

# Docker

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<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

## 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

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阿里云

容器镜像服务

镜像工具

镜像加速器

三

阿里云

工作台

Q 搜索...

费用 工单 备案 企业 支持

容器镜像服务

实例列表

镜像中心

镜像工具

镜像加速器

容器镜像服务 / 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

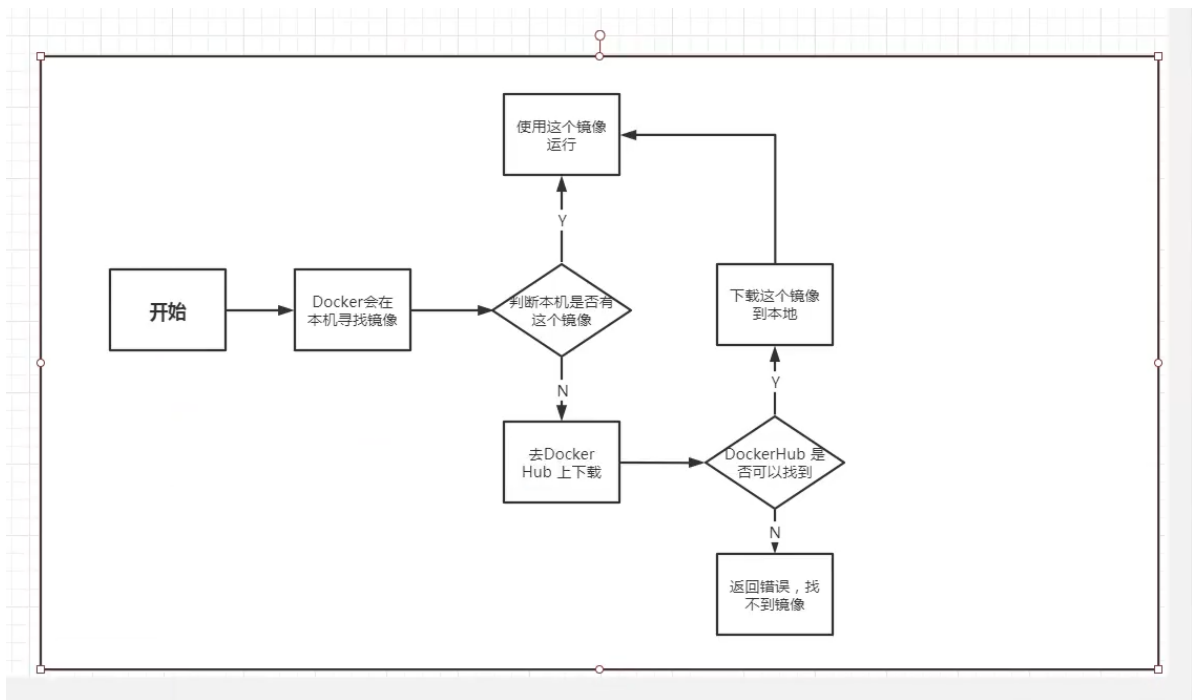
```
sudo mkdir -p /etc/docker

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

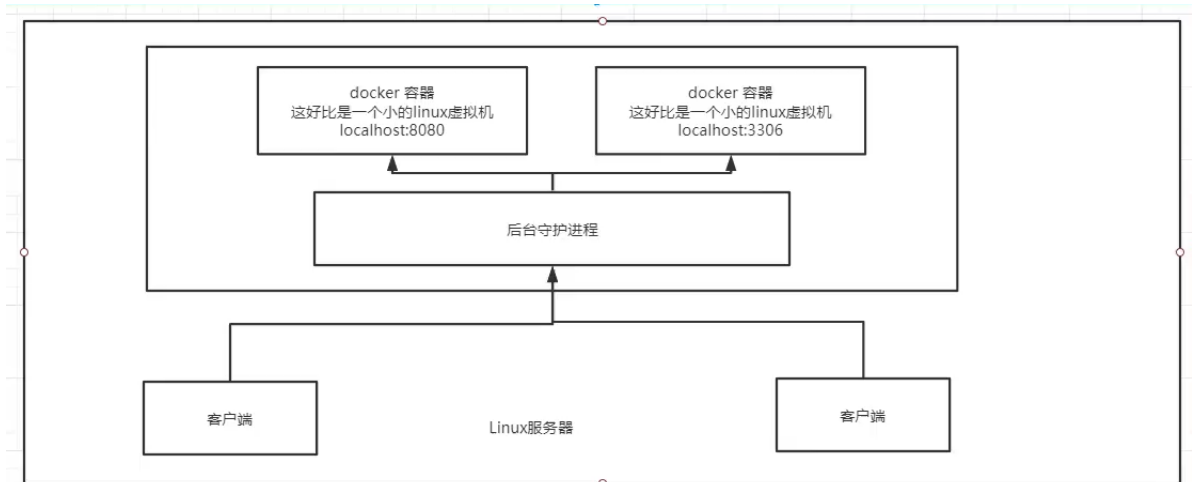


## 底层原理

### 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！



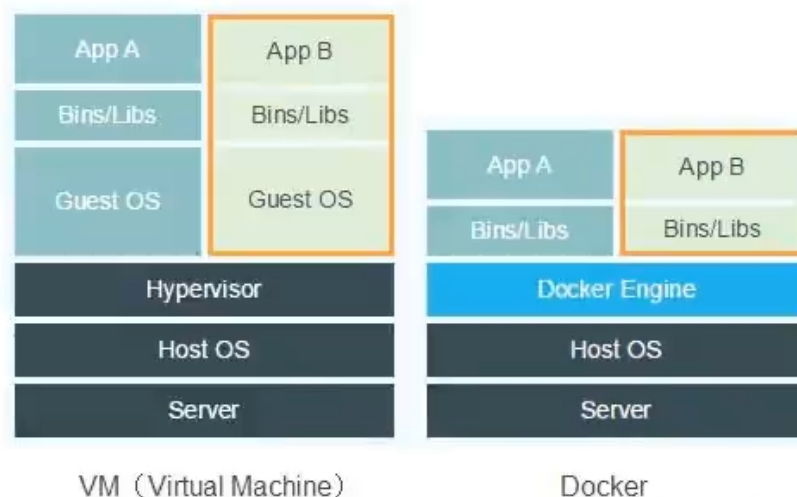
### Docker 为啥比VM快

- 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/>

### 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 dockerId

