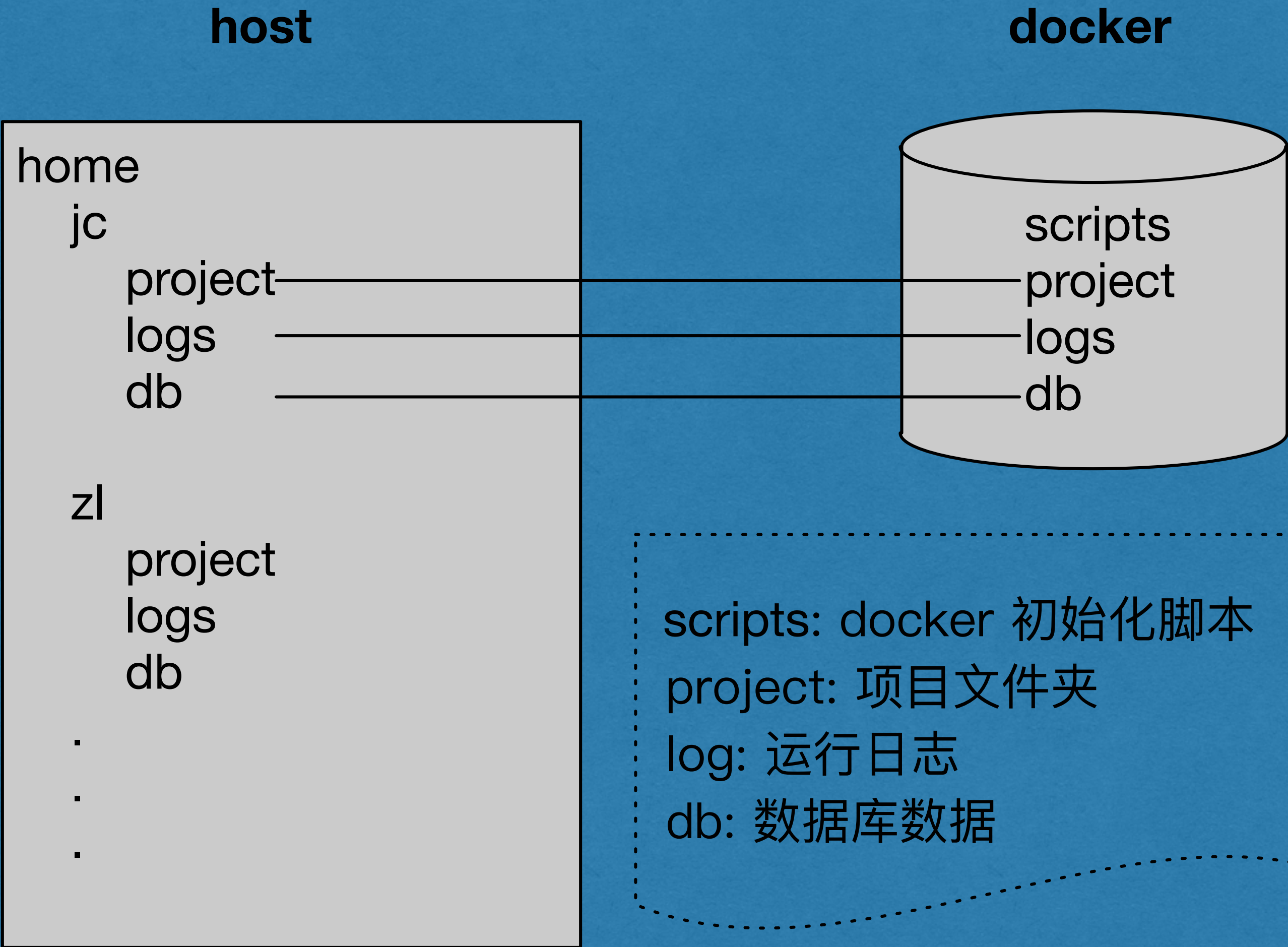


## `[-] workflow`



