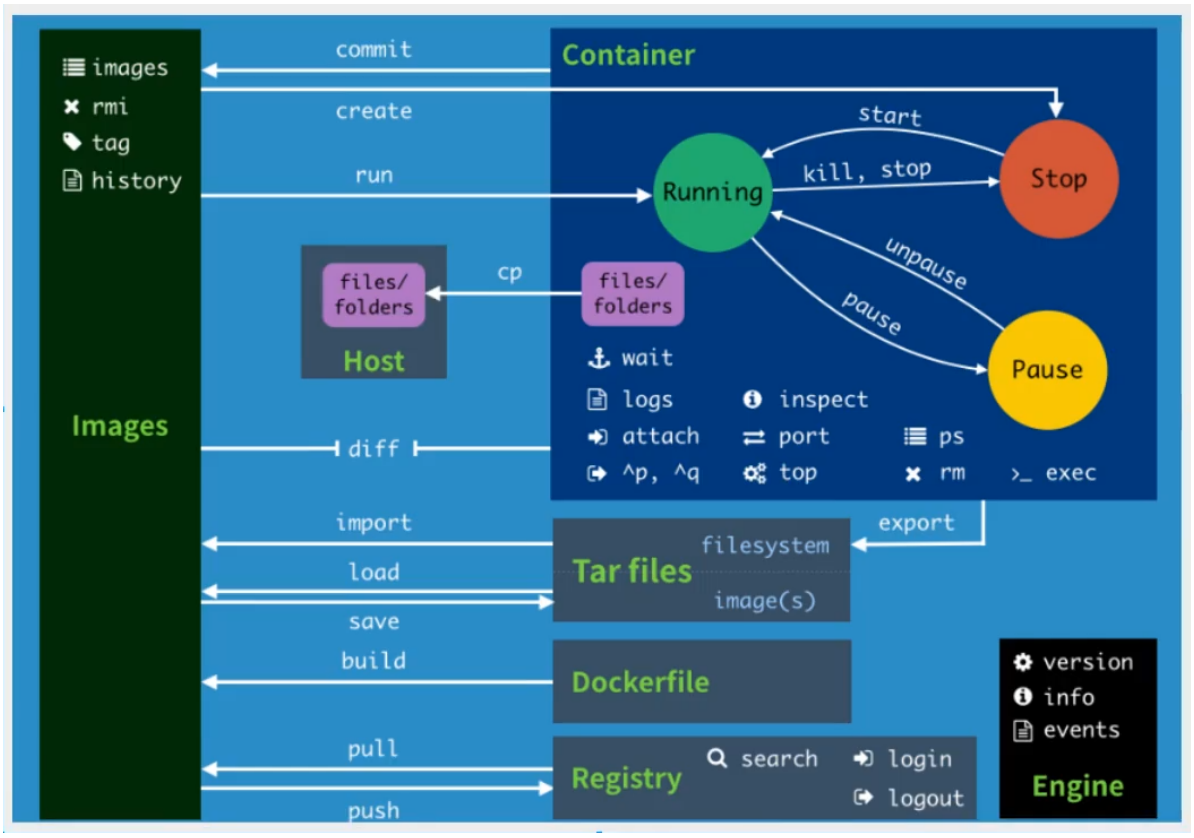
# Docker

DockerHub: https://hub.docker.com/

帮助文档地址：https://docs.docker.com/



## 卸载旧版本

```
yum remove docker \
                  docker-client \
                  docker-client-latest \
                  docker-common \
                  docker-latest \
                  docker-latest-logrotate \
                  docker-logrotate \
                  docker-engine
```

## 需要的安装包

```
yum install -y yum-utils
```

## 设置镜像仓库

```
yum-config-manager \--add-repo \https://download.docker.com/linux/centos/docker-
ce.repo (外网)

yum-config-manager \--add-repo \http://mirrors.aliyun.com/docker-
ce/linux/centos/docker-ce.repo(阿里云)
```

# 安装相关 docker-ce社区有

```
yum install docker-ce docker-ce-cli containerd.io
```

# 启动 Docker

## systemctl start docker

```
systemctl start docker

查看 版本
docker version
```

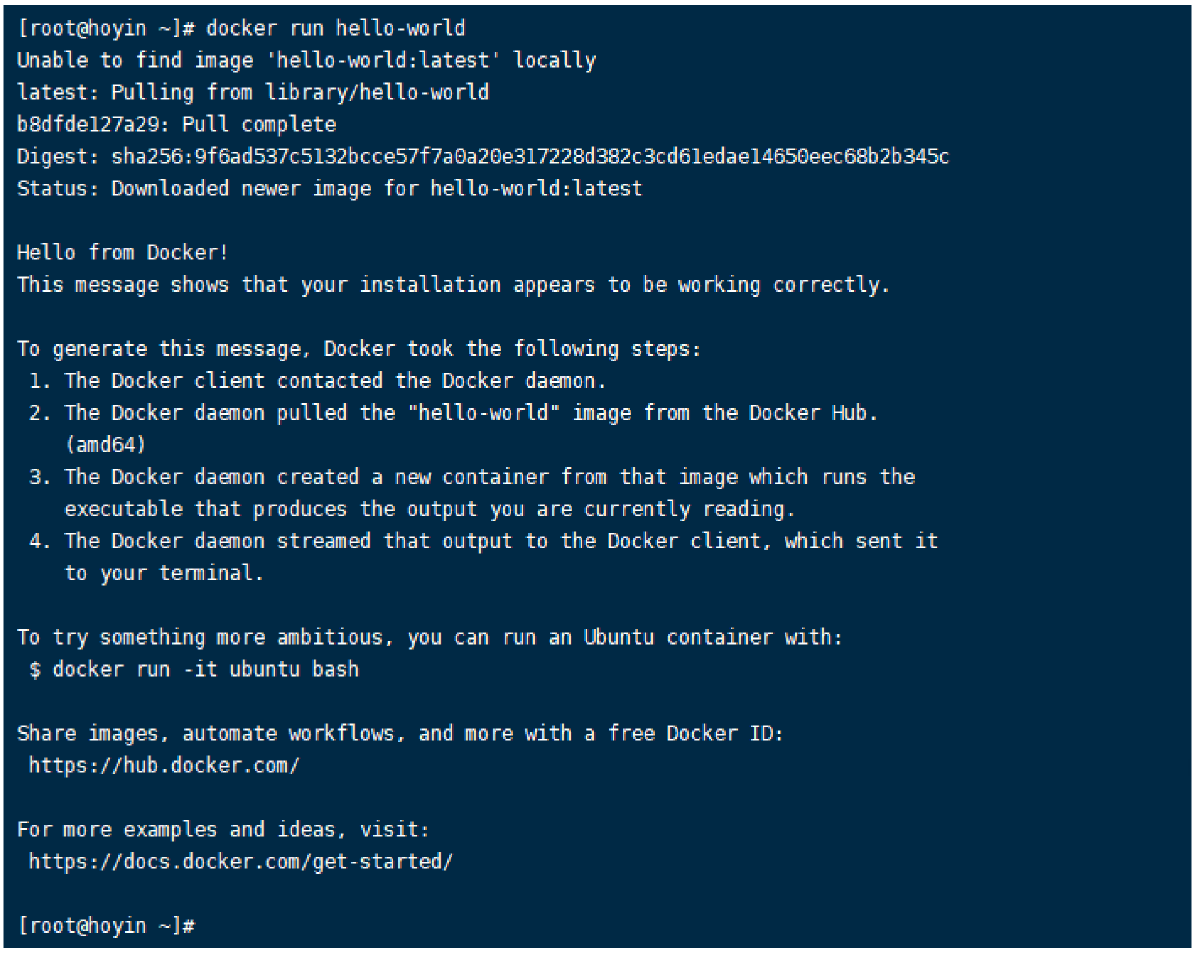
# 重启动 Docker

## systemctl restart docker

```
systemctl restart docker

查看 版本
docker version
```

# Hello-World

```
docker run hello-world
```



```
[root@hoyin ~]# docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
b8dfde127a29: Pull complete
Digest: sha256:9f6ad537c5132bcce57f7a0a20e317228d382c3cd61edae14650eec68b2b345c
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/

For more examples and ideas, visit:
 https://docs.docker.com/get-started/

[root@hoyin ~]#
```

# 查看镜像

```
docker images
```

# 卸载docker

## yum remove docker-ce docker-ce-cli containerd.io

```
yum remove docker-ce docker-ce-cli containerd.io

删除 资源
rm -rf /var/lib/docker

rm -rf /var/lib/containerd
```

