

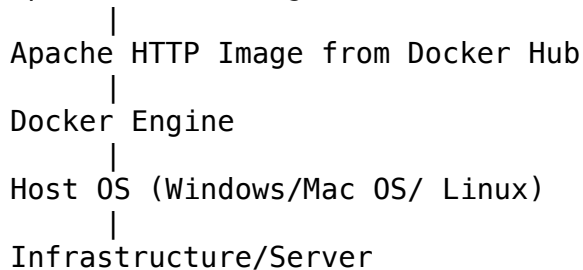
# Apache httpd

## Use Case flow:

Dockerfile -> Build an Image of httpd server with a website to be hosted -> List all images -> inspect image -> Run multiple containers from the image -> Inspect the container -> Show all containers running and stopped -> View container Logs -> Stop and start the Container

## Docker Image Structure:

Apache HTTPD Image with custom httpd.conf and some website



What is a Docker Image?

Analogy between the Docker Image and Camera

User -> Camera (Old age analog camera) -> negative film -> Prints of Photographs

User -> DockerFile -> Docker

Image -> Containers

## Building first image

```
docker build -t my-httpd .
```

```
[+] Building 27.3s (8/8) FINISHED
```

```
=> [internal] load build definition from Dockerfile
```

```
0.1s
```

```
=> => transferring dockerfile: 543B
```

```
0.0s
```

```
=> [internal] load .dockerignore
```

```
0.1s
```

```
=> => transferring context: 2B
```

```
0.0s
```

```
=> [internal] load metadata for docker.io/library/httpd:latest
```

```
7.7s
```

```
=> [1/3] FROM docker.io/library/
```

```
httpd:latest@sha256:b82fb56847fcbcca9f8f162a3232acb4a302af96b1b2af1c4c3ac45ef0c9b968
```

```
18.9s
```

```
=> => resolve docker.io/library/
```

```
httpd:latest@sha256:b82fb56847fcbcca9f8f162a3232acb4a302af96b1b2af1c4c3ac45ef0c9b968
```

```
0.0s
```

```
=> =>
```

```
sha256:b82fb56847fcbcca9f8f162a3232acb4a302af96b1b2af1c4c3ac45ef0c9b968 1.86kB / 1.86kB
```

```
0.0s
```

```
=> =>
```

```
sha256:60b82a0c2599b217d5231d3a54eb9f691ac8bc15b66f8f5f79f383f87c9c5
1ce 1.37kB / 1.37kB
0.0s
=> =>
sha256:7b85101950dd61a280ad3264ff1a7a70cc814fab43556fbe9404485680eb9
8cb 2.79MB / 2.79MB
3.1s
=> =>
sha256:3dd970e6b110c8cbcec63e05a91e3cefd23c76a780fcb78c33979153f044b
2d4 8.74kB / 8.74kB
0.0s
=> =>
sha256:bb79b6b2107fea8e8a47133a660b78e3a546998fcf0427be39ac9a0af4a97
e90 27.09MB / 27.09MB
12.6s
=> =>
sha256:26694ef5449ad005621c511a88a424f4cbb4088ecd7f14c4abfd02c19b05b
201 145B / 145B
1.4s
=> =>
sha256:da919f2696f2b4b65d59b6edec3e2f9e404fb16fc560f374c9d0eeaf877b5
95d 24.47MB / 24.47MB
12.3s
=> =>
sha256:3ae86ea9f1b923270aad9819c8cf14c62dc1fcc6463d3e50d0b499ed7440d
49a 298B / 298B
4.0s
=> => extracting
sha256:bb79b6b2107fea8e8a47133a660b78e3a546998fcf0427be39ac9a0af4a97
e90
3.1s
=> => extracting
sha256:26694ef5449ad005621c511a88a424f4cbb4088ecd7f14c4abfd02c19b05b
201
0.0s
=> => extracting
sha256:7b85101950dd61a280ad3264ff1a7a70cc814fab43556fbe9404485680eb9
8cb
0.3s
=> => extracting
sha256:da919f2696f2b4b65d59b6edec3e2f9e404fb16fc560f374c9d0eeaf877b5
95d
1.8s
=> => extracting
sha256:3ae86ea9f1b923270aad9819c8cf14c62dc1fcc6463d3e50d0b499ed7440d
49a
0.0s
=> [internal] load build context
0.1s
=> => transferring context: 1.1MB
0.1s
=> [2/3] COPY pictolearn-sample/ /usr/local/apache2/htdocs/
pictolearn
0.5s
```

```

=> [3/3] COPY httpd.conf /usr/local/apache2/conf
0.0s
=> exporting to image
0.1s
=> => exporting layers
0.1s
=> => writing image
sha256:f9c5fdcb01cc395d9055b01e2d39a837532b3d947cd68a76e2d9fa7b1ba07f8e
0.0s
=> => naming to docker.io/library/my-httpd