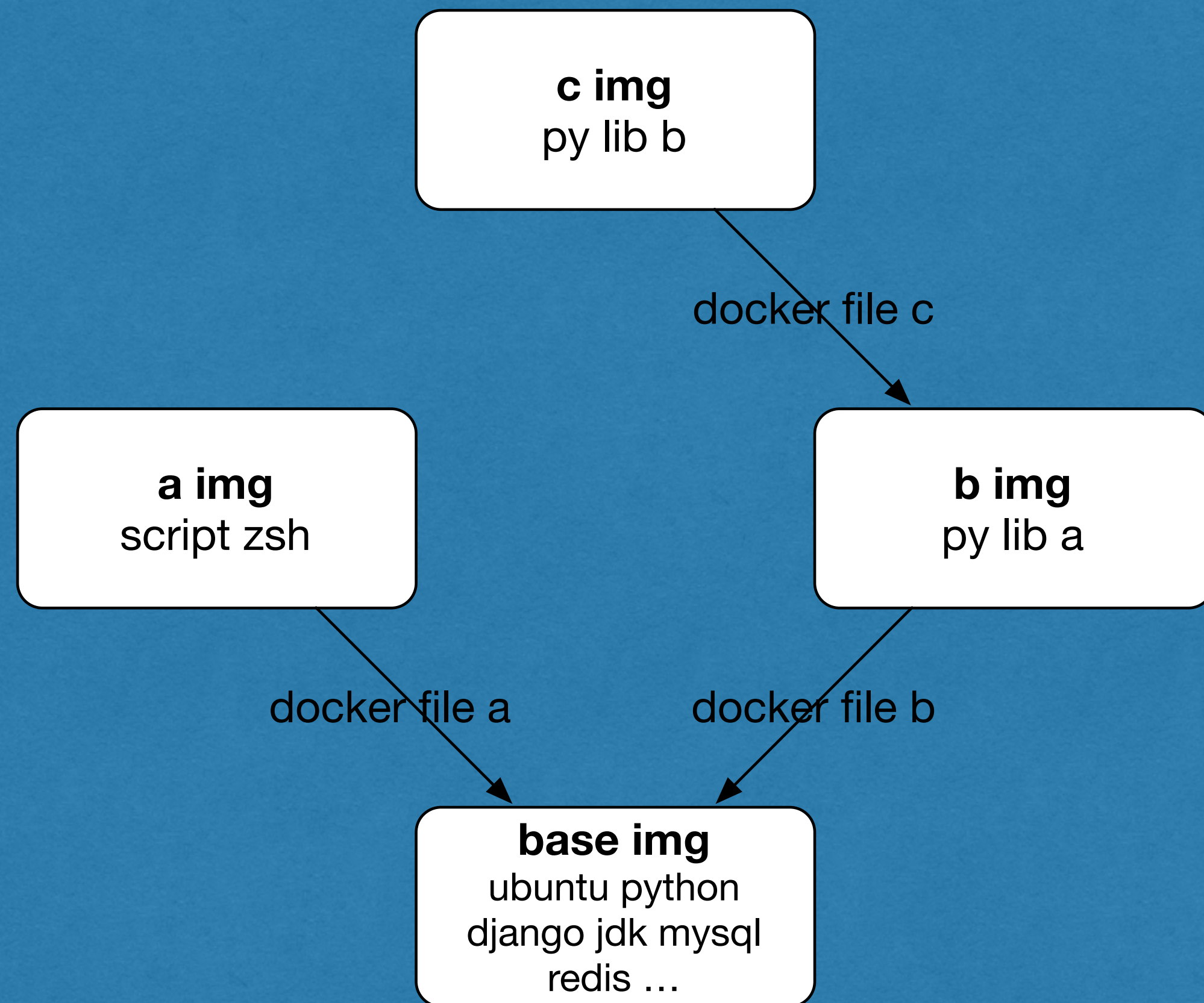


[ - ] workflow