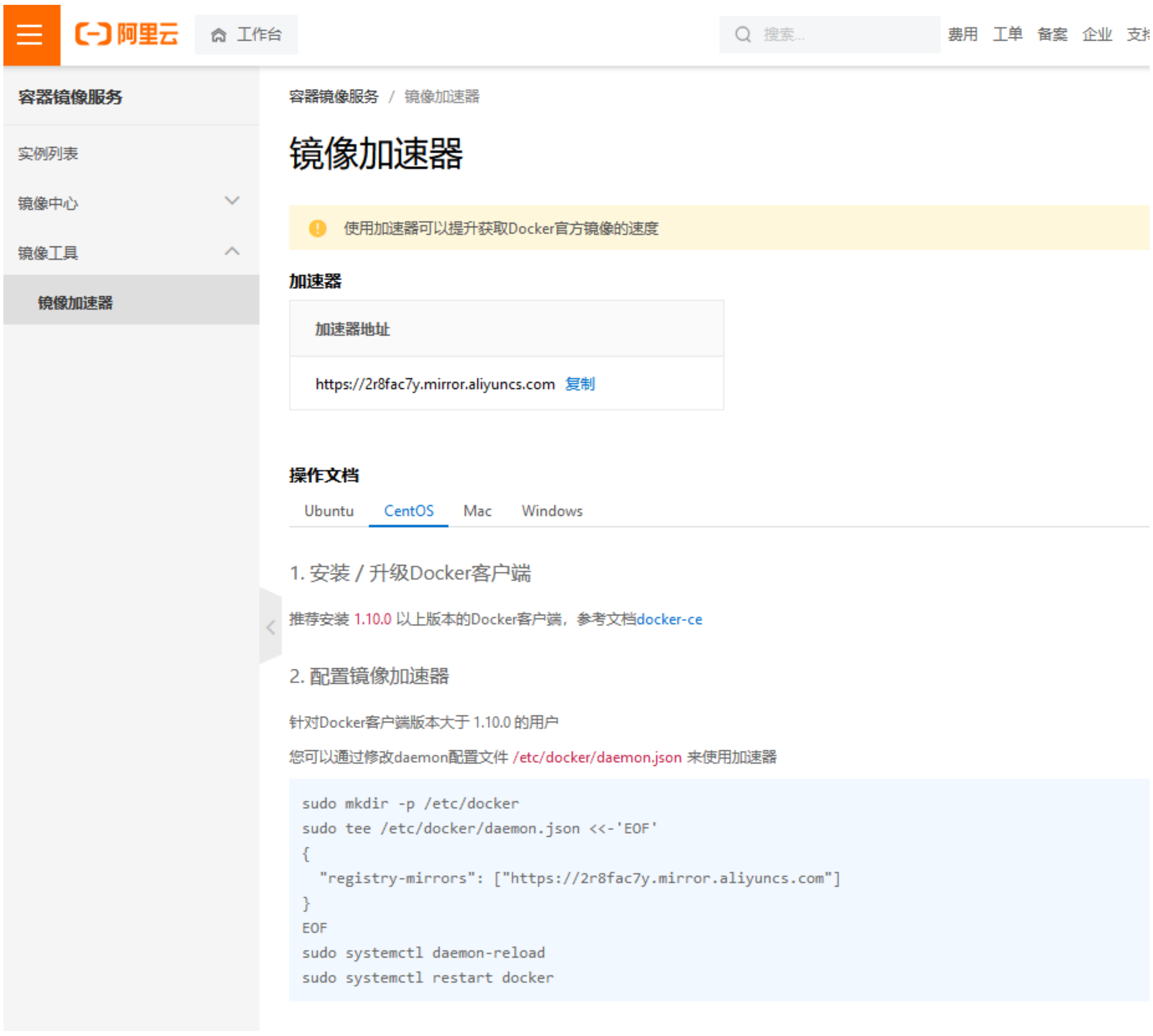
# 配置阿里云镜像加速

阿里云

容器镜像服务

镜像工具

镜像加速器



镜像加速器

使用加速器可以提升获取Docker官方镜像的速度

加速器

加速器地址

https://2r8fac7y.mirror.aliyuncs.com 复制

操作文档

Ubuntu CentOS Mac Windows

1. 安装 / 升级Docker客户端

推荐安装 1.10.0 以上版本的Docker客户端，参考文档docker-ce

2. 配置镜像加速器

针对Docker客户端版本大于 1.10.0 的用户

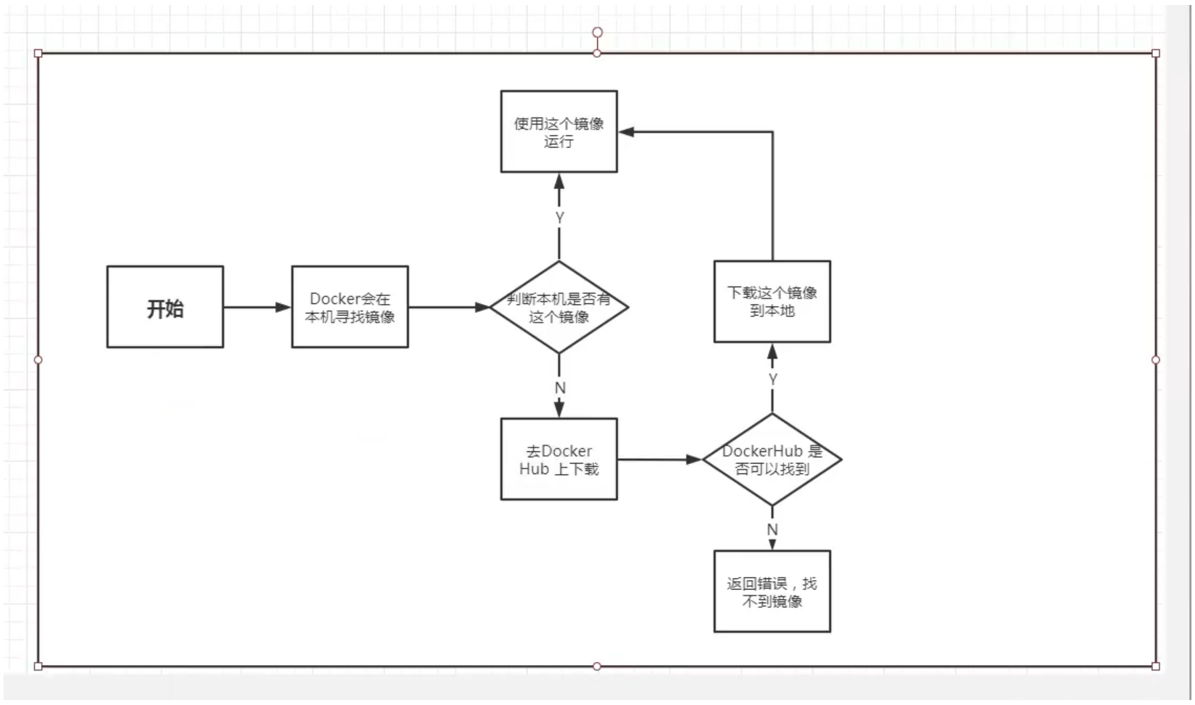
您可以通过修改daemon配置文件 /etc/docker/daemon.json 来使用加速器

```
sudo mkdir -p /etc/docker
sudo tee /etc/docker/daemon.json <<-'EOF'
{
  "registry-mirrors": ["https://2r8fac7y.mirror.aliyuncs.com"]
}
EOF
sudo systemctl daemon-reload
sudo systemctl restart docker
```

配置使用

```
sudo mkdir -p /etc/docker


sudo tee /etc/docker/daemon.json <<-'EOF'
{
  "registry-mirrors": ["https://2r8fac7y.mirror.aliyuncs.com"]
}
EOF


sudo systemctl daemon-reload


sudo systemctl restart docker
```

## docker run

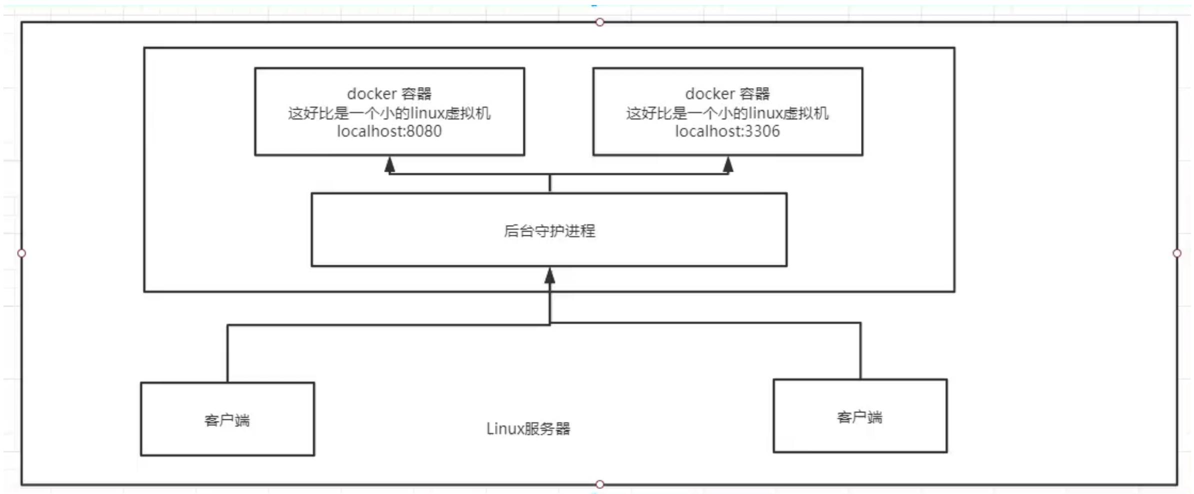


## 底层原理

### Docker 是怎么工作的?

Docker 是一个Client-Server 结构的系统，Docker的守护进程运行再主机上。通过Socket从客户端访问！

DockerServer 接收到Docker-Client的指令，就会执行这个命令！



### Docker 为啥比VM快

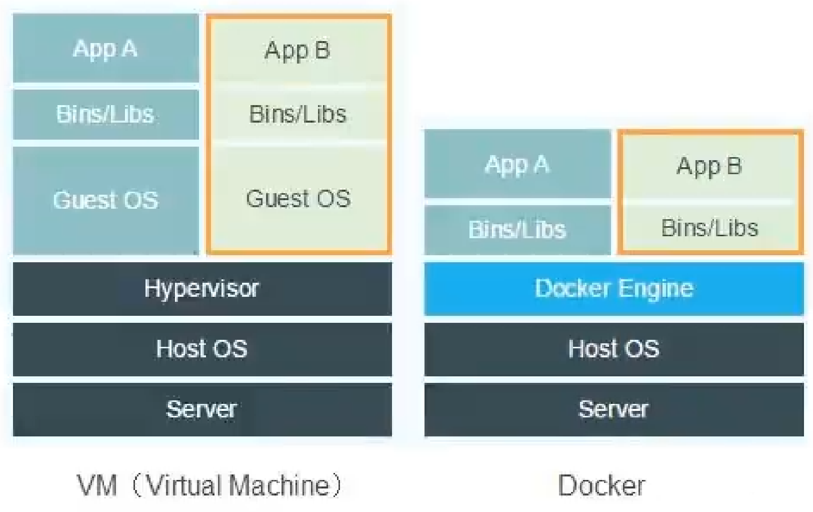
1 .Docker有着比虚拟机更少的抽象层

2 .Docker利用的是宿主机的内核，vm需要的是Guest Os.

所以，新建一个容器的时候：

虚拟机是加载Guest Os,分钟级！

Docker不需要像虚拟机一样重新加载一个操作系统的内核，避免引导。而Docker利用的是宿主机的操纵系统。省略了这个复杂的过程，秒级！



---

# Docker 常用命令

## 帮助命令

```
docker version      #显示版本信息
docker info         #显示系统信息
docker 命令 --help    #帮助命令
```

帮助文档地址：[https://docs.docker.com/reference/](https://docs.docker.com/reference/)

---

## 镜像命令

### docker images 镜像列表

查看所有本地的主机上的镜像

```
[root@hoyin ~]# docker images
REPOSITORY     TAG       IMAGE ID       CREATED        SIZE
hello-world    latest    d1165f221234   3 months ago   13.3kB
```

```
#
REPOSITORY  镜像的仓库源
TAG         镜像标签
IMAGE ID    镜像id
CREATED     创建时间
SIZE        大小
# 可选项
  -a, --all             Show all images (default hides intermediate images)
      --digests         Show digests
  -f, --filter filter   Filter output based on conditions provided
      --format string   Pretty-print images using a Go template
      --no-trunc        Don't truncate output
  -q, --quiet           Only show image IDs

docker images -aq
```

## docker search 镜像搜索

```
[root@hoyin ~]# docker search mysql
NAME                              DESCRIPTION
STARS     OFFICIAL   AUTOMATED
mysql                             MySQL is a widely used, open-source relation…
11023     [OK]
mariadb                           MariaDB Server is a high performing open sou…
4177      [OK]
# 可选项

```

## docker pull 下载镜像

下载镜像 docker pull 镜像名字[:tag]

**docker pull mysql**

```
[root@hoyin ~]# docker pull mysql
Using default tag: latest # #不写默认最新 latest
latest: Pulling from library/mysql
69692152171a: Pull complete  #分层下载
1651b0be3df3: Pull complete
951da7386bc8: Pull complete
0f86c95aa242: Pull complete
37ba2d8bd4fe: Pull complete
6d278bb05e94: Pull complete
497efbd93a3e: Pull complete
f7fddf10c2c2: Pull complete
16415d159dfb: Pull complete
0e530ffc6b73: Pull complete
b0a4a1a77178: Pull complete
cd90f92aa9ef: Pull complete
Digest: sha256:d50098d7fcb25b1fcb24e2d3247cae3fc55815d64fec640dc395840f8fa80969
Status: Downloaded newer image for mysql:latest
docker.io/library/mysql:latest #真实地址
```

**#等价**

```
docker pull mysql === docker pull docker.io/library/mysql:latest
```

**#tag  docker pull mysql:5.7**

```
[root@hoyin ~]# docker pull mysql:5.7
5.7: Pulling from library/mysql
69692152171a: Already exists
1651b0be3df3: Already exists
951da7386bc8: Already exists
0f86c95aa242: Already exists
37ba2d8bd4fe: Already exists
6d278bb05e94: Already exists
497efbd93a3e: Already exists
a023ae82eef5: Pull complete
e76c35f20ee7: Pull complete
e887524d2ef9: Pull complete
ccb65627e1c3: Pull complete
Digest: sha256:a682e3c78fc5bd941e9db080b4796c75f69a28a8cad65677c23f7a9f18ba21fa
Status: Downloaded newer image for mysql:5.7
docker.io/library/mysql:5.7
```

## docker rmi 删除镜像

```
docker rmi -f 容器Id                    #删除指定的容器

docker rmi -f 容器Id 容器Id 容器Id     #删除多个容器

docker rmi -f $(docker images -aq)   #删除全部容器
```

**docker rmi -f  imageId**

```
[root@hoyin ~]# docker rmi -f 2c9028880e58
Untagged: mysql:5.7
Untagged:
mysql@sha256:a682e3c78fc5bd941e9db080b4796c75f69a28a8cad65677c23f7a9f18ba21fa
Deleted: sha256:2c9028880e5814e8923c278d7e2059f9066d56608a21cd3f83a01e3337bacd68
Deleted: sha256:c49c5c776f1bc87cdfff451ef39ce16a1ef45829e10203f4d9a153a6889ec15e
Deleted: sha256:8345316eca77700e62470611446529113579712a787d356e5c8656a41c244aee
Deleted: sha256:8ae51b87111404bd3e3bde4115ea2fe3fd2bb2cf67158460423c361a24df156b
Deleted: sha256:9d5afda6f6dcf8dd59aef5c02099f1d3b3b0c9ae4f2bb7a61627613e8cdfe562
```

**docker rmi -f $(docker images -aq)**

```
[root@hoyin ~]# docker rmi -f $(docker images -aq)
Untagged: mysql:latest
Untagged:
mysql@sha256:d50098d7fcb25b1fcb24e2d3247cae3fc55815d64fec640dc395840f8fa80969
Deleted: sha256:c0cdc95609f1fc1daf2c7cae05ebd6adcf7b5c614b4f424949554a24012e3c09
Deleted: sha256:137bebc5ea278e61127e13cc7312fd83874cd19e392ee87252b532f0162fbd56
Deleted: sha256:7ed0de2ad4e43c97f58fa9e81fba73700167ef9f8a9970685059e0109749a56b
Deleted: sha256:9375660fbff871cd29c86b8643be60e376bfc96e99a3d7e8f93d74cd61500705
```

```
Deleted: sha256:d8a47065d005ac34d81017677330ce096eb5562eeb971e2db12b0e200fdb1cb6
Deleted: sha256:ca13c8ad9df5d824d5a259a927eaa6c04a60f022bc2abe8fc7866cf4b2b366f4
Deleted: sha256:7af1865d5c19316c3dc0829a2ee2b3a744ae756f7fec9c213d3afc5f1f6ed306
Deleted: sha256:f205c8f3c8aaa6376442b34c0c2062738461d37e0aa16ba021cd7e09c67213c2
Deleted: sha256:d690e8a8242cf13cbe98c5b2faffdd0fc7e6c4c13425b5da31de991aa1f89a76
Deleted: sha256:24efeee958e9f3d859fe15540e9296d5aaa6d3eb3b5f5494a2e8370608a4cfaa
Deleted: sha256:654f2ffede3bb536fd62d04c9c7b7826e890828bec92182634e38684959b2498
Deleted: sha256:de478a06eaa676052e665faa0b07d86a007f4b87cf82eb46a258742dc2d32260
Deleted: sha256:02c055ef67f5904019f43a41ea5f099996d8e7633749b6e606c400526b2c4b33
Untagged: hello-world:latest
Untagged: hello-
world@sha256:9f6ad537c5132bcce57f7a0a20e317228d382c3cd61edae14650eec68b2b345c
Deleted: sha256:d1165f2212346b2bab48cb01c1e39ee8ad1be46b87873d9ca7a4e434980a7726
```

---

## 容器命令

新建容器

```
docker pull centos
```

### 启动容器 docker run

```
docker run [可选参数] image
# 参数说明
--name="name"    容器名字
-d               后台运行
-it              使用交互方式运行，今日容器查看内容
-p(小写)          指定容器的端口 -p 8080:8080
    -p  ip:主机端口：容器端口
    -p  主机端口：容器端口  （常用）
    -p  容器端口
    容器端口
-P(大写)          随机指定端口
-v               卷挂载
-e               环境配置
```

```
[root@hoyin ~]# docker run -it centos /bin/bash
[root@a44628968477 /]#
```