```

## List out images

### docker images

REPOSITORY	TAG	IMAGE ID	CREATED
my-httpd	latest	f9c5fdcb01cc	About a minute ago
hello-world	latest	bf756fb1ae65	10 months ago
	13.3kB		

Image and Containers will have short name as well as long name  
 For Ex: my-httpd has long name  
 f9c5fdcb01cc395d9055b01e2d39a837532b3d947cd68a76e2d9fa7b1ba07f8e and  
 short name f9c5fdcb01cc

## Inspect image

### docker inspect f9c5fdcb01cc

```

[
  {
    "Id":
"sha256:f9c5fdcb01cc395d9055b01e2d39a837532b3d947cd68a76e2d9fa7b1ba07f8e",
    "RepoTags": [
      "my-httpd:latest"
    ],
    "RepoDigests": [],
    "Parent": "",
    "Comment": "buildkit.dockerfile.v0",
    "Created": "2020-11-14T10:36:08.2493638Z",
    "Container": "",
    "ContainerConfig": {
      "Hostname": "",
      "Domainname": "",
      "User": "",
      "AttachStdin": false,
      "AttachStdout": false,
      "AttachStderr": false,
      "Tty": false,
      "OpenStdin": false,
      "StdinOnce": false,
      "Env": null,
      "Cmd": null,
      "Image": "",

```

```

        "Volumes": null,
        "WorkingDir": "",
        "Entrypoint": null,
        "OnBuild": null,
        "Labels": null
    },
    "DockerVersion": "",
    "Author": "",
    "Config": {
        "Hostname": "",
        "Domainname": "",
        "User": "",
        "AttachStdin": false,
        "AttachStdout": false,
        "AttachStderr": false,
        "ExposedPorts": {
            "80/tcp": {}
        },
        "Tty": false,
        "OpenStdin": false,
        "StdinOnce": false,
        "Env": [
            "PATH=/usr/local/apache2/bin:/usr/local/sbin:/usr/
local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
            "HTTPD_PREFIX=/usr/local/apache2",
            "HTTPD_VERSION=2.4.46",
            "HTTPD_SHA256=740eddf6e1c641992b22359cab66e6325868c3c5e2e3f98faf349
b61ecf41ea",
            "HTTPD_PATCHES="
        ],
        "Cmd": [
            "httpd-foreground"
        ],
        "ArgsEscaped": true,
        "Image": "",
        "Volumes": null,
        "WorkingDir": "/usr/local/apache2",
        "Entrypoint": null,
        "OnBuild": null,
        "Labels": {
            "Maintainer": "Pictolearn"
        },
        "StopSignal": "SIGWINCH"
    },
    "Architecture": "amd64",
    "Os": "linux",
    "Size": 138635676,
    "VirtualSize": 138635676,
    "GraphDriver": {
        "Data": {
            "LowerDir": "/var/lib/docker/
overlay2/7130u8h0ovukk0ef1ouxlsc8l/diff:/var/lib/docker/overlay2/
f9f9753d19684ea6b548ba041a9cc141931ea5e840db34114138334973a6a933/