```
[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: sha256:9d5afda6f6dcf8dd59aef5c02099f1d3b3b0c9ae4f2bb7a61627613e8cdf562
```

### 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"
439d22a43c0e0415db7aa9d497ab078d27bc575172e5c9272771ccbcecf83e8c
# 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",
    "ResolveConfPath":
    "/var/lib/docker/containers/e5c0e34be3611d3c2b0e121262372243a23b46c5b5e540760208
    bb747c5c26b0/resolve.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/overlay2/9b7b52784a0aaddcd63a43094d571b13d4f6f34ff842f9141aba6d1e516a10c8-
init/diff:/var/lib/docker/overlay2/9d30ff772de9466d3dc90840317269af610265c3a04bc
ebdcd5c3b365818e5e/diff",
            "MergedDir":
"/var/lib/docker/overlay2/9b7b52784a0aaddcd63a43094d571b13d4f6f34ff842f9141aba6d1e516a10c8/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

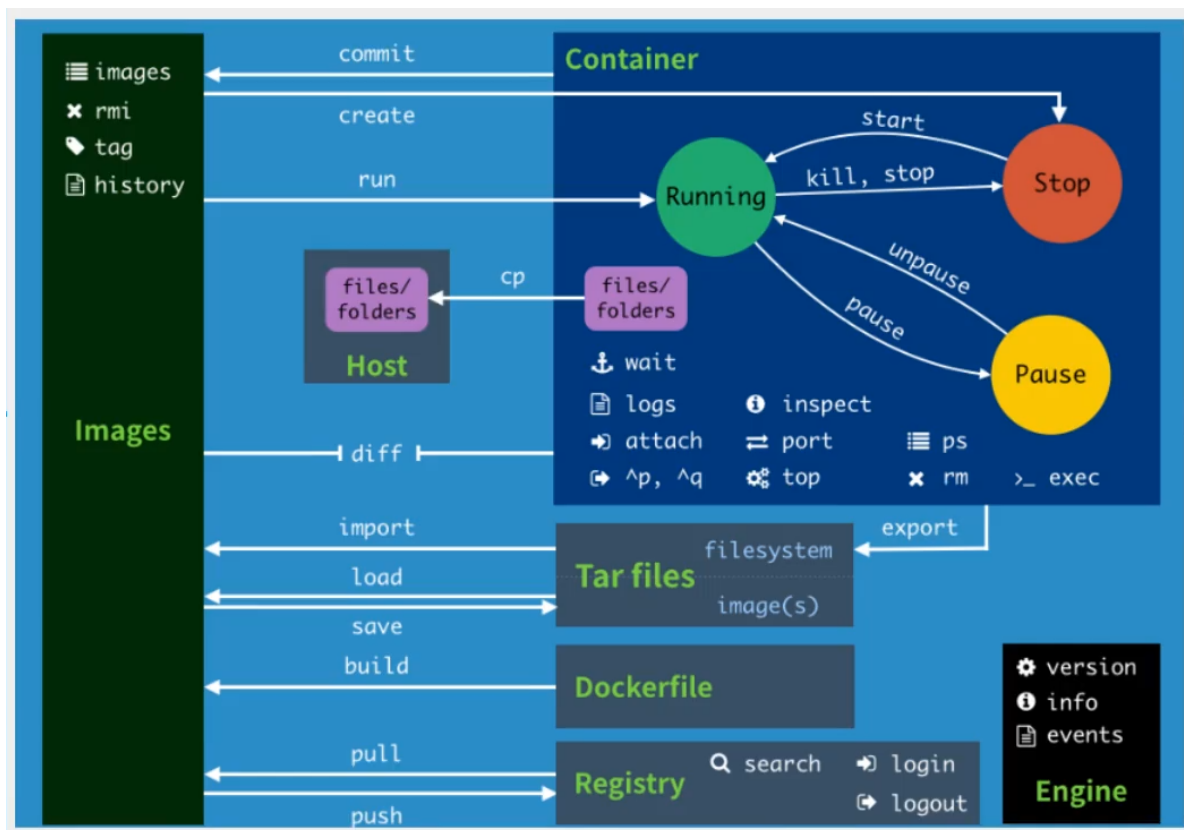
```