### docker ps 列出所有运行的容器

```
# docker ps 命令
-a       # 列出当前正在运行的容器 + 带出历史运行的容器
-n=?     # 显示最近创建的容器
-q       # 显示容器编号

[root@hoyin ~]# docker ps
```

```
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
[root@hoyin ~]# docker ps -a
CONTAINER ID   IMAGE          COMMAND       CREATED         STATUS
         PORTS     NAMES
0fe4cd02b1ca   centos         "/bin/bash"   3 minutes ago   Exited (127) 39
seconds ago             test
a44628968477   centos         "/bin/bash"   4 minutes ago   Exited (0) 4 minutes
ago                  objective_kapitsa
df54ca90b778   centos         "/bin/bash"   5 minutes ago   Exited (130) 5
minutes ago              youthful_gauss
d14e89c50b1a   d1165f221234   "/hello"      2 days ago      Exited (0) 2 days
ago                     elegant_herschel
41831354804a   d1165f221234   "/hello"      5 days ago      Exited (0) 5 days
ago                     pensive_cannon
```

## exit 直接容器停止并退出容器

```
exit            # 直接容器停止并退出
Ctrl + P + Q    # 容器不停止退出
[root@a44628968477 /]# exit
exit
```

## Ctrl + P + Q # 容器不停止退出

```
exit            # 直接容器停止并退出
Ctrl + P + Q    # 容器不停止退出
[root@a44628968477 /]# exit
exit
```

## docker rm 删除容器

```
docker rm 容器id              #删除指定的容器，不能删除运行的容器

docker rm -f $(docker ps -aq)    #删除所有容器

docker ps -a -q|xargs docker rm #删除所有容器
```

## docker start 启动容器

```
docker start 容器Id       #启动容器
```

## docker restart 重启容器

```
docker restart 容器Id     #重启容器
```

### docker stop 停止容器

```
docker stop 容器Id          #停止当前正在运行的容器
```

### docker kill 强制停止

```
docker kill 容器Id          #强制停止
```

### 总结

```
docker start 容器Id         #启动容器

docker restart 容器Id       #重启容器

docker stop 容器Id          #停止当前正在运行的容器

docker kill 容器Id          #强制停止
```

---

## 常用其他命令

### 后台启动容器 docker run -d 镜像名

**docker run -d 镜像名**

```
# 命令 docker run -d 镜像名
[root@hoyin ~]# docker run -d centos
f5727dbc7d895113874bbd07674db77a8af99c019c1f4c2443cd514520b76030
[root@hoyin ~]# docker ps
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
#注意事项
docker 容器使用后台运行，就必须要有一个前台进程,docker发现没有应用，就会自动停止。
容器启动后，发现自己没有提供服务，就会立即停止。就会没有程序
```

### 查看logs docker logs

**docker logs -ft --tail number 容器Id**

```
[root@hoyin ~]# docker logs -ft --tail 10 db526f11e349
# shell
[root@hoyin ~]# docker run -d centos /bin/sh -c "while true;do echo shoyin;sleep 
1;done"
439d22a43c0e0415db7aa9d497ab078d27bc575172e5c9272771ccbeecf83e8c
# 显示日志
-tf
--tail number
[root@hoyin ~]# docker logs -tf --tail 10 439d22a43c0e
2021-06-21T08:12:11.907509823Z shoyin
```

```
2021-06-21T08:12:12.909276636Z shoyin
2021-06-21T08:12:13.911111547Z shoyin
2021-06-21T08:12:14.912899374Z shoyin
2021-06-21T08:12:15.914727760Z shoyin
2021-06-21T08:12:16.916464842Z shoyin
2021-06-21T08:12:17.918250190Z shoyin
2021-06-21T08:12:18.920114482Z shoyin
2021-06-21T08:12:19.921931290Z shoyin
```

## 查看容器中的进程信息 docker top

**docker top 容器Id**

```
[root@hoyin ~]# docker top e5c0e34be361
UID                 PID                 PPID                C
STIME               TTY                 TIME                CMD
root                3984344             3984323             1
16:16               ?                   00:00:00            /bin/sh -c while
true;do echo shoyin;sleep 1;done
root                3985078             3984344             0
16:17               ?                   00:00:00            /usr/bin/coreutils -
-coreutils-prog-shebang=sleep /usr/bin/sleep 1
```

## 查看镜像的元数据 docker inspect

**docker inspect 容器Id**

```
[root@hoyin ~]# docker inspect e5c0e34be361
[
    {
        "Id":
"e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208bb747c5c26b0",
        "Created": "2021-06-21T08:16:40.617635229Z",
        "Path": "/bin/sh",
        "Args": [
            "-c",
            "while true;do echo shoyin;sleep 1;done"
        ],
        "State": {
            "Status": "running",
            "Running": true,
            "Paused": false,
            "Restarting": false,
            "OOMKilled": false,
            "Dead": false,
            "Pid": 3984344,
            "ExitCode": 0,
            "Error": "",
            "StartedAt": "2021-06-21T08:16:41.223988268Z",
            "FinishedAt": "0001-01-01T00:00:00Z"
        },
        "Image":
"sha256:300e315adb2f96afe5f0b2780b87f28ae95231fe3bdd1e16b9ba606307728f55",
        "ResolvConfPath":
"/var/lib/docker/containers/e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208
bb747c5c26b0/resolv.conf",
        "HostnamePath":
"/var/lib/docker/containers/e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208
bb747c5c26b0/hostname",
        "HostsPath":
"/var/lib/docker/containers/e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208
bb747c5c26b0/hosts",
        "LogPath":
"/var/lib/docker/containers/e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208
bb747c5c26b0/e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208bb747c5c26b0-
json.log",
        "Name": "/laughing_cerf",
        "RestartCount": 0,
        "Driver": "overlay2",
        "Platform": "linux",
        "MountLabel": "",
        "ProcessLabel": "",
        "AppArmorProfile": "",
        "ExecIDs": null,
        "HostConfig": {
            "Binds": null,
            "ContainerIDFile": "",
            "LogConfig": {
                "Type": "json-file",
                "Config": {}
            },
            "NetworkMode": "default",
            "PortBindings": {},
            "RestartPolicy": {
                "Name": "no",
                "MaximumRetryCount": 0
            },
            "AutoRemove": false,
            "VolumeDriver": "",
            "VolumesFrom": null,
            "CapAdd": null,
            "CapDrop": null,
            "CgroupnsMode": "host",
            "Dns": [],
            "DnsOptions": [],
            "DnsSearch": [],
            "ExtraHosts": null,
            "GroupAdd": null,
            "IpcMode": "private",
            "Cgroup": "",
            "Links": null,
            "OomScoreAdj": 0,
            "PidMode": "",
            "Privileged": false,
            "PublishAllPorts": false,
            "ReadonlyRootfs": false,
            "SecurityOpt": null,
            "UTSMode": "",
            "UsernsMode": "",
            "ShmSize": 67108864,
            "Runtime": "runc",
            "ConsoleSize": [
                0,
                0
            ],
            "Isolation": "",
            "CpuShares": 0,
            "Memory": 0,
            "NanoCpus": 0,
            "CgroupParent": "",
            "BlkioWeight": 0,
            "BlkioWeightDevice": [],
            "BlkioDeviceReadBps": null,
            "BlkioDeviceWriteBps": null,
            "BlkioDeviceReadIOps": null,
            "BlkioDeviceWriteIOps": null,
            "CpuPeriod": 0,
            "CpuQuota": 0,
            "CpuRealtimePeriod": 0,
            "CpuRealtimeRuntime": 0,
            "CpusetCpus": "",
            "CpusetMems": "",
            "Devices": [],
            "DeviceCgroupRules": null,
            "DeviceRequests": null,
            "KernelMemory": 0,
            "KernelMemoryTCP": 0,
            "MemoryReservation": 0,
            "MemorySwap": 0,
            "MemorySwappiness": null,
            "OomKillDisable": false,
            "PidsLimit": null,
            "Ulimits": null,
            "CpuCount": 0,
            "CpuPercent": 0,
            "IOMaximumIOps": 0,
            "IOMaximumBandwidth": 0,
            "MaskedPaths": [
                "/proc/asound",
                "/proc/acpi",
                "/proc/kcore",
                "/proc/keys",
                "/proc/latency_stats",
                "/proc/timer_list",
                "/proc/timer_stats",
                "/proc/sched_debug",
                "/proc/scsi",
                "/sys/firmware"
            ],
            "ReadonlyPaths": [
                "/proc/bus",
                "/proc/fs",
                "/proc/irq",
                "/proc/sys",
                "/proc/sysrq-trigger"
            ]
        },
        "GraphDriver": {
            "Data": {
                "LowerDir":
"/var/lib/docker/overlay2/9b7b52784a0aaddcd63a43094d571b13d4f6f34ff842f9141aba6d
1e516a10c8-
init/diff:/var/lib/docker/overlay2/9d30ff772de9466d3dc90840317269af610265c3a04bc
ebdccd5c3b365818e5e/diff",
                "MergedDir":
"/var/lib/docker/overlay2/9b7b52784a0aaddcd63a43094d571b13d4f6f34ff842f9141aba6d
1e516a10c8/merged",
                "UpperDir":
"/var/lib/docker/overlay2/9b7b52784a0aaddcd63a43094d571b13d4f6f34ff842f9141aba6d
1e516a10c8/diff",
                "WorkDir":
"/var/lib/docker/overlay2/9b7b52784a0aaddcd63a43094d571b13d4f6f34ff842f9141aba6d
1e516a10c8/work"
            },
            "Name": "overlay2"
        },
        "Mounts": [],
        "Config": {
            "Hostname": "e5c0e34be361",
            "Domainname": "",
            "User": "",
            "AttachStdin": false,
            "AttachStdout": false,
            "AttachStderr": false,
            "Tty": false,
            "OpenStdin": false,
            "StdinOnce": false,
            "Env": [

 "PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin"
            ],
            "Cmd": [
                "/bin/sh",
                "-c",
                "while true;do echo shoyin;sleep 1;done"
            ],
            "Image": "centos",
            "Volumes": null,
            "WorkingDir": "",
            "Entrypoint": null,
            "OnBuild": null,
            "Labels": {
                "org.label-schema.build-date": "20201204",
                "org.label-schema.license": "GPLv2",
                "org.label-schema.name": "CentOS Base Image",
                "org.label-schema.schema-version": "1.0",
                "org.label-schema.vendor": "CentOS"
            }
        },
        "NetworkSettings": {
            "Bridge": "",
            "SandboxID":
"b512756b2e28fbd198be5cdc02192cc92a43bd0c06046480c4db4c3e82ef6021",
            "HairpinMode": false,
            "LinkLocalIPv6Address": "",
            "LinkLocalIPv6PrefixLen": 0,
            "Ports": {},
            "SandboxKey": "/var/run/docker/netns/b512756b2e28",
            "SecondaryIPAddresses": null,
            "SecondaryIPv6Addresses": null,
            "EndpointID":
"e8539fb44a08424cf7e2b41f94a4204d042de0ecb0b11a91ab656283e2be9312",
            "Gateway": "172.17.0.1",
            "GlobalIPv6Address": "",
            "GlobalIPv6PrefixLen": 0,
            "IPAddress": "172.17.0.2",
            "IPPrefixLen": 16,
            "IPv6Gateway": "",
            "MacAddress": "02:42:ac:11:00:02",
            "Networks": {
                "bridge": {
                    "IPAMConfig": null,
                    "Links": null,
                    "Aliases": null,
                    "NetworkID":
"c9dbce87ad95c14f4154df0237dc6db907f9f87dfb7547b8a852c7ea8402a796",
                    "EndpointID":
"e8539fb44a08424cf7e2b41f94a4204d042de0ecb0b11a91ab656283e2be9312",
                    "Gateway": "172.17.0.1",
                    "IPAddress": "172.17.0.2",
                    "IPPrefixLen": 16,
                    "IPv6Gateway": "",
                    "GlobalIPv6Address": "",
                    "GlobalIPv6PrefixLen": 0,
                    "MacAddress": "02:42:ac:11:00:02",
                    "DriverOpts": null
                }
            }
        }
    }
]
```

## 进入当前正在运行的容器 exec attach

**docker exec -it 容器id bashShell**

```
[root@hoyin ~]# docker exec -it d71b5024d0cd /bin/bash
[root@d71b5024d0cd /]# exit
exit 退出后不停止容器
```

**docker attach 容器Id**

```

[root@hoyin ~]# docker attach d71b5024d0cd
[root@d71b5024d0cd /]# exit
exit 退出后直接停止容器
```

```
#docker exec    开启新得终端        exit 退出后不停止容器
#docker attach  正在运行的终端      exit 退出后直接停止容器
```