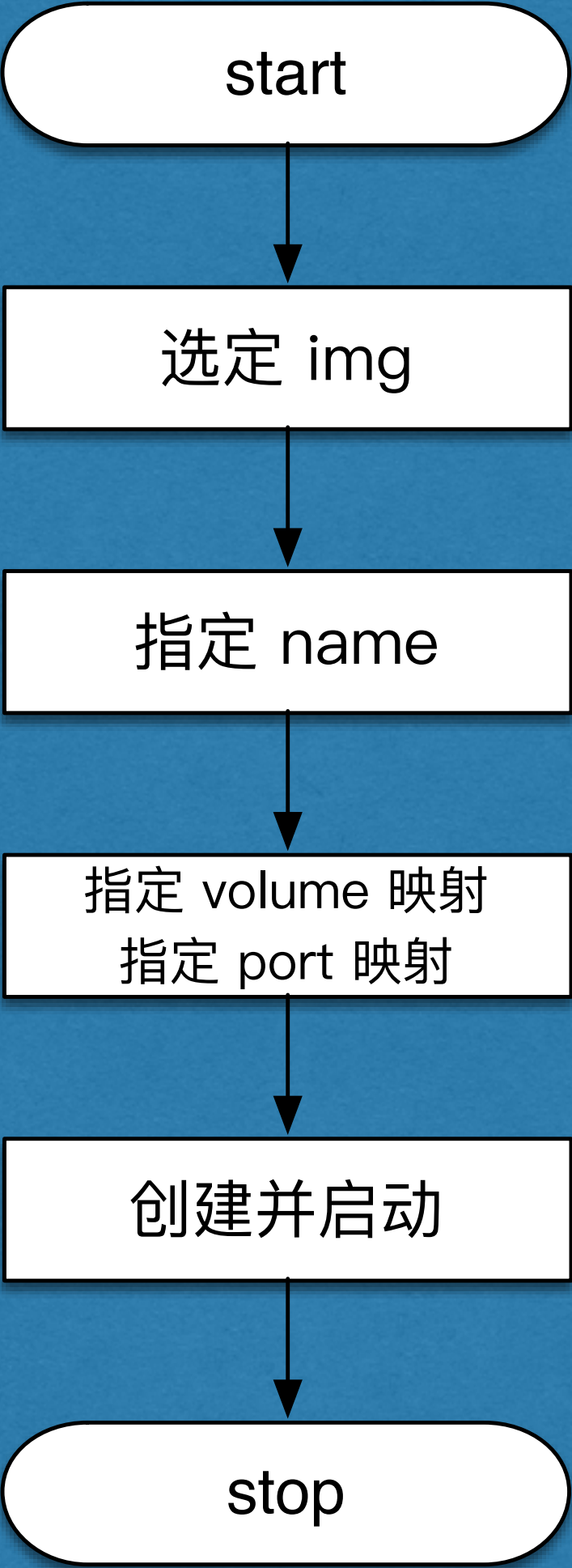
## [ - ] workflow



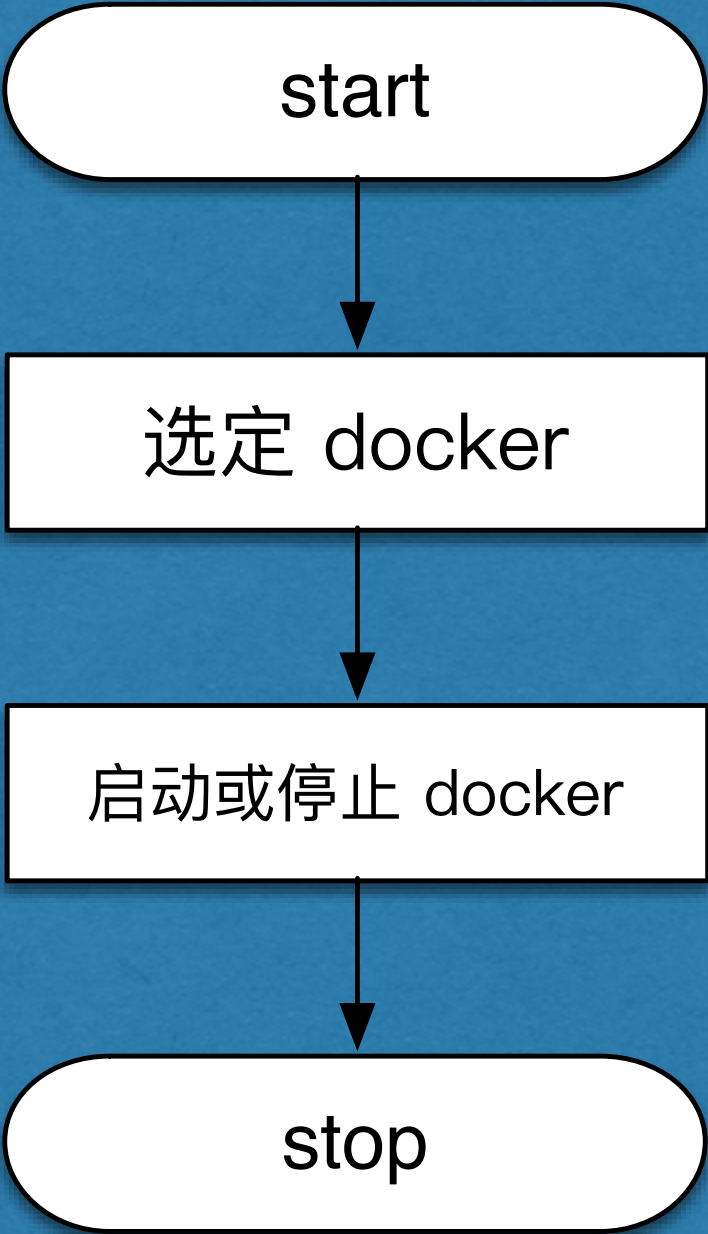