```

```

diff:/var/lib/docker/
overlay2/0fa1b09e43ce7b9fc47d7e2762cd4868365b7e0c60359cfc4f7c06d56df
3b39f/diff:/var/lib/docker/
overlay2/74818c74edcd13811661b383702fdec8c698f3648f0fe0ce6e55dcbb995
cc7ee/diff:/var/lib/docker/overlay2/
c01bb3fac246d30295ed4e1b57964a1c555964202937af25399de32e0f4dbddc/
diff:/var/lib/docker/
overlay2/05a806dca62eca0a3eed88ba147257d5e76059c4a7ff936c2ffe4c542cb
3a1ff/diff",
    "MergedDir": "/var/lib/docker/overlay2/
t4jaiz54x7tt460ufxliy7c1/merged",
    "UpperDir": "/var/lib/docker/overlay2/
t4jaiz54x7tt460ufxliy7c1/diff",
    "WorkDir": "/var/lib/docker/overlay2/
t4jaiz54x7tt460ufxliy7c1/work"
  },
  "Name": "overlay2"
},
"RootFS": {
  "Type": "layers",
  "Layers": [
    "sha256:d0fe97fa8b8cefdffcef1d62b65aba51a6c87b6679628a2b50fc6a7a579f
764c",
    "sha256:6d80bc0bd9236b4371fc137f87ab9d64797767aba342dbe9d7a4f2468286
1a9a",
    "sha256:e6f7f192bbc8a8a3456699ab9b082e2e2363142ec5d6fa4638dc7b789cdd
7675",
    "sha256:c264370aa73656953f8663325abf20f0030ad97abe0076db75f327835853
d3f3",
    "sha256:850c0c904ff3f3faab24f1cf50030d161ca5fcaf07d0fb3e79b9fb242e18
7787",
    "sha256:1c58aa717708dce436b49b565e374e0278da553c54838dd7b911a0c7976a
d4d4",
    "sha256:1cc379ed4822e5bfc831fddb9414ab05d12c7459d5720b0b4d60b7d15f72
c69b"
  ]
},
"Metadata": {
  "LastTagTime": "2020-11-14T10:36:08.3453324Z"
}
}
]

```

## Run images as Container

```
docker run -itd --name my-http-container-1 -p 5555:80 my-
httpd:latest
```

```
cf5f8e28a72cbdf6352c581f4369424da72a0b34624b9e6bb433f095c76beeb90
```

```
docker run -itd --name my-http-container-2 -p 5556:80 my-httpd:latest
8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772
```

```
docker run -itd --name my-http-container-2 -p 5556:80 my-httpd:latest
docker: Error response from daemon: Conflict. The container name "/"
my-http-container-2" is already in use by container
"8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772".
You have to remove (or rename) that container to be able to reuse
that name. See 'docker run --help'.
```

```
docker run -itd --name my-http-container-3 -p 5556:80 my-httpd:latest
218bc35ba1ffb11c3c6aa6f7c45772bd22a48ad315b99b377e6a485d28c14afd
docker: Error response from daemon: driver failed programming
external connectivity on endpoint my-http-container-3
(e67475e80e0dc54dea2aadafe8670b01ee2d11b8c30af32af7e277f2428e9192):
Bind for 0.0.0.0:5556 failed: port is already allocated.
```

## Access hosted website

http://localhost:5555/  
http://localhost:5556/

## List running Containers

```
docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS            PORTS              NAMES
8b15eb7b5aab        my-httpd:latest    "httpd-foreground"  19
minutes ago       Up 18 minutes      0.0.0.0:5556->80/tcp my-http-
container-2
cf5f8e28a72c        my-httpd:latest    "httpd-foreground"  20
minutes ago       Up 20 minutes      0.0.0.0:5555->80/tcp my-http-
container-1
```

## List all Containers (Running and Stopped)

```
docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS            PORTS              NAMES
218bc35ba1ff        my-httpd:latest    "httpd-foreground"  18
minutes ago       Created            my-
http-container-3
8b15eb7b5aab        my-httpd:latest    "httpd-foreground"  19
minutes ago       Up 19 minutes      0.0.0.0:5556->80/tcp my-
http-container-2
cf5f8e28a72c        my-httpd:latest    "httpd-foreground"  21
minutes ago       Up 21 minutes      0.0.0.0:5555->80/tcp my-
http-container-1
cde22a5de0cd        hello-world         "/hello"            5 hours
ago              Exited (0) 5 hours ago
jolly_jang
```