## 从容器内拷贝文件到主机 docker cp

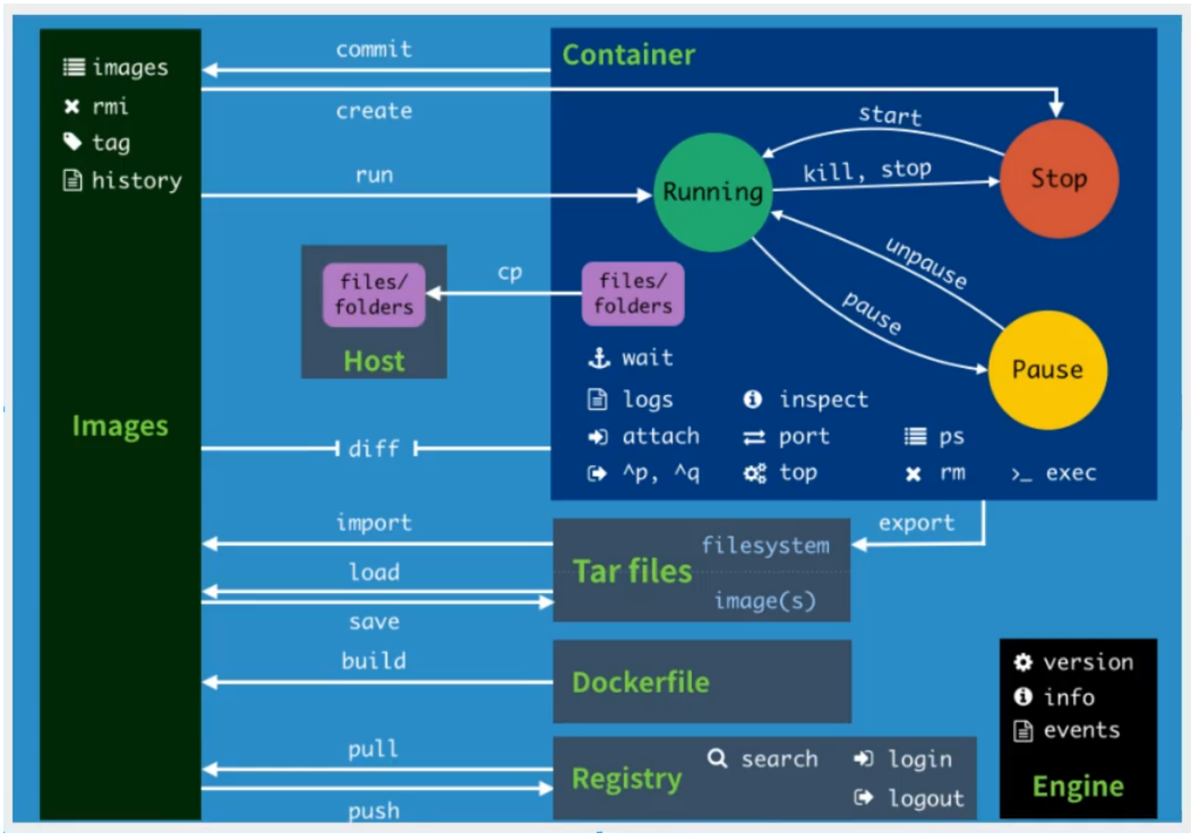
**docker cp 容器id：容器内路径  主机路径**

```
[root@hoyin home]# docker cp 942c1d016e5a:/home/test.js /home
[root@hoyin home]# ls
test.js
```

**docker cp 容器Name：容器内路径  主机路径**

```
[root@hoyin home]# docker cp centos09:/home/test.js /home
[root@hoyin home]# ls
test.js
```

## 小结



---

# Docker 安装 Nginx

docker search nginx

docker pull nginx

docker run -d --name nginx01 -p 3344:80 nginx

```
[root@hoyin ~]# docker search nginx
NAME                               DESCRIPTION
  STARS     OFFICIAL   AUTOMATED
nginx                              Official build of Nginx.
 15034     [OK]
jwilder/nginx-proxy                Automated Nginx reverse proxy for docker con…
  2038                 [OK]
richarvey/nginx-php-fpm            Container running Nginx + PHP-FPM capable of…
  814                  [OK]
jc21/nginx-proxy-manager           Docker container for managing Nginx proxy ho…
  199
linuxserver/nginx                  An Nginx container, brought to you by LinuxS…
  147
tiangolo/nginx-rtmp                Docker image with Nginx using the nginx-rtmp…
  130                  [OK]
jlesage/nginx-proxy-manager        Docker container for Nginx Proxy Manager
   118                  [OK]
alfg/nginx-rtmp                    NGINX, nginx-rtmp-module and FFmpeg from sou…
  99                   [OK]
bitnami/nginx                      Bitnami nginx Docker Image
 98                   [OK]
nginxdemos/hello                   NGINX webserver that serves a simple page co…
  70                   [OK]
nginx/nginx-ingress                NGINX and  NGINX Plus Ingress Controllers fo…
  55
privatebin/nginx-fpm-alpine        PrivateBin running on an Nginx, php-fpm & Al…
  55                   [OK]
nginxinc/nginx-unprivileged        Unprivileged NGINX Dockerfiles
 38
staticfloat/nginx-certbot          Opinionated setup for automatic TLS certs lo…
  23                   [OK]
schmunk42/nginx-redirect           A very simple container to redirect HTTP tra…
  19                   [OK]
nginx/nginx-prometheus-exporter    NGINX Prometheus Exporter for NGINX and NGIN…
  18
centos/nginx-112-centos7           Platform for running nginx 1.12 or building …
  15
centos/nginx-18-centos7            Platform for running nginx 1.8 or building n…
  13
bitwarden/nginx                    The Bitwarden nginx web server acting as a r…
  11
flashspys/nginx-static             Super Lightweight Nginx Image
  10                   [OK]
bitnami/nginx-ingress-controller   Bitnami Docker Image for NGINX Ingress Contr…
  9                    [OK]
mailu/nginx                        Mailu nginx frontend
 8                    [OK]
devilbox/nginx-stable              Devilbox's Nginx stable (based on official N…
  4
ansibleplaybookbundle/nginx-apb    An APB to deploy NGINX
 2                    [OK]
wodby/nginx                        Generic nginx
  1                    [OK]
[root@hoyin ~]# docker pull nginx
Using default tag: latest
latest: Pulling from library/nginx
69692152171a: Pull complete
```

```
30afc0b18f67: Pull complete
596b1d696923: Pull complete
febe5bd23e98: Pull complete
8283eee92e2f: Pull complete
351ad75a6cfa: Pull complete
Digest: sha256:6d75c99af15565a301e48297fa2d121e15d80ad526f8369c526324f0f7ccb750
Status: Downloaded newer image for nginx:latest
docker.io/library/nginx:latest
[root@hoyin ~]# docker images
REPOSITORY   TAG       IMAGE ID       CREATED        SIZE
nginx        latest    d1a364dc548d   3 weeks ago    133MB
centos       latest    300e315adb2f   6 months ago   209MB
[root@hoyin ~]# docker run -d --name nginx01 -p 3344:80 nginx
d6d909ad6d7feab037772c2e289bc1ed48283c7762084990e903118568ef0f79
[root@hoyin ~]# docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS
PORTS                                   NAMES
d6d909ad6d7f   nginx     "/docker-entrypoint.…"   6 seconds ago    Up 5 seconds
   0.0.0.0:8080->80/tcp, :::8080->80/tcp   nginx01
942c1d016e5a   centos    "/bin/bash"              58 minutes ago   Up 55 minutes
                                          hungry_keldys
```

## 本机测试

**curl ip地址:3344**

**curl localhost:3344**

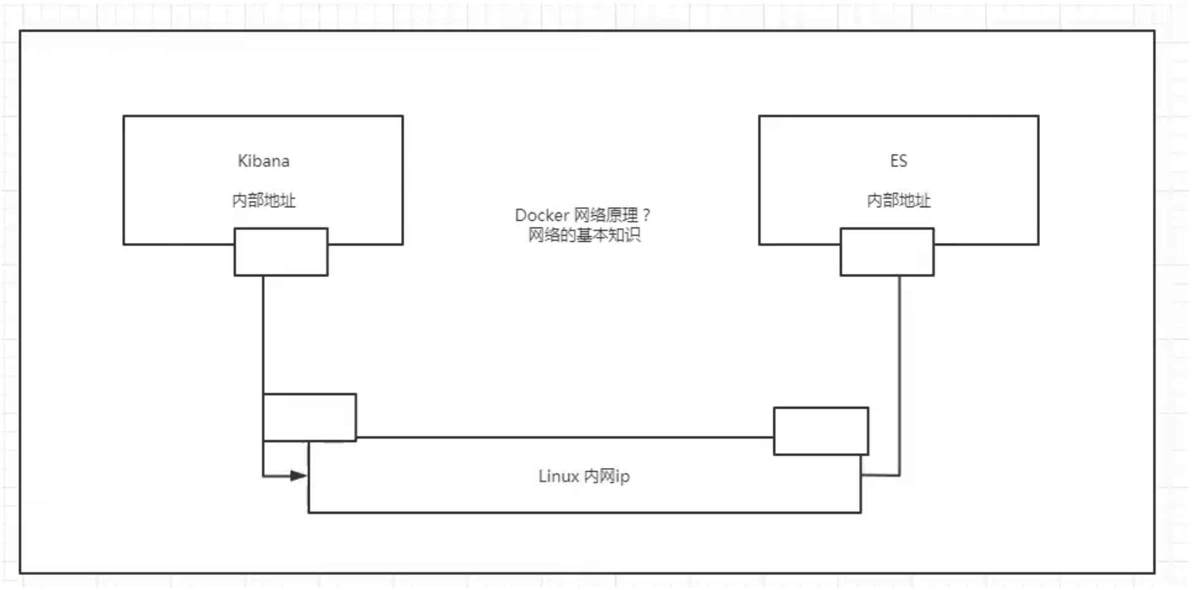
```
[root@hoyin ~]# curl ip:3344
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
    body {
        width: 35em;
        margin: 0 auto;
        font-family: Tahoma, Verdana, Arial, sans-serif;
    }
</style>
</head>
<body>
<h1>Welcome to nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>

<p><em>Thank you for using nginx.</em></p>
</body>
</html>
```

## Docker stats

```
CONTAINER ID   NAME        CPU %      MEM USAGE / LIMIT     MEM %      NET I/O
    BLOCK I/O          PIDS
4d7d83c742a1   centos09    0.00%      1.273MiB / 1.776GiB   0.07%      1.41kB / 0B
      4.1kB / 0B         1
99dccf3551f9   nginx01     0.00%      2.309MiB / 1.776GiB   0.13%      17.1kB /
17.7kB    8.19kB / 17.9kB    2
```

### -e 添加环境配置

```
docker run -d --name elasticsearch02 -p 9200:9200 -p 9300:9300 -e
"discovery.type=single-node"-eES_3AVA_OPTS="-Xms64m -Xmx512m"
elasticsearch:7.6.2
```



## 可视化

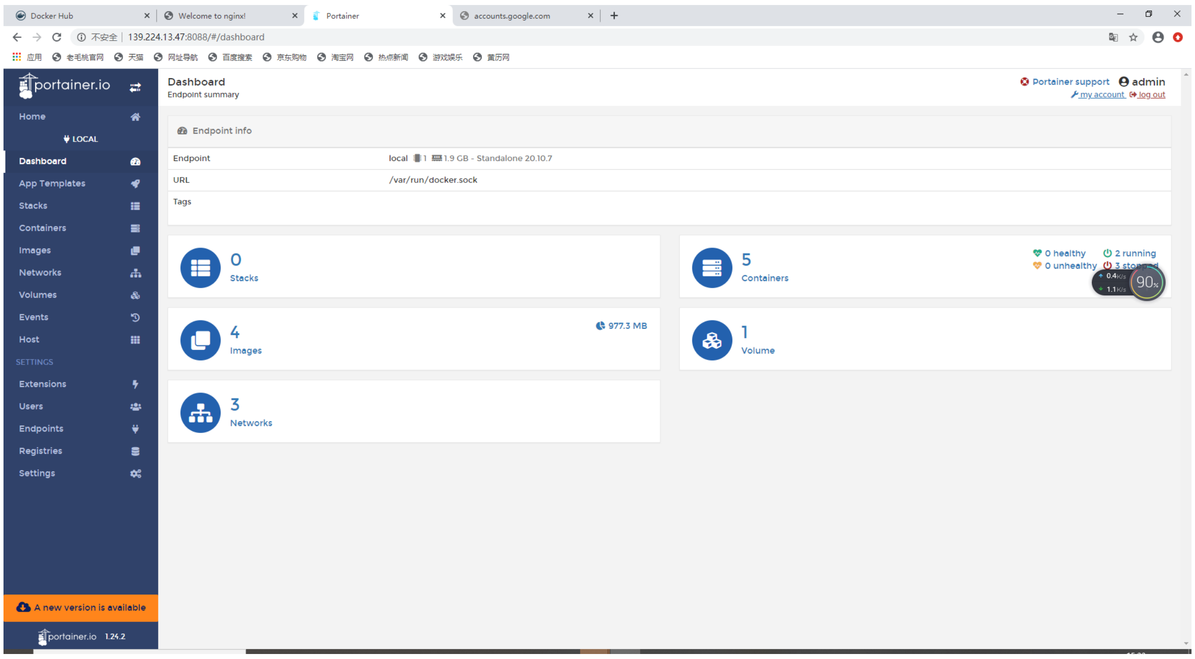
### portainer

Docker 图像可视化面板

```
[root@hoyin ~]# docker run -d -p 8088:9000 --restart=always -v
/var/run/docker.sock:/var/run/docker.sock --privileged=true portainer/portainer
Unable to find image 'portainer/portainer:latest' locally
latest: Pulling from portainer/portainer
94cfa856b2b1: Pull complete
49d59ee0881a: Pull complete
a2300fd28637: Pull complete
Digest: sha256:fb45b43738646048a0a0cc74fcee2865b69efde857e710126084ee5de9be0f3f
Status: Downloaded newer image for portainer/portainer:latest
57706419af92470fbdd5722c2f80ed2422ef6cedd693f12f8575d695bf50c822
```

## 访问测试

http://ip:8088



Dashboard
Endpoint summary

Endpoint info

| | |
|---|---|
| Endpoint | local 1 1.9 GB - Standalone 20.10.7 |
| URL | /var/run/docker.sock |
| Tags | |