[ - ] workflow

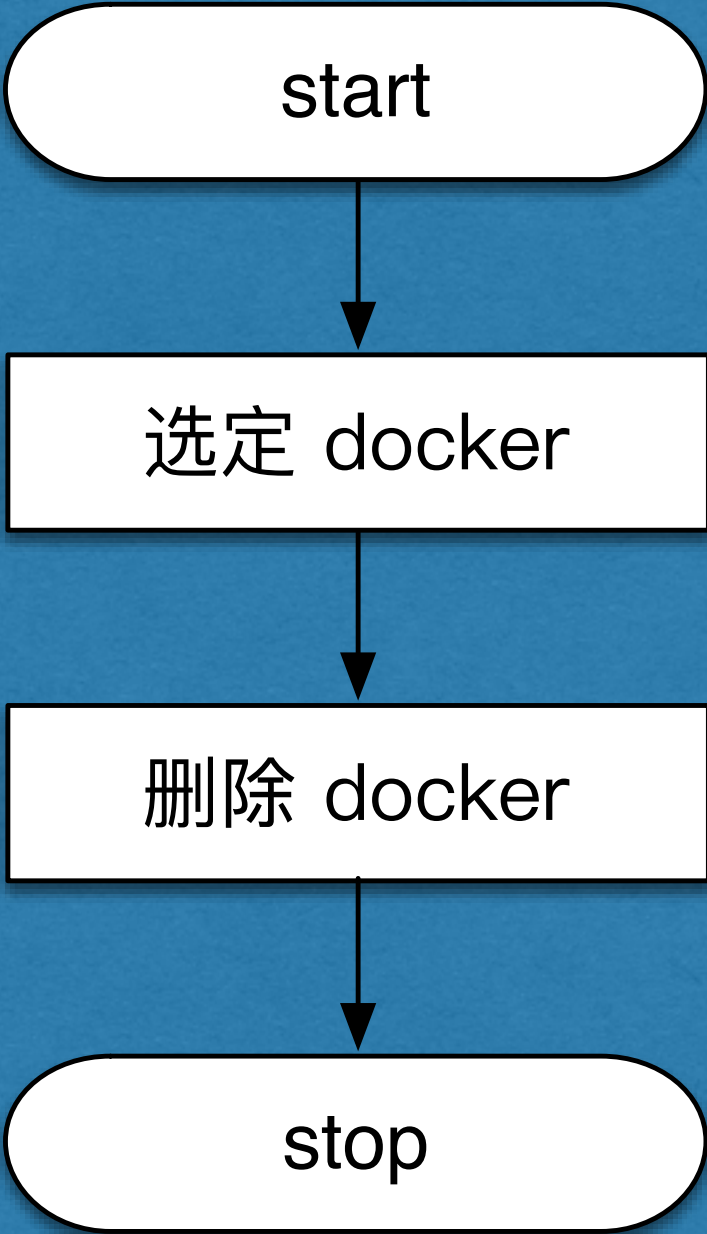