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

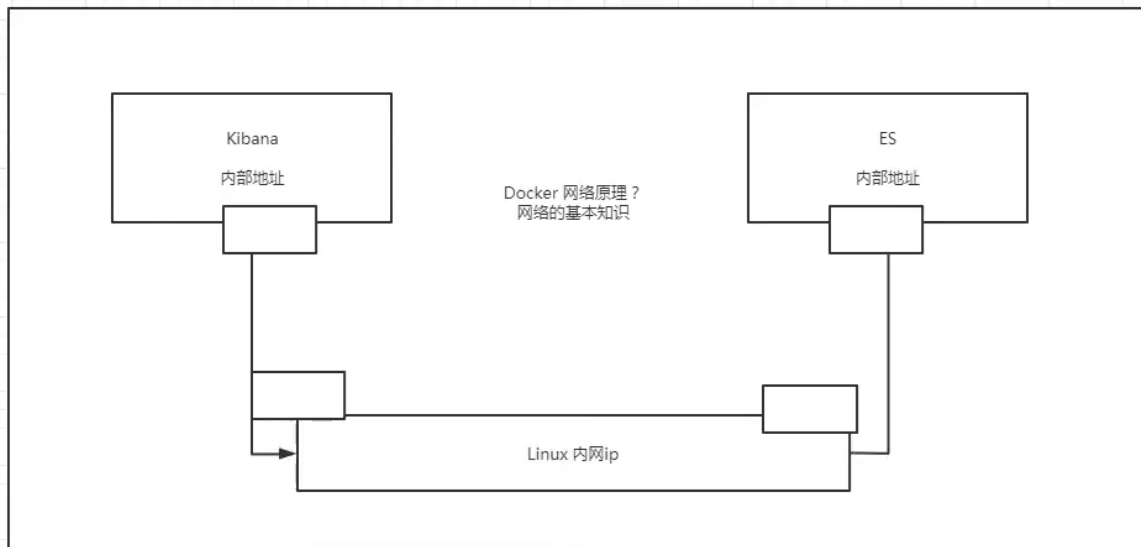
```

## Docker status

| 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_JAVA_OPTS="-Xms64m -Xmx512m"
elasticsearch:7.6.2
```