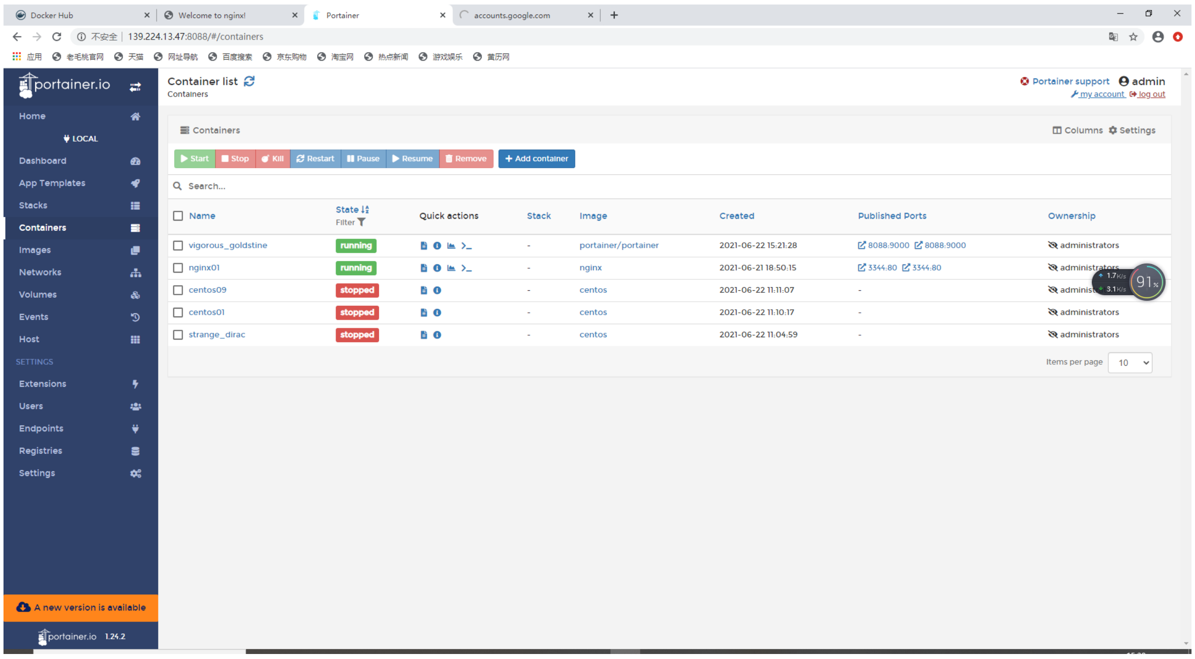
0 Stacks

5 Containers — 0 healthy, 2 running, 0 unhealthy, 3 stopped

4 Images — 977.3 MB

1 Volume

3 Networks



Container list
Containers

| Name | State | Quick actions | Stack | Image | Created | Published Ports | Ownership |
|---|---|---|---|---|---|---|---|
| vigorous_goldstine | running | | - | portainer/portainer | 2021-06-22 15:21:28 | 8088:9000 8088:9000 | administrators |
| nginx01 | running | | - | nginx | 2021-06-21 18:50:15 | 3344:80 3344:80 | administrators |
| centos09 | stopped | | - | centos | 2021-06-22 11:11:07 | - | administrators |
| centos01 | stopped | | - | centos | 2021-06-22 11:10:17 | - | administrators |
| strange_dirac | stopped | | - | centos | 2021-06-22 11:04:59 | - | administrators |

Items per page 10

# Docker 镜像

## commit 镜像

**docker commit -m "提交信息centos10" -a "作者hoyin" 源容器id newName:[tag]**

**docker commit -m "提交信息centos10" -a "作者hoyin" 源容器Name newName:[tag]**

#1 启动一个默认的centos

#2 修改部分文件

#3 将我们操作过的容器通过commit提交为一个镜像!我们以后就使用我们修改过的镜像即可，这就是我们自己的一个修改的镜像

```
[root@hoyin ~]# docker ps
CONTAINER ID   IMAGE                   COMMAND                   CREATED
STATUS          PORTS                                     NAMES
57706419af92   portainer/portainer   "/portainer"              38 minutes ago
Up 38 minutes   0.0.0.0:8088->9000/tcp, :::8088->9000/tcp   vigorous_goldstine
4d7d83c742a1   centos                "/bin/bash"               5 hours ago
Up 3 minutes                                              centos09
99dccf3551f9   nginx                 "/docker-entrypoint.…"   21 hours ago
Up 46 minutes   0.0.0.0:3344->80/tcp, :::3344->80/tcp       nginx01
# commit id
[root@hoyin ~]# docker commit -m "centos10" -a "hoyin" 4d7d83c742a1 centos10:1.0
sha256:3058c2cc4c41b8c07bc064c758cb7263ad661d2d7d52c8809893d2c6ccb53651
[root@hoyin ~]# docker images
REPOSITORY            TAG       IMAGE ID       CREATED          SIZE
centos10              1.0       3058c2cc4c41   7 seconds ago    210MB
nginx                 latest    d1a364dc548d   3 weeks ago      133MB
mysql                 latest    c0cdc95609f1   5 weeks ago      556MB
portainer/portainer   latest    580c0e4e98b0   3 months ago     79.1MB
centos                latest    300e315adb2f   6 months ago     209MB
#commit name
#提交的镜像必须是正在运行中的镜像
[root@hoyin ~]# docker commit -m "centos11" -a "hoyin" centos09 centos11:1.0
sha256:16923a9b9678fce09b5cbc85b124d199e54496d872025ed42f225c07552302c5
[root@hoyin ~]# docker commit -m "centos11" -a "hoyin" centos10 centos11:1.0
Error response from daemon: No such container: centos10
```

---

# Docker 数据卷

容器的持久化和同步操作

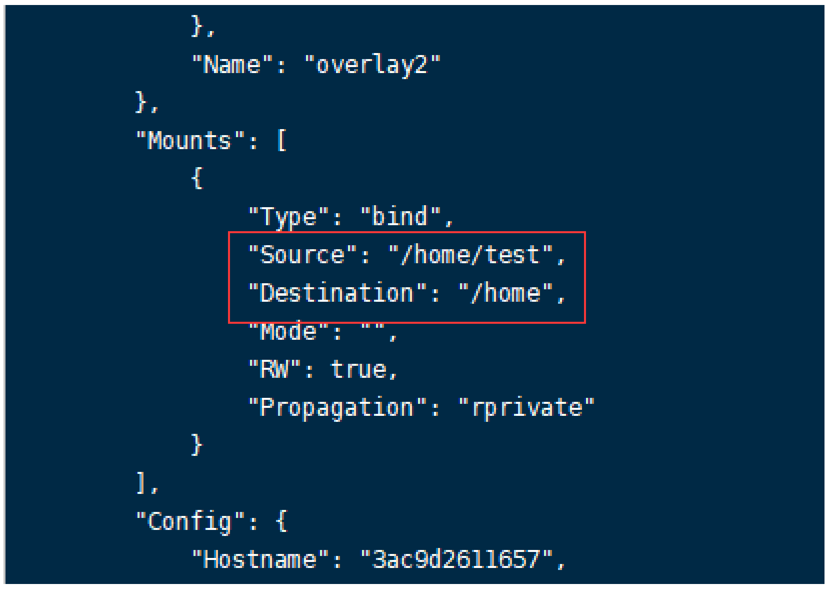
容器间数据共享

# 使用数据卷

### docker run -it -v 主机目录:容器目录 容器Name bashShell

```
docker run -it -v /home/test:/home centos10 /bin/bash
```

```
docker inspect 容器id
```



```
            },
            "Name": "overlay2"
        },
        "Mounts": [
            {
                "Type": "bind",
                "Source": "/home/test",
                "Destination": "/home",
                "Mode": "",
                "RW": true,
                "Propagation": "rprivate"
            }
        ],
        "Config": {
            "Hostname": "3ac9d2611657",
```

---

## 安装Mysql

```
[root@hoyin test]# docker pull mysql:5.7
5.7: Pulling from library/mysql
69692152171a: Already exists
1651b0be3df3: Already exists
951da7386bc8: Already exists
0f86c95aa242: Already exists
37ba2d8bd4fe: Already exists
6d278bb05e94: Already exists
497efbd93a3e: Already exists
a023ae82eef5: Pull complete
e76c35f20ee7: Pull complete
e887524d2ef9: Pull complete
ccb65627e1c3: Pull complete
Digest: sha256:a682e3c78fc5bd941e9db080b4796c75f69a28a8cad65677c23f7a9f18ba21fa
Status: Downloaded newer image for mysql:5.7
docker.io/library/mysql:5.7
```

### # mysql 务必设置初始密码

```
# mysql 务必设置初始密码
docker run --name some-mysql -e MYSQL_ROOT_PASSWORD=my-secret-pw -d mysql:tag

docker run -d -p 3310:3306 -v /home/mysql/conf:/etc/mysql/conf.d -v
/home/mysql/data:/var/lib/mysql -e  MYSQL_ROOT_PASSWORD=123456 --name mysql01
mysql:5.7
```

```
[root@hoyin test]# docker run -d -p 3310:3306 -v
/home/mysql/conf:/etc/mysql/conf.d -v /home/mysql/data:/var/lib/mysql -e
MYSQL_ROOT_PASSWORD=123456 --name mysql01 mysql:5.7
2f011b57949081bd0d8e00d2db2222aa2992800e9ac7020d46edf49a2a2f767a
```

---

# 具名和匿名挂载

## docker volume 查看挂载信息

```
[root@hoyin test]# docker volume ls
DRIVER    VOLUME NAME
local     5ca43c35e2ffa9a6018a043cc14998b806fe39e8c93fb8625da467339aa4c61c
local     d3a6ea05aff012486e272486b2ddd7f2f08ea10801dbbd3e8e5a42734c9dfa7c
```

```
-v 容器内路径            #匿名挂载
-v 卷名：容器路径         #具名挂载
-v /宿主机路径：容器路径   #指定路径挂载
```

## 匿名挂载

```
#-v 容器内路径
docker run -d -P --name nginx -v /etc/nginx nignx
```

```
[root@hoyin test]# docker run -d -P --name nginx01 -v /ect/nginx nginx
b5860ebee5811ed22b27b78c2cab7a3cd253a3a9ecc3e88b973de83f1700e934
[root@hoyin test]# docker volume ls
DRIVER    VOLUME NAME
local     5ca43c35e2ffa9a6018a043cc14998b806fe39e8c93fb8625da467339aa4c61c
local     d3a6ea05aff012486e272486b2ddd7f2f08ea10801dbbd3e8e5a42734c9dfa7c
```

## 具名挂载

```
#-v 卷名：容器路径
docker run -d -P --name nginx02 -v juming-nginx:/ect/nginx nginx
```

```
[root@hoyin test]# docker run -d -P --name nginx02 -v ju-nginx:/ect/nginx nginx
c20e6bef6741ba1f577a0c6357f233524629f4ea78bcc6c6b539b86818622efe
[root@hoyin test]# docker volume ls
DRIVER    VOLUME NAME
local     5ca43c35e2ffa9a6018a043cc14998b806fe39e8c93fb8625da467339aa4c61c
local     d3a6ea05aff012486e272486b2ddd7f2f08ea10801dbbd3e8e5a42734c9dfa7c
local     ju-nginx #新增卷
[root@hoyin test]# docker volume inspect ju-nginx
[
    {
        "CreatedAt": "2021-06-22T17:12:38+08:00",
        "Driver": "local",
        "Labels": null,
        "Mountpoint": "/var/lib/docker/volumes/ju-nginx/_data",
        "Name": "ju-nginx",
        "Options": null,
        "Scope": "local"
    }
]
```

## docker volume目录

所有的docker容器内的卷，没有指定情况下都是在

**/var/lib/docker/volumes/xxxx/_data**

我们通过具名挂载可以方便的找到卷

```

```

## -v :ro :rw 改变读写权限

| | |
|---|---|
| ro | readonly |
| rw | readwrite |

```
[root@hoyin test]# docker run -d -P --name nginx02 -v ju-nginx:/ect/nginx:ro
nginx
[root@hoyin test]# docker run -d -P --name nginx02 -v ju-nginx:/ect/nginx:rw
nginx

#ro 只能通过宿主机操作，容器内没有权限，无法操作
```

### docker volume prune

Remove all unused local volumes

## Docker 已有容器挂载新目录

1. 关闭正在运行Docker容器
2. docker stop container-Id
3. 关闭Docker.service
4. systemctl stop docker
5. 修改容器config

6.
   ```
   vim /var/lib/docker/containers/container-ID/config.v2.json
   #修改 MountPoints
   "MountPoints":{"/ect/nginx":
   {"Source":"/home/nginx","Destination":"/ect/nginx","RW":true,"Name":"","Driver":"","Type":"bind","Propagation":"rprivate","Spec":
   {"Type":"bind","Source":"/home/nginx","Target":"/ect/nginx"},"SkipMountpointCreation":false}}

   "MountPoints":{"/容器挂载目录":{"Source":"/宿主机挂载目录","Destination":"/容器挂载目录","RW":true,"Name":"","Driver":"","Type":"bind","Propagation":"rprivate","Spec":{"Type":"bind","Source":"/宿主机挂载目录","Target":"/容器挂载目录"},"SkipMountpointCreation":false}}
   ```
7. 保存重启 docker.service
8. systemctl start docker
9. 重启容器
10. docker start container-Id

# Dockerfile

## Dokerfile 介绍

**dockerfile 是用来构建Docker镜像的文件！**

构建步骤：

1. 编辑-个dockerfile 文件
2. docker build 构建成新镜像
3. docker run 　 运行镜像
4. docker push 发布（DockerHub, 阿里云镜像仓库）