新增容器



启停容器



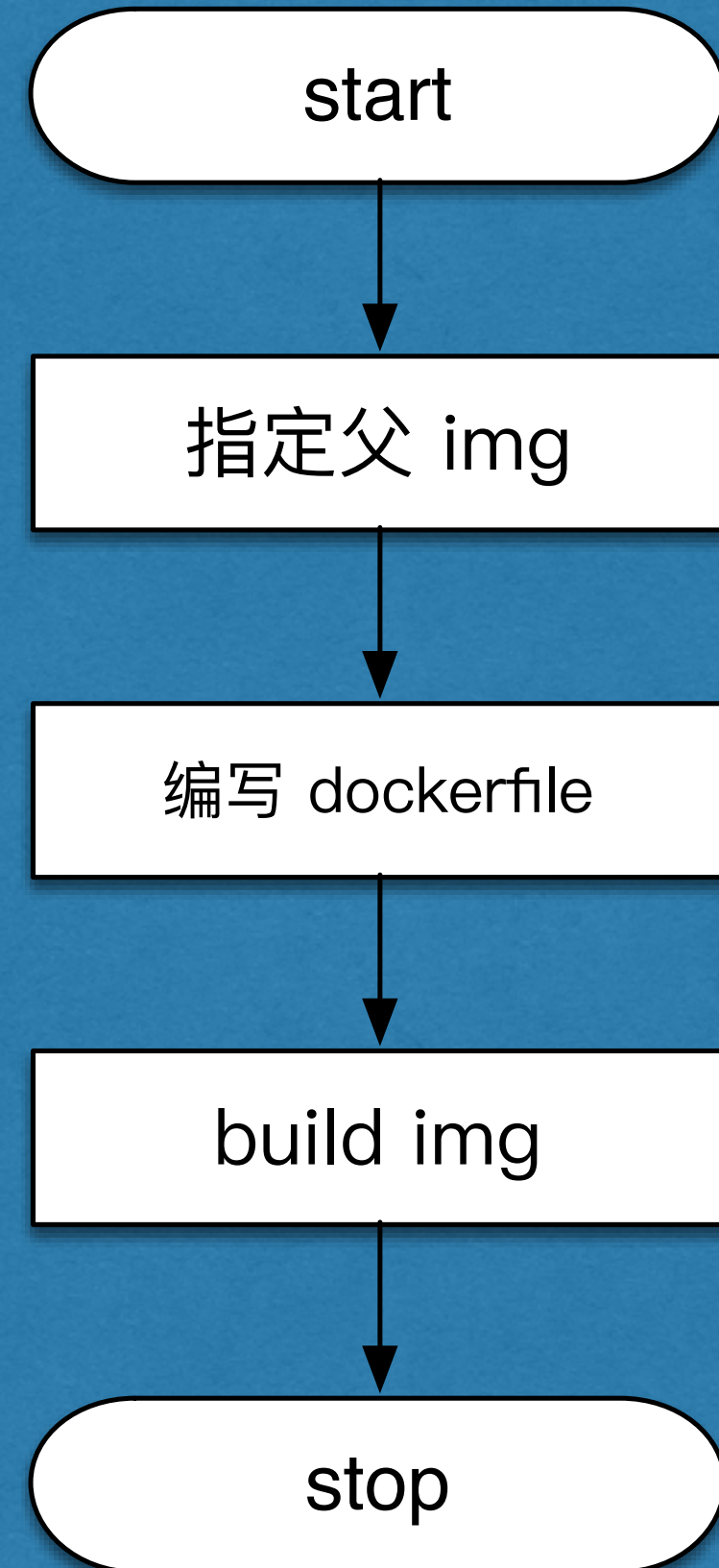
删除容器