Image and Containers will have short name as well as long name  
For Ex: container 1 has long name

cf5f8e28a72cbdf6352c581f4369424da72a0b34624b9e6bb433f095c76beb90 and short name cf5f8e28a72c

Run container in a non detached mode but the disadvantage is the website will be alive till the lifetime of CLI (When it gets closed we cannot access the contents) [Its like running application without nohup in linux]

```
docker run -it --name my-http-container-not-detached-mode -p 5557:80 my-httpd:latest
```

```
AH00558: httpd: Could not reliably determine the server's fully
qualified domain name, using 172.17.0.4. Set the 'ServerName'
directive globally to suppress this message
AH00558: httpd: Could not reliably determine the server's fully
qualified domain name, using 172.17.0.4. Set the 'ServerName'
directive globally to suppress this message
[Sat Nov 14 12:18:48.564698 2020] [mpm_event:notice] [pid 1:tid
140315819111552] AH00489: Apache/2.4.46 (Unix) configured --
resuming normal operations
[Sat Nov 14 12:18:48.565120 2020] [core:notice] [pid 1:tid
140315819111552] AH00094: Command line: 'httpd -D FOREGROUND'
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET / HTTP/1.1" 200
3294
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /css/
bootstrap.min.css HTTP/1.1" 200 113498
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /js/vendor/
bootstrap.min.js HTTP/1.1" 200 35601
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /css/bootstrap-
theme.min.css HTTP/1.1" 200 19835
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /js/main.js HTTP/
1.1" 200 1
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /css/main.css HTTP/
1.1" 200 204
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /js/vendor/
modernizr-2.8.3-respond-1.4.2.min.js HTTP/1.1" 200 20106
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /apple-touch-
icon.png HTTP/1.1" 200 3959
172.17.0.1 - - [14/Nov/2020:12:18:58 +0000] "GET /favicon.ico HTTP/
1.1" 200 766
172.17.0.1 - - [14/Nov/2020:12:19:00 +0000] "GET / HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:00 +0000] "GET /js/vendor/
modernizr-2.8.3-respond-1.4.2.min.js HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:00 +0000] "GET /js/vendor/
bootstrap.min.js HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:00 +0000] "GET /js/main.js HTTP/
1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET / HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET /js/vendor/
modernizr-2.8.3-respond-1.4.2.min.js HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET /js/main.js HTTP/
1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET /js/vendor/
bootstrap.min.js HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET / HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET /js/vendor/
```

```
modernizr-2.8.3-respons-1.4.2.min.js HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET /js/vendor/
bootstrap.min.js HTTP/1.1" 304 -
172.17.0.1 - - [14/Nov/2020:12:19:01 +0000] "GET /js/main.js HTTP/
1.1" 304 -
```

## Access hosted website

<http://localhost:5557/>

Once the CLI is closed the application goes down

## Run container without port number. A random port number gets assigned

```
docker run -itd --name my-http-container-with-random-port -P my-
httpd:latest
efd179866fdf9dda5a6d811985fa851fec69a9c36ad19114b3e1c9b9fb75f109
```

### docker ps

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS	NAMES	
efd179866fdf	my-httpd:latest	"httpd-foreground"	7 minutes ago
	Up 6 minutes	0.0.0.0:32768->80/tcp	my-http-container-with-random-port
8b15eb7b5aab	my-httpd:latest	"httpd-foreground"	2 hours ago
	Up 2 hours	0.0.0.0:5556->80/tcp	my-http-container-2
cf5f8e28a72c	my-httpd:latest	"httpd-foreground"	2 hours ago
	Up 2 hours	0.0.0.0:5555->80/tcp	my-http-container-1