## Dockerfile 构建过程

**基础知识**：

## Dockerfile 指令

## Docker image 发布

### docker login

```
[root@hoyin docker-test-volumes]# docker login -u shoyin
Password:
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
```

## docker tag

```
[root@hoyin docker-test-volumes]# docker images
REPOSITORY   TAG       IMAGE ID       CREATED        SIZE
test02       latest    10d7306f365e   4 hours ago    209MB
test01       latest    dbfdd81c9772   4 hours ago    209MB
centos01     latest    2b810fd8dd82   23 hours ago   209MB
nginx        latest    4f380adfc10f   25 hours ago   133MB
mysql        5.7       2c9028880e58   6 weeks ago    447MB
centos       latest    300e315adb2f   6 months ago   209MB
[root@hoyin docker-test-volumes]# docker tag dbfdd81c9772 shoyin/test01:0.1
[root@hoyin docker-test-volumes]# docker images
REPOSITORY      TAG       IMAGE ID       CREATED        SIZE
test02          latest    10d7306f365e   4 hours ago    209MB
shoyin/test01   0.1       dbfdd81c9772   4 hours ago    209MB
test01          latest    dbfdd81c9772   4 hours ago    209MB
centos01        latest    2b810fd8dd82   23 hours ago   209MB
nginx           latest    4f380adfc10f   25 hours ago   133MB
mysql           5.7       2c9028880e58   6 weeks ago    447MB
centos          latest    300e315adb2f   6 months ago   209MB
```

## docker push

```
[root@hoyin docker-test-volumes]# docker push shoyin/test01:0.1
The push refers to repository [docker.io/shoyin/test01]
2653d992f4ef: Mounted from library/centos
0.1: digest:
sha256:ea9d30fdad33e84a6a90355483d0f325b38125facd34f93d3802afe0a828fb36 size:
529
```

## docker pull

```
[root@hoyin docker-test-volumes]# docker pull shoyin/test01:0.1
0.1: Pulling from shoyin/test01
7a0437f04f83: Pull complete
Digest: sha256:ea9d30fdad33e84a6a90355483d0f325b38125facd34f93d3802afe0a828fb36
Status: Downloaded newer image for shoyin/test01:0.1
docker.io/shoyin/test01:0.1
```

## dicker save 打包

```
$ docker save busybox > busybox.tar

$ ls -sh busybox.tar

2.7M busybox.tar

$ docker save --output busybox.tar busybox

$ ls -sh busybox.tar

2.7M busybox.tar

$ docker save -o fedora-all.tar fedora

$ docker save -o fedora-latest.tar fedora:latest

[root@hoyin docker-test-volumes]# docker save -o test.tar shoyin/test01:0.1
[root@hoyin docker-test-volumes]# ll
总用量 211468
-rw-r--r-- 1 root root        88 6月  24 12:00 dockerfile
-rw------- 1 root root 216536064 6月  24 16:50 test.tar
```

## docker load

**docker load :** 导入使用 docker save 命令导出的镜像。

## 语法

```
docker load [OPTIONS]
```

OPTIONS 说明:

- **--input , -i :** 指定导入的文件，代替 STDIN。

- **--quiet , -q :** 精简输出信息。

## 实例

导入镜像：

```
$ docker image ls

REPOSITORY          TAG                 IMAGE ID            CREATED
SIZE

$ docker load < busybox.tar.gz

Loaded image: busybox:latest
$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED
SIZE
busybox             latest              769b9341d937        7 weeks ago
2.489 MB

$ docker load --input fedora.tar

Loaded image: fedora:rawhide

Loaded image: fedora:20

$ docker images

REPOSITORY          TAG                 IMAGE ID            CREATED
SIZE
busybox             latest              769b9341d937        7 weeks ago
2.489 MB
fedora              rawhide             0d20aec6529d        7 weeks ago
387 MB
fedora              20                  58394af37342        7 weeks ago
385.5 MB
fedora              heisenbug           58394af37342        7 weeks ago
385.5 MB
fedora              latest              58394af37342        7 weeks ago
385.5 MB

[root@hoyin docker-test-volumes]# docker images
REPOSITORY      TAG       IMAGE ID       CREATED       SIZE
shoyin/test01   0.1       dbfdd81c9772   5 hours ago   209MB
[root@hoyin docker-test-volumes]# docker rmi -f shoyin/test01:0.1
Untagged: shoyin/test01:0.1
Untagged:
shoyin/test01@sha256:ea9d30fdad33e84a6a90355483d0f325b38125facd34f93d3802afe0a82
8fb36
Deleted: sha256:dbfdd81c97722101bc1f0ea0b243001a4bdf9ed1a1458620a698f0882a82274a
Deleted: sha256:2653d992f4ef2bfd27f94db643815aa567240c37732cae1405ad1c1309ee9859
[root@hoyin docker-test-volumes]# docker load -i test.tar
2653d992f4ef: Loading layer
[==================================================>]  216.5MB/216.5MB
Loaded image: shoyin/test01:0.1
[root@hoyin docker-test-volumes]# docker images
REPOSITORY      TAG       IMAGE ID       CREATED       SIZE
shoyin/test01   0.1       dbfdd81c9772   5 hours ago   209MB
[root@hoyin docker-test-volumes]#
```

## docker build

## #编辑Dockerfile

```
[root@hoyin docker-test-volumes]# vim dockerfile
```

#### #命令行大写

```
FROM centos
VOLUME ["/volume01","/volume02"]
CMD echo "--------------end---------------"
CMD /bin/bash
```

## #VOLUME ["/volume01","/volume02","/绝对路径"]

#### #docker build

```
[root@hoyin docker-test-volumes]# docker build -f /home/docker-test-
volumes/dockerfile -t newcentos:1.0 .
#(. 不能忽略)
Sending build context to Docker daemon  2.048kB
Step 1/4 : FROM centos
 ---> 300e315adb2f
Step 2/4 : VOLUME ["/volume01","/volume02"]
 ---> Running in dbb832595496
Removing intermediate container dbb832595496
 ---> c8ae5a49cbcf
Step 3/4 : CMD echo "--------------end---------------"
 ---> Running in d1fa81c53091
Removing intermediate container d1fa81c53091
 ---> 90cc79af129e
Step 4/4 : CMD /bin/bash
 ---> Running in e8d3f76991f7
Removing intermediate container e8d3f76991f7
 ---> 7de44945c539
Successfully built 7de44945c539
Successfully tagged newcentos:1.0
[root@hoyin docker-test-volumes]# docker images
REPOSITORY            TAG       IMAGE ID       CREATED          SIZE
newcentos             1.0       7de44945c539   58 seconds ago   209MB
centos11              1.0       16923a9b9678   2 hours ago      210MB
centos10              1.0       3058c2cc4c41   2 hours ago      210MB
nginx                 latest    d1a364dc548d   3 weeks ago      133MB
mysql                 5.7       2c9028880e58   5 weeks ago      447MB
mysql                 latest    c0cdc95609f1   5 weeks ago      556MB
portainer/portainer   latest    580c0e4e98b0   3 months ago     79.1MB
centos                latest    300e315adb2f   6 months ago     209MB
```

# 数据卷容器

## --volumes-from

```
# Build an image from a Dockerfile 根据Dockerfile 创建镜像
[root@hoyin docker-test-volumes]# docker build -f /home/docker-test-volumes/dockerfile -t centos01 .
Sending build context to Docker daemon  2.048kB
Step 1/4 : FROM centos
latest: Pulling from library/centos
7a0437f04f83: Already exists
Digest: sha256:5528e8b1b1719d34604c87e11dcd1c0a20bedf46e83b5632cdeac91b8c04efc1
Status: Downloaded newer image for centos:latest
 ---> 300e315adb2f
Step 2/4 : VOLUME ["/test01"]
 ---> Running in bfab3286eb00
Removing intermediate container bfab3286eb00
 ---> 22bfc79835e7
Step 3/4 : CMD echo "--------------end---------------"
 ---> Running in 9e3ebb9ae31f
Removing intermediate container 9e3ebb9ae31f
 ---> 51edec24b776
Step 4/4 : CMD /bin/bash
 ---> Running in 47ba196bab02
Removing intermediate container 47ba196bab02
 ---> 2b810fd8dd82
Successfully built 2b810fd8dd82
Successfully tagged centos01:latest
[root@hoyin docker-test-volumes]# docker images
REPOSITORY    TAG       IMAGE ID       CREATED          SIZE
centos01      latest    2b810fd8dd82   32 seconds ago   209MB
nginx         latest    4f380adfc10f   3 hours ago      133MB
mysql         5.7       2c9028880e58   6 weeks ago      447MB
centos        latest    300e315adb2f   6 months ago     209MB
# 查看新生成镜像 创建新容器
[root@hoyin docker-test-volumes]# docker run -it --name docker01 2b810fd8dd82
[root@29e7111c640f /]# exit C+P+Q
# --volumes-from 继承容器挂载 创建新容器
[root@hoyin docker-test-volumes]# docker run -it --name docker02 --volumes-from docker01 centos01
[root@bb2369627996 /]# ls
bin  dev  etc  home  lib  lib64  lost+found  media  mnt  opt  proc  root  run
sbin  srv  sys  test01  tmp  usr  var
[root@bb2369627996 /]#
```

## Mysql容器数据共享

```
[root@hoyin test]# docker run -d -p 3310:3306 -v /home/mysql/conf:/etc/mysql/conf.d -v /home/mysql/data:/var/lib/mysql -e MYSQL_ROOT_PASSWORD=123456 --name mysql01 mysql:5.7
2f011b57949081bd0d8e00d2db2222aa2992800e9ac7020d46edf49a2a2f767a
```

```
[root@hoyin test]# docker run -d -p 3311:3306 --volumes-from mysql01 -e
MYSQL_ROOT_PASSWORD=123456 --name mysql02 mysql:5.7
2f011b57949081bd0d8e00d2db2222aa2992800e9ac7020d46edf49a2a2f767a
```

### 因为 mysql 有锁表机制，同时间只能启动一个mysql 容器

### #共享数据卷共用宿主机同一文件夹 1vN（共享）

**删除宿主机目录内容** 容器都删除

---

# Docker 网络

## Docker0

### 每一个安装Docker 都会分配一个虚拟网卡 veth-pair

```
[root@hoyin docker-test-volumes]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo ###本机回环地址
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 00:16:3e:22:53:5c brd ff:ff:ff:ff:ff:ff
    inet 172.26.47.163/20 brd 172.26.47.255 scope global dynamic noprefixroute
eth0 ###阿里云网络地址
       valid_lft 315119431sec preferred_lft 315119431sec
    inet6 fe80::216:3eff:fe22:535c/64 scope link
       valid_lft forever preferred_lft forever
3: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state
DOWN group default
    link/ether 02:42:ca:1a:d6:e8 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0 ### Docker0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:caff:fe1a:d6e8/64 scope link
       valid_lft forever preferred_lft forever
```