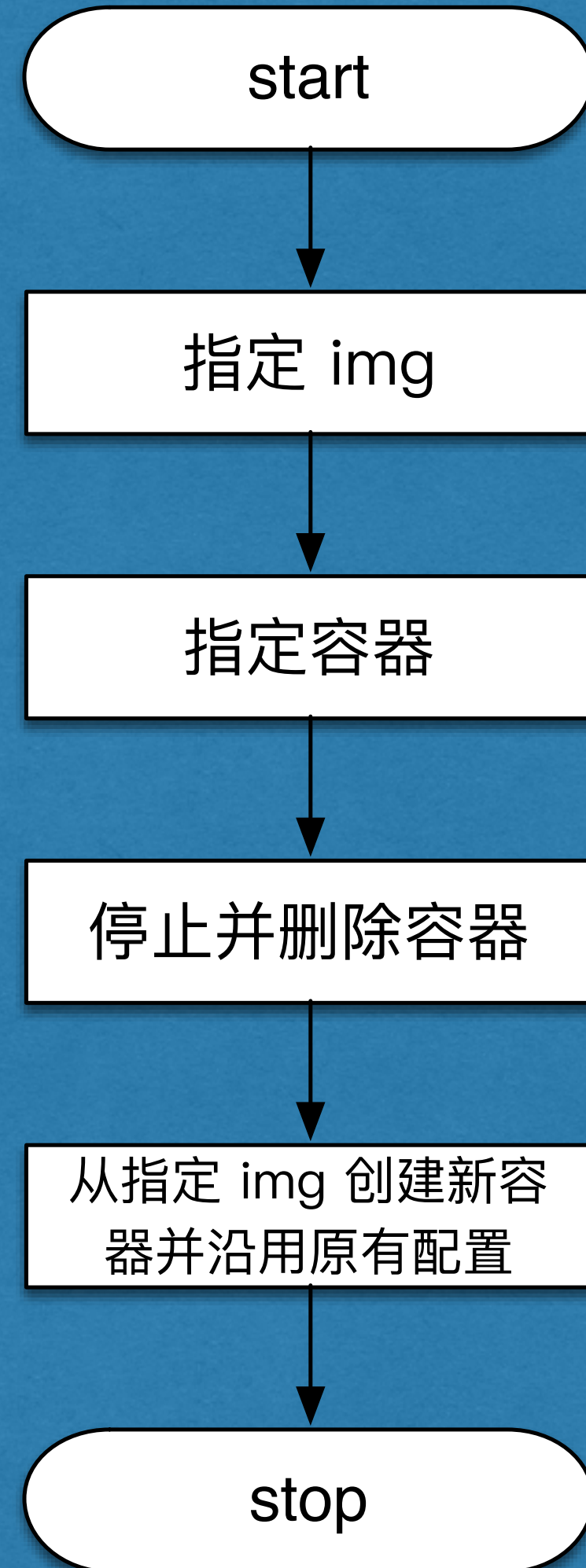


## [ - ] workflow