## Access hosted website

<http://localhost:32768/>

## Inspect container

```
docker inspect 8b15eb7b5aab
```

```
[
  {
    "Id":
"8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772",
    "Created": "2020-11-14T11:43:48.8111446Z",
    "Path": "httpd-foreground",
    "Args": [],
    "State": {
      "Status": "running",
      "Running": true,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 2114,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2020-11-14T11:43:49.2755809Z",
```



```

        "FinishedAt": "0001-01-01T00:00:00Z"
    },
    "Image":
"sha256:f9c5fdcb01cc395d9055b01e2d39a837532b3d947cd68a76e2d9fa7b1ba0
7f8e",
    "ResolvConfPath": "/var/lib/docker/containers/
8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772/
resolv.conf",
    "HostnamePath": "/var/lib/docker/containers/
8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772/
hostname",
    "HostsPath": "/var/lib/docker/containers/
8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772/
hosts",
    "LogPath": "/var/lib/docker/containers/
8b15eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772/8b1
5eb7b5aab5f3311e4802be8a26880c1e74a9496041f882824016507800772-
json.log",
    "Name": "/my-http-container-2",
    "RestartCount": 0,
    "Driver": "overlay2",
    "Platform": "linux",
    "MountLabel": "",
    "ProcessLabel": "",
    "AppArmorProfile": "",
    "ExecIDs": null,
    "HostConfig": {
        "Binds": null,
        "ContainerIDFile": "",
        "LogConfig": {
            "Type": "json-file",
            "Config": {}
        },
        "NetworkMode": "default",
        "PortBindings": {
            "80/tcp": [
                {
                    "HostIp": "",
                    "HostPort": "5556"
                }
            ]
        },
        "RestartPolicy": {
            "Name": "no",
            "MaximumRetryCount": 0
        },
        "AutoRemove": false,
        "VolumeDriver": "",
        "VolumesFrom": null,
        "CapAdd": null,
        "CapDrop": null,
        "Capabilities": null,
        "Dns": [],
        "DnsOptions": [],

```

```
"DnsSearch": [],
"ExtraHosts": null,
"GroupAdd": null,
"IpcMode": "private",
"Cgroup": "",
"Links": null,
"OomScoreAdj": 0,
"PidMode": "",
"Privileged": false,
"PublishAllPorts": false,
"ReadonlyRootfs": false,
"SecurityOpt": null,
"UTSMode": "",
"UsersnsMode": "",
"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/
e7ec46678bf724a40926c0a55f2b553e3aee4f88f1fbacd0ee0e38b6c3a8987d-
init/diff:/var/lib/docker/overlay2/t4jaiz54x7tt460ufxliy7c1/diff:/
var/lib/docker/overlay2/7130u8h0ovukk0ef1oux1sc8l/diff:/var/lib/
docker/overlay2/
f9f9753d19684ea6b548ba041a9cc141931ea5e840db34114138334973a6a933/
diff:/var/lib/docker/
overlay2/0fa1b09e43ce7b9fc47d7e2762cd4868365b7e0c60359cfc4f7c06d56df
3b39f/diff:/var/lib/docker/
overlay2/74818c74edcd13811661b383702fdec8c698f3648f0fe0ce6e55dcbb995
cc7ee/diff:/var/lib/docker/overlay2/
c01bb3fac246d30295ed4e1b57964a1c555964202937af25399de32e0f4dbddc/
diff:/var/lib/docker/
overlay2/05a806dca62eca0a3eed88ba147257d5e76059c4a7ff936c2ffe4c542cb
3a1ff/diff",
        "MergedDir": "/var/lib/docker/overlay2/
e7ec46678bf724a40926c0a55f2b553e3aee4f88f1fbacd0ee0e38b6c3a8987d/
merged",
        "UpperDir": "/var/lib/docker/overlay2/
e7ec46678bf724a40926c0a55f2b553e3aee4f88f1fbacd0ee0e38b6c3a8987d/
diff",
        "WorkDir": "/var/lib/docker/overlay2/
e7ec46678bf724a40926c0a55f2b553e3aee4f88f1fbacd0ee0e38b6c3a8987d/
work"
    },
    "Name": "overlay2"
},
"Mounts": [],
"Config": {
    "Hostname": "8b15eb7b5aab",
    "Domainname": "",
    "User": "",
    "AttachStdin": false,
    "AttachStdout": false,