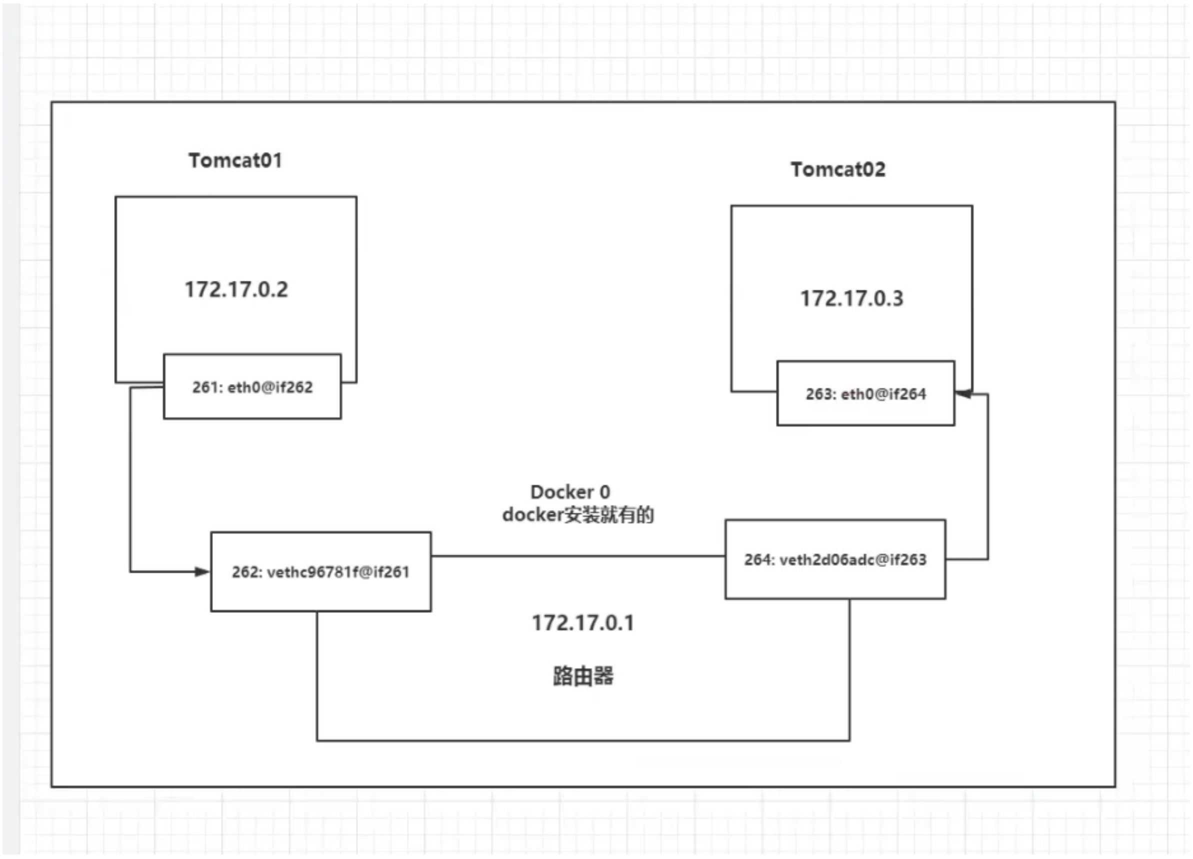
### 每新建一个Docker container 都会创建一对虚拟网址

```
[root@hoyin docker-test-volumes]# docker run -d -P --name t01 tomcat # 新建容器
15ff6001fc433129a097d7cc042147739c8f40c56341bb57a018bbf269faba9c
[root@hoyin docker-test-volumes]# docker ps
CONTAINER ID   IMAGE     COMMAND             CREATED          STATUS
PORTS                                       NAMES
15ff6001fc43   tomcat    "catalina.sh run"   13 seconds ago   Up 10 seconds
0.0.0.0:49153->8080/tcp, :::49153->8080/tcp   t01
[root@hoyin docker-test-volumes]# docker exec -it 15ff6001fc43 ip addr # 查看新容
器网络
```

```
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
84: eth0@if85: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP
group default
    link/ether 02:42:ac:11:00:02 brd ff:ff:ff:ff:ff:ff link-netnsid 0
    inet 172.17.0.2/16 brd 172.17.255.255 scope global eth0
       valid_lft forever preferred_lft forever

[root@hoyin docker-test-volumes]# ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP
group default qlen 1000
    link/ether 00:16:3e:22:53:5c brd ff:ff:ff:ff:ff:ff
    inet 172.26.47.163/20 brd 172.26.47.255 scope global dynamic noprefixroute
eth0
       valid_lft 315118323sec preferred_lft 315118323sec
    inet6 fe80::216:3eff:fe22:535c/64 scope link
       valid_lft forever preferred_lft forever
3: docker0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP
group default
    link/ether 02:42:ca:1a:d6:e8 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 brd 172.17.255.255 scope global docker0
       valid_lft forever preferred_lft forever
    inet6 fe80::42:caff:fe1a:d6e8/64 scope link
       valid_lft forever preferred_lft forever
85: veth9eb2189@if84: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue
master docker0 state UP group default
    link/ether da:3e:2f:13:0a:a9 brd ff:ff:ff:ff:ff:ff link-netnsid 0
    inet6 fe80::d83e:2fff:fe13:aa9/64 scope link
       valid_lft forever preferred_lft forever
###
### 84: eth0@if85: <===> 85: veth9eb2189@if84:
###
```

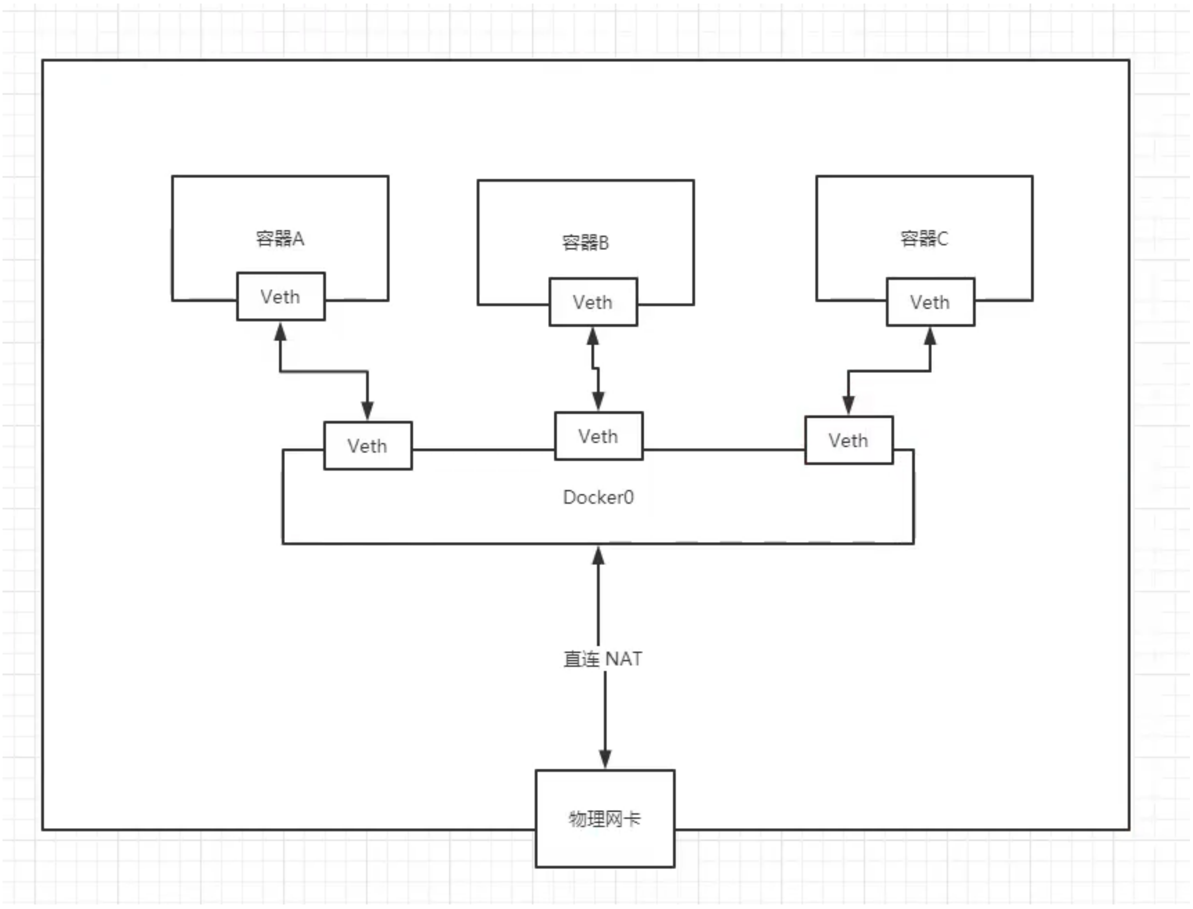
## 容器之间 ip 互通

```
[root@hoyin docker-test-volumes]# docker exec -it t02 ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group
default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
86: eth0@if87: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP
group default
    link/ether 02:42:ac:11:00:03 brd ff:ff:ff:ff:ff:ff link-netnsid 0
    inet 172.17.0.3/16 brd 172.17.255.255 scope global eth0
       valid_lft forever preferred_lft forever
[root@hoyin docker-test-volumes]# docker exec -it t02 /bin/bash
root@20cfe38b13c0:/usr/local/tomcat# ping 172.17.0.2 #  t02  ping  t01
PING 172.17.0.2 (172.17.0.2) 56(84) bytes of data.
64 bytes from 172.17.0.2: icmp_seq=1 ttl=64 time=0.099 ms
64 bytes from 172.17.0.2: icmp_seq=2 ttl=64 time=0.074 ms
64 bytes from 172.17.0.2: icmp_seq=3 ttl=64 time=0.073 ms
###
### t02  ping  t01
###
```



**所有容器不指定网络的情况下，都是docker0路由的，docker会给容器分配哟个默认的可用ip**

## Docker0 与物理网卡是桥接模式



## docker --link

--link 在容器内 /etc/hosts 添加目标地址

```
root@a37db73ce14c:/etc# cat hosts
127.0.0.1       localhost
::1     localhost ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
172.17.0.3      t02 20cfe38b13c0
172.17.0.4      a37db73ce14c
```

```
[root@hoyin docker-test-volumes]# docker exec -it t02 ping t01
ping: t01: Name or service not known

[root@hoyin docker-test-volumes]# docker run -d -P --name t03 --link t02 tomcat
a37db73ce14cb07b35f60443f8105ee9b4b11cf9e45b64fd58129405ada26e0f
### 通过--link 通过容器名ping 通
[root@hoyin docker-test-volumes]# docker exec -it t03 ping  t02
PING t02 (172.17.0.3) 56(84) bytes of data.
64 bytes from t02 (172.17.0.3): icmp_seq=1 ttl=64 time=0.102 ms
64 bytes from t02 (172.17.0.3): icmp_seq=2 ttl=64 time=0.088 ms
64 bytes from t02 (172.17.0.3): icmp_seq=3 ttl=64 time=0.077 ms
```

# 自定义网络

## docker network

## 网络模式

bridge:   桥接（docker 默认）

none:  不配置

host:   和宿主机共享

container: 容器

**查看所有网络**

```
[root@hoyin docker-test-volumes]# docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
9f740ac7996a   bridge    bridge    local
28a223805c7b   host      host      local
f26162d67a66   none      null      local
```

```

默认配置 dokcer0
docker run -d -P --name t01  tomcat

docker run -d -P --name t01 --net bridage tomcat
```

## 创建网络

## docker network create

```
#--driver bridge
#--subnet 192.168.0.0/16
#--gateway 192.168.0.1
#
[root@hoyin docker-test-volumes]# docker network create --driver bridge --subnet
192.168.0.0/16 --gateway 192.168.0.1 mynet
6d3b62f9cf70a6113a41d66fc6cecca0f58df447ef6b9fc507dddba6a7448726
[root@hoyin docker-test-volumes]# docker network ls
NETWORK ID     NAME      DRIVER    SCOPE
9f740ac7996a   bridge    bridge    local
28a223805c7b   host      host      local
6d3b62f9cf70   mynet     bridge    local
f26162d67a66   none      null      local

[root@hoyin docker-test-volumes]# docker network inspect mynet
[
    {
        "Name": "mynet",
        "Id":
"6d3b62f9cf70a6113a41d66fc6cecca0f58df447ef6b9fc507dddba6a7448726",
        "Created": "2021-06-25T10:57:48.535950532+08:00",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
            "Config": [
                {
                    "Subnet": "192.168.0.0/16",
                    "Gateway": "192.168.0.1"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {},
        "Options": {},
        "Labels": {}
    }
]
```

更具新建网络创建容器

```
[root@hoyin docker-test-volumes]# docker run -d -P --name mynet01 --net mynet
tomcat
a3df175409f8dda799661beb994946966863a1b33a2b8e6b51c7514d9af0b709
[root@hoyin docker-test-volumes]# docker run -d -P --name mynet02 --net mynet
tomcat
1d1a2e452f49f53265864687c8dbb6255e31af292493a27ba9dde7af41263caa
[root@hoyin docker-test-volumes]# docker network inspect mynet
[
    {
        "Name": "mynet",
        "Id":
"6d3b62f9cf70a6113a41d66fc6cecca0f58df447ef6b9fc507dddba6a7448726",
        "Created": "2021-06-25T10:57:48.535950532+08:00",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
            "Config": [
                {
                    "Subnet": "192.168.0.0/16",
                    "Gateway": "192.168.0.1"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {
            "1d1a2e452f49f53265864687c8dbb6255e31af292493a27ba9dde7af41263caa":
{
                "Name": "mynet02",
                "EndpointID":
"9fcaa406f90c3cc8e53db7964a894db4a04b6abfc035e38d8a4921f3d9c0038d",
                "MacAddress": "02:42:c0:a8:00:03",
                "IPv4Address": "192.168.0.3/16",
                "IPv6Address": ""
            },
            "a3df175409f8dda799661beb994946966863a1b33a2b8e6b51c7514d9af0b709":
{
                "Name": "mynet01",
                "EndpointID":
"f23334eb17933c81f9c7934ddf7de5a3376ca3e43393e1771e45b931f4f095f3",
                "MacAddress": "02:42:c0:a8:00:02",
                "IPv4Address": "192.168.0.2/16",
                "IPv6Address": ""
            }
        },
        "Options": {},
        "Labels": {}
    }
]
### 新建的容器网络地址 在 [Containers]

[root@hoyin docker-test-volumes]# docker exec -it mynet01 /bin/bash
root@a3df175409f8:/usr/local/tomcat#
root@a3df175409f8:/usr/local/tomcat# ping mynet02
PING mynet02 (192.168.0.3) 56(84) bytes of data.
64 bytes from mynet02.mynet (192.168.0.3): icmp_seq=1 ttl=64 time=0.082 ms
64 bytes from mynet02.mynet (192.168.0.3): icmp_seq=2 ttl=64 time=0.067 ms
```