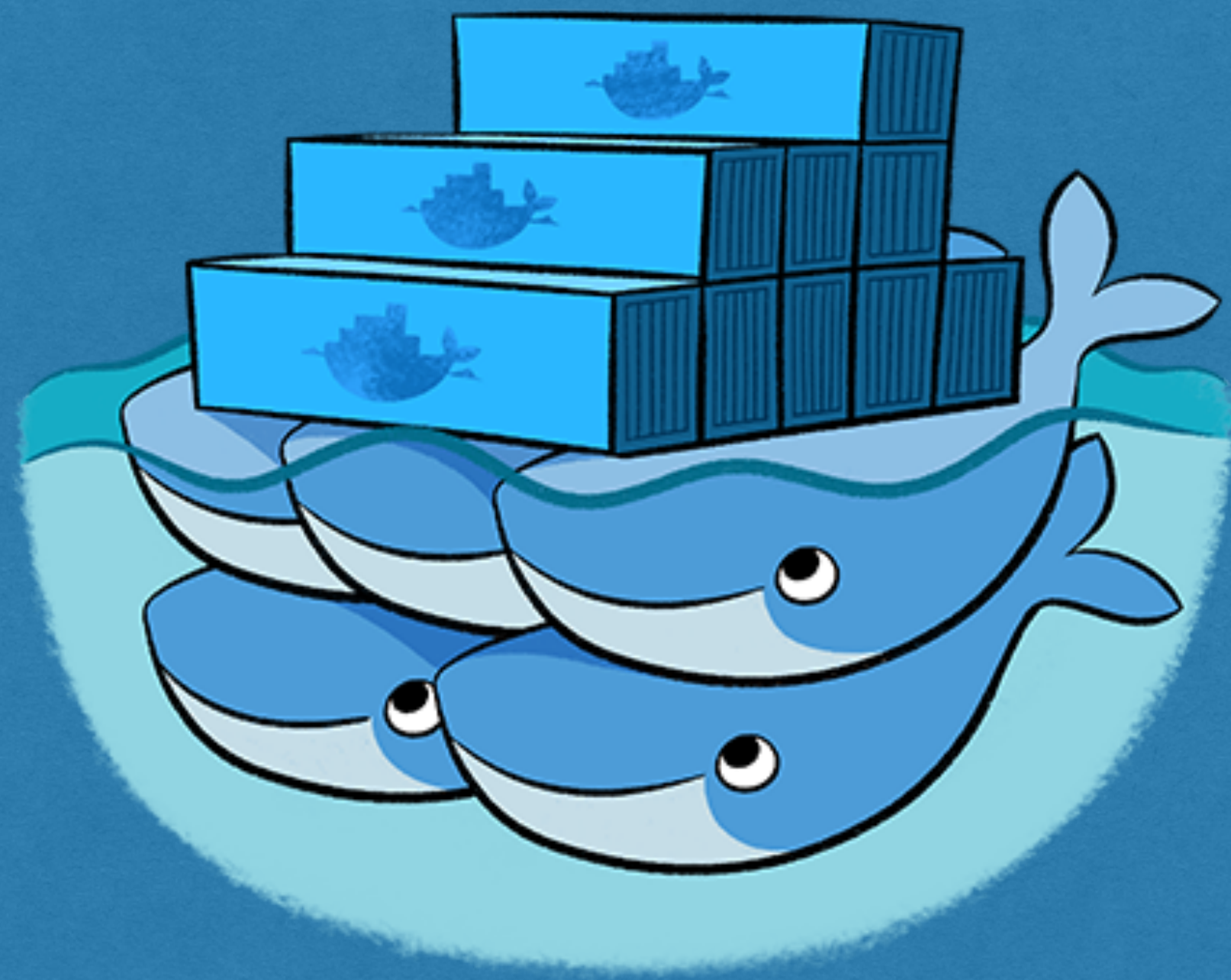
新增 img



更新容器







cluster ... ?