## 可视化

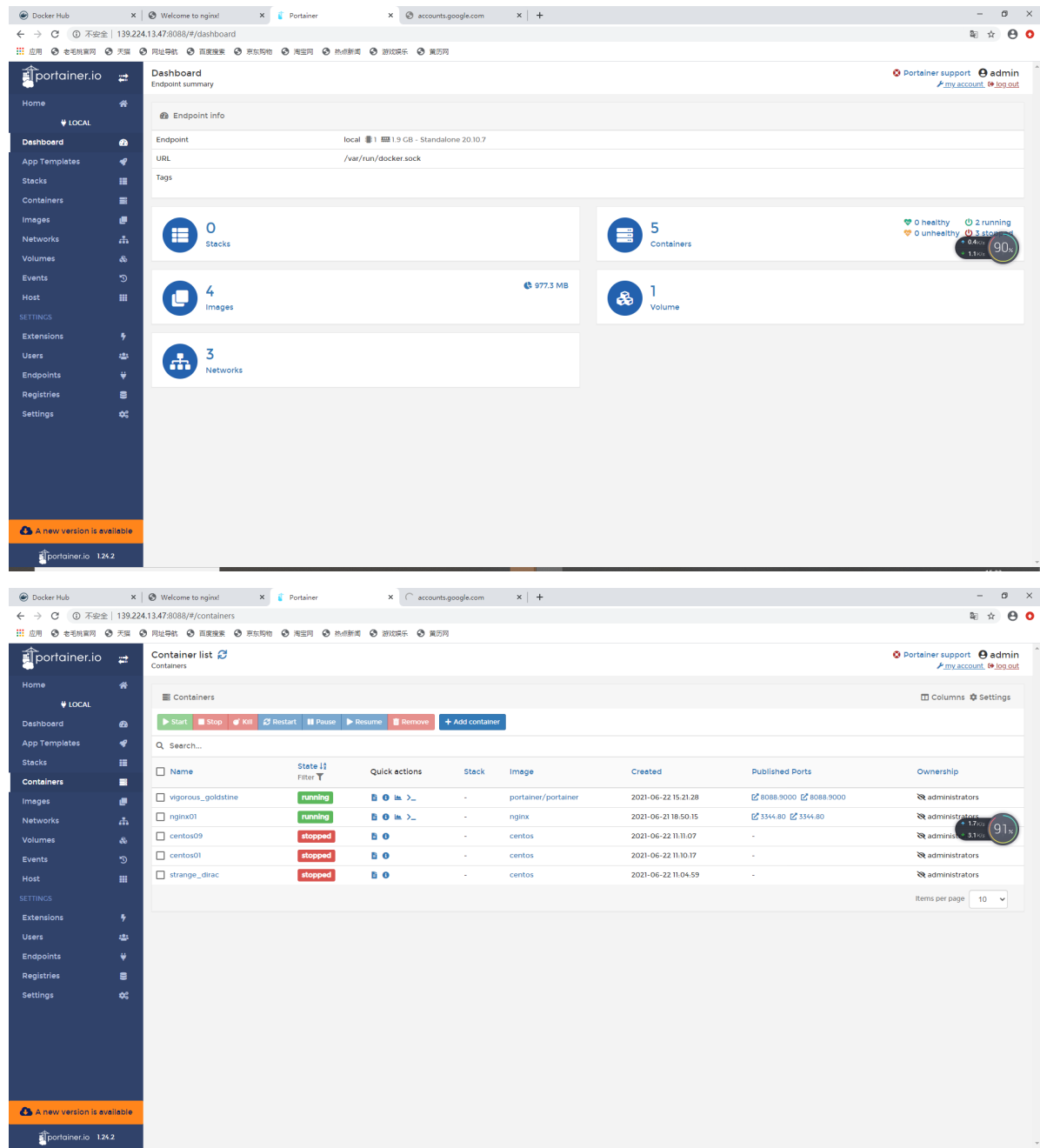
### portainer

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>



# 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
sha256:16923a9b9678f9ce09b5cbc85b124d199e54496d872025ed42f225c07552302c5
[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
2f011b57949081bd0d8e00d2db222aa2992800e9ac7020d46edf49a2a2f767a

```

# 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 nginx
```

```
[root@hoyin test]# docker run -d -P --name nginx01 -v /etc/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:/etc/nginx nginx
```

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

# Dockerfile

## docker build

## #编写Dockerfile脚本

```
[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  |