## 网络联通

### docker network connect [OPTIONS] NETWORK CONTAINER

```
[root@hoyin docker-test-volumes]# docker run -d -P --name t01 tomcat
4f416f9b98b1d0cb9b1171e262f2af0daf44a3fa3a9ea38cb1ae9a8d81c05c2c
[root@hoyin docker-test-volumes]# docker network connect mynet t01
[root@hoyin docker-test-volumes]# docker network inspect mynet
[
    {
        "Name": "mynet",
        "Id":
"6d3b62f9cf70a6113a41d66fc6cecca0f58df447ef6b9fc507dddba6a7448726",
        "Created": "2021-06-25T10:57:48.535950532+08:00",
        "Scope": "local",
        "Driver": "bridge",
        "EnableIPv6": false,
        "IPAM": {
            "Driver": "default",
            "Options": {},
            "Config": [
                {
                    "Subnet": "192.168.0.0/16",
                    "Gateway": "192.168.0.1"
                }
            ]
        },
        "Internal": false,
        "Attachable": false,
        "Ingress": false,
        "ConfigFrom": {
            "Network": ""
        },
        "ConfigOnly": false,
        "Containers": {
            "1d1a2e452f49f53265864687c8dbb6255e31af292493a27ba9dde7af41263caa":
{
                "Name": "mynet02",
                "EndpointID":
"9fcaa406f90c3cc8e53db7964a894db4a04b6abfc035e38d8a4921f3d9c0038d",
                "MacAddress": "02:42:c0:a8:00:03",
                "IPv4Address": "192.168.0.3/16",
                "IPv6Address": ""
            },
            "4f416f9b98b1d0cb9b1171e262f2af0daf44a3fa3a9ea38cb1ae9a8d81c05c2c":
{
                "Name": "t01",
                "EndpointID":
"a20a8e0f82fa23ab60b93ea096ed93c52836708a1dece19a713016fbe6d7b7a5",
                "MacAddress": "02:42:c0:a8:00:04",
                "IPv4Address": "192.168.0.4/16",
                "IPv6Address": ""
            },
            "a3df175409f8dda799661beb994946966863a1b33a2b8e6b51c7514d9af0b709":
{
                "Name": "mynet01",
                "EndpointID":
"f23334eb17933c81f9c7934ddf7de5a3376ca3e43393e1771e45b931f4f095f3",
                "MacAddress": "02:42:c0:a8:00:02",
                "IPv4Address": "192.168.0.2/16",
                "IPv6Address": ""
            }
        },
        "Options": {},
        "Labels": {}
    }
]
```

## Redis 集群部署

```
[root@hoyin docker-test-volumes]# docker network create redis --subnet
192.169.0.0/16
e219f39a0cbd34605878b7ff35e7c5829444a90f96042e7cc41b2d692f8ac9c4

for port in $(seq 1 6); \
do \
mkdir -p /mydata/redis/node-${port}/conf
touch /mydata/redis/node-${port}/conf/redis.conf
cat << EOF >/mydata/redis/node-${port}/conf/redis.conf
port 6379
bind 0.0.0.0
cluster-enabled yes
cluster-config-file nodes.conf
cluster-node-timeout 5000
cluster-announce-ip 192.169.0.1${port}
cluster-announce-port 6379
cluster-announce-bus-port 16379
appendonly yes
EOF
done


for port in $(seq 1 6); \
do \
docker run -p 637${port}:6379 -p 1637${port}:16379 --name redis0${port} -v
/mydata/redis/node-${port}/data:/data -v
/mydata/redis/node-${port}/conf/redis.conf:/etc/redis/redis.conf -d --net redis
--ip 192.169.0.1${port} redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf
done

docker run -d -p 6371:6379 -p 9371:6379 --name redis01 -v /mydata/redis/node-
1/data: data -v /mydata/redis/node-1/conf/redis/conf:/etc/redis/redis.conf --net
redis --ip 192.169.0.11 redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf

docker run -d -p 6372:6379 -p 9372:6379 --name redis02 -v /mydata/redis/node-
2/data: data -v /mydata/redis/node-2/conf/redis/conf:/etc/redis/redis.conf --net
redis --ip 192.169.0.12 redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf

docker run -d -p 6373:6379 -p 9373:6379 --name redis03 -v /mydata/redis/node-
3/data: data -v /mydata/redis/node-3/conf/redis/conf:/etc/redis/redis.conf --net
redis --ip 192.169.0.13 redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf
```

```
docker run -d -p 6374:6379 -p 9374:6379 --name redis04 -v /mydata/redis/node-
4/data: data -v /mydata/redis/node-4/conf/redis/conf:/etc/redis/redis.conf --net
redis --ip 192.169.0.14 redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf

docker run -d -p 6375:6379 -p 9375:6379 --name redis05 -v /mydata/redis/node-
5/data: data -v /mydata/redis/node-5/conf/redis/conf:/etc/redis/redis.conf --net
redis --ip 192.169.0.15 redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf

docker run -d -p 6376:6379 -p 9376:6379 --name redis06 -v /mydata/redis/node-
6/data: data -v /mydata/redis/node-6/conf/redis/conf:/etc/redis/redis.conf --net
redis --ip 192.169.0.16 redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf

redis-cli --cluster create 192.169.0.11:6379 192.169.0.12:6379 192.169.0.13:6379
192.169.0.14:6379 192.169.0.15:6379 192.169.0.16:6379 --cluster-replicas 1




[root@hoyin conf]# for port in $(seq 1 6); \
> do \
> mkdir -p /mydata/redis/node-${port}/conf
> touch /mydata/redis/node-${port}/conf/redis.conf
> cat << EOF >/mydata/redis/node-${port}/conf/redis.conf
> port 6379
> bind 0.0.0.0
> cluster-enabled yes
> cluster-config-file nodes.conf
> cluster-node-timeout 5000
> cluster-announce-ip 192.169.0.1${port}
> cluster-announce-port 6379
> cluster-announce-bus-port 16379
> appendonly yes
> EOF
> done
[root@hoyin conf]# for port in $(seq 1 6); \
> do \
> docker run -p 637${port}:6379 -p 1637${port}:16379 --name redis0${port} -v
/mydata/redis/node-${port}/data:/data -v
/mydata/redis/node-${port}/conf/redis.conf:/etc/redis/redis.conf -d --net redis
--ip 192.169.0.1${port} redis:5.0.9-alpine3.11 redis-server
/etc/redis/redis.conf
> done
3a499e7b402396938927419535be81ede045e25e9c1d97bb74ba47b5a9ff03a8
63d72f07d16edb3f84e44b0ca335e7eedda27fe31179153cba1b584cd99689ad
31b2e36b5bcd67b75e09bf375440598f26bcdff2c86e309c63870aa7a268b58b
34b09b62a1aa5023564d2af5f8fcd4067fa389adf6f09b82e76a67a2ea331e90
8757b9950192caf2b8c370ac58298277a0cbec3bd66757743bb9fb0ef84804ea
6001ceca4e26b028856e598290a10e57c32dfde96d7cc0a3c41f909c9abdca71
[root@hoyin conf]# docker exec -it redis01 /bin/sh
/data #
/data #
/data # redis-cli --cluster create 192.169.0.11:6379 192.169.0.12:6379
192.169.0.13:6379 192.169.0.14:6379 192.169.0.15:6379 192.169.
0.16:6379 --cluster-replicas 1
>>> Performing hash slots allocation on 6 nodes...
```

```
Master[0] -> Slots 0 - 5460
Master[1] -> Slots 5461 - 10922
Master[2] -> Slots 10923 - 16383
Adding replica 192.169.0.15:6379 to 192.169.0.11:6379
Adding replica 192.169.0.16:6379 to 192.169.0.12:6379
Adding replica 192.169.0.14:6379 to 192.169.0.13:6379
M: f345e1c37262b4b0ae7b6fdef947676adc2deace 192.169.0.11:6379
   slots:[0-5460] (5461 slots) master
M: 52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 192.169.0.12:6379
   slots:[5461-10922] (5462 slots) master
M: cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c 192.169.0.13:6379
   slots:[10923-16383] (5461 slots) master
S: f4876241b5f7f4ae8b2b15f1d8b6e2043877b194 192.169.0.14:6379
   replicates cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c
S: d1bf8c446cc8594f5fdc174ae98b2867b41ccd10 192.169.0.15:6379
   replicates f345e1c37262b4b0ae7b6fdef947676adc2deace
S: 3e4b623d2dac8f0d02f614f23fac1789cace8022 192.169.0.16:6379
   replicates 52b778473a0c0ae59bf4b7a87ff2a3334072bf8c
Can I set the above configuration? (type 'yes' to accept): yes
>>> Nodes configuration updated
>>> Assign a different config epoch to each node
>>> Sending CLUSTER MEET messages to join the cluster
Waiting for the cluster to join
...
>>> Performing Cluster Check (using node 192.169.0.11:6379)
M: f345e1c37262b4b0ae7b6fdef947676adc2deace 192.169.0.11:6379
   slots:[0-5460] (5461 slots) master
   1 additional replica(s)
S: f4876241b5f7f4ae8b2b15f1d8b6e2043877b194 192.169.0.14:6379
   slots: (0 slots) slave
   replicates cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c
S: d1bf8c446cc8594f5fdc174ae98b2867b41ccd10 192.169.0.15:6379
   slots: (0 slots) slave
   replicates f345e1c37262b4b0ae7b6fdef947676adc2deace
S: 3e4b623d2dac8f0d02f614f23fac1789cace8022 192.169.0.16:6379
   slots: (0 slots) slave
   replicates 52b778473a0c0ae59bf4b7a87ff2a3334072bf8c
M: 52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 192.169.0.12:6379
   slots:[5461-10922] (5462 slots) master
   1 additional replica(s)
M: cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c 192.169.0.13:6379
   slots:[10923-16383] (5461 slots) master
   1 additional replica(s)
[OK] All nodes agree about slots configuration.
>>> Check for open slots...
>>> Check slots coverage...
[OK] All 16384 slots covered.


/data # redis-cli -c
127.0.0.1:6379>
127.0.0.1:6379>
127.0.0.1:6379> set a b
192.169.0.13:6379> cluster info
cluster_state:ok
cluster_slots_assigned:16384
cluster_slots_ok:16384
cluster_slots_pfail:0
```

```
cluster_slots_fail:0
cluster_known_nodes:6
cluster_size:3
cluster_current_epoch:6
cluster_my_epoch:3
cluster_stats_messages_ping_sent:845
cluster_stats_messages_pong_sent:890
cluster_stats_messages_meet_sent:3
cluster_stats_messages_sent:1738
cluster_stats_messages_ping_received:888
cluster_stats_messages_pong_received:848
cluster_stats_messages_meet_received:2
cluster_stats_messages_received:1738
192.169.0.13:6379> cluster nodes
52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 192.169.0.12:6379@16379 master - 0
1624607469617 2 connected 5461-10922
3e4b623d2dac8f0d02f614f23fac1789cace8022 192.169.0.16:6379@16379 slave
52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 0 1624607468613 6 connected
f4876241b5f7f4ae8b2b15f1d8b6e2043877b194 192.169.0.14:6379@16379 slave
cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c 0 1624607469000 4 connected
cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c 192.169.0.13:6379@16379 myself,master -
0 1624607467000 3 connected 10923-16383
f345e1c37262b4b0ae7b6fdef947676adc2deace 192.169.0.11:6379@16379 master - 0
1624607469000 1 connected 0-5460
d1bf8c446cc8594f5fdc174ae98b2867b41ccd10 192.169.0.15:6379@16379 slave
f345e1c37262b4b0ae7b6fdef947676adc2deace 0 1624607468512 5 connected

#关闭 redis03
192.169.0.14:6379> cluster nodes
f345e1c37262b4b0ae7b6fdef947676adc2deace 192.169.0.11:6379@16379 master - 0
1624607671552 1 connected 0-5460
cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c 192.169.0.13:6379@16379 master,fail -
1624607631340 1624607630535 3 connected
f4876241b5f7f4ae8b2b15f1d8b6e2043877b194 192.169.0.14:6379@16379 myself,master -
0 1624607670000 7 connected 10923-16383
d1bf8c446cc8594f5fdc174ae98b2867b41ccd10 192.169.0.15:6379@16379 slave
f345e1c37262b4b0ae7b6fdef947676adc2deace 0 1624607671000 5 connected
52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 192.169.0.12:6379@16379 master - 0
1624607671552 2 connected 5461-10922
3e4b623d2dac8f0d02f614f23fac1789cace8022 192.169.0.16:6379@16379 slave
52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 0 1624607671952 6 connected
192.169.0.14:6379> cluster nodes
f345e1c37262b4b0ae7b6fdef947676adc2deace 192.169.0.11:6379@16379 master - 0
1624607710239 1 connected 0-5460
cc5b1f4f11732a6b1d408a074d0b7f224ccafb9c 192.169.0.13:6379@16379 slave
f4876241b5f7f4ae8b2b15f1d8b6e2043877b194 0 1624607709233 7 connected
f4876241b5f7f4ae8b2b15f1d8b6e2043877b194 192.169.0.14:6379@16379 myself,master -
0 1624607709000 7 connected 10923-16383
d1bf8c446cc8594f5fdc174ae98b2867b41ccd10 192.169.0.15:6379@16379 slave
f345e1c37262b4b0ae7b6fdef947676adc2deace 0 1624607709000 5 connected
52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 192.169.0.12:6379@16379 master - 0
1624607709000 2 connected 5461-10922
3e4b623d2dac8f0d02f614f23fac1789cace8022 192.169.0.16:6379@16379 slave
52b778473a0c0ae59bf4b7a87ff2a3334072bf8c 0 1624607710038 6 connected
```

# Docker compose

## 安装 docker-compose

```
[root@hoyin ~]# curl -L
https://get.daocloud.io/docker/compose/releases/download/1.25.5/docker-compose-
`uname -s`-`uname -m`  -o /usr/local/bin/docker-compose
curl -l https : //get.daocloud.io/docker/compose/releases /download/1. 25 .
5/docker-compose-'uname -s ' -uname -mT > /usr/loca1/bin/docker-compose
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   423  100   423    0     0    100      0  0:00:04  0:00:04 --:--:--   100
100 16.7M  100 16.7M    0     0  3408k      0  0:00:05  0:00:05 --:--:-- 5127k

[root@hoyin bin]# sudo chmod +x /usr/local/bin/docker-compose #授权
[root@hoyin bin]# docker-compose version
docker-compose version 1.25.5, build 8a1c60f6
docker-py version: 4.1.0
CPython version: 3.7.5
OpenSSL version: OpenSSL 1.1.0l  10 Sep 2019



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)
```

# yaml

```
version: ''
services:
    服务1：
    服务2：
# 其他配置
```