```

```

    "AttachStderr": false,
    "ExposedPorts": {
      "80/tcp": {}
    },
    "Tty": true,
    "OpenStdin": true,
    "StdinOnce": false,
    "Env": [
      "PATH=/usr/local/apache2/bin:/usr/local/sbin:/usr/
local/bin:/usr/sbin:/usr/bin:/sbin:/bin",
      "HTTPD_PREFIX=/usr/local/apache2",
      "HTTPD_VERSION=2.4.46",
      "HTTPD_SHA256=740eddf6e1c641992b22359cab66e6325868c3c5e2e3f98faf349
b61ecf41ea",
      "HTTPD_PATCHES="
    ],
    "Cmd": [
      "httpd-foreground"
    ],
    "Image": "my-httpd:latest",
    "Volumes": null,
    "WorkingDir": "/usr/local/apache2",
    "Entrypoint": null,
    "OnBuild": null,
    "Labels": {
      "Maintainer": "Pictolearn"
    },
    "StopSignal": "SIGWINCH"
  },
  "NetworkSettings": {
    "Bridge": "",
    "SandboxID":
"aeee678aa4157ede34ceb807f78a3b808a2a1f1a6c424b446e93b77fad73d187",
    "HairpinMode": false,
    "LinkLocalIPv6Address": "",
    "LinkLocalIPv6PrefixLen": 0,
    "Ports": {
      "80/tcp": [
        {
          "HostIp": "0.0.0.0",
          "HostPort": "5556"
        }
      ]
    },
    "SandboxKey": "/var/run/docker/netns/aeee678aa415",
    "SecondaryIPAddresses": null,
    "SecondaryIPv6Addresses": null,
    "EndpointID":
"5badb197610941d0dc1f12bae08086c033782d20d09b8a36443beeb6d48fceb",
    "Gateway": "172.17.0.1",
    "GlobalIPv6Address": "",
    "GlobalIPv6PrefixLen": 0,
    "IPAddress": "172.17.0.3",

```

```

    "IPPrefixLen": 16,
    "IPv6Gateway": "",
    "MacAddress": "02:42:ac:11:00:03",
    "Networks": {
      "bridge": {
        "IPAMConfig": null,
        "Links": null,
        "Aliases": null,
        "NetworkID":
"13713630074ab7623771d70643b635ecc30fb77a7d2912f7aa4832931c141ae6",
        "EndpointID":
"5badb197610941d0dc1f12bae08086c033782d20d09b8a36443beeb6d48fceb",
        "Gateway": "172.17.0.1",
        "IPAddress": "172.17.0.3",
        "IPPrefixLen": 16,
        "IPv6Gateway": "",
        "GlobalIPv6Address": "",
        "GlobalIPv6PrefixLen": 0,
        "MacAddress": "02:42:ac:11:00:03",
        "DriverOpts": null
      }
    }
  }
}
]

```

It shows all the metadata's of container. It shows long form of Unique ID, short form, When it was created, is it running, when it was paused, finished, started, shows image-id from which it was created, and many more. It helps in resolving any errors or debugging or troubleshooting purpose. It also has Gateway address, IP address, Mac Address, and many more things.

## View logs of Container (Background process)

**docker logs efd179866fdf**

```

AH00558: httpd: Could not reliably determine the server's fully
qualified domain name, using 172.17.0.4. Set the 'ServerName'
directive globally to suppress this message
AH00558: httpd: Could not reliably determine the server's fully
qualified domain name, using 172.17.0.4. Set the 'ServerName'
directive globally to suppress this message
[Sat Nov 14 13:30:05.263530 2020] [mpm_event:notice] [pid 1:tid
139947570611328] AH00489: Apache/2.4.46 (Unix) configured --
resuming normal operations
[Sat Nov 14 13:30:05.264430 2020] [core:notice] [pid 1:tid
139947570611328] AH00094: Command line: 'httpd -D FOREGROUND'
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET / HTTP/1.1" 200
3294
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /css/
bootstrap.min.css HTTP/1.1" 200 113498
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /js/vendor/
modernizr-2.8.3-respons-1.4.2.min.js HTTP/1.1" 200 20106

```

```
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /css/main.css HTTP/1.1" 200 204
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /js/main.js HTTP/1.1" 200 1
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /css/bootstrap-theme.min.css HTTP/1.1" 200 19835
172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /js/vendor/bootstrap.min.js HTTP/1.1" 200 35601
172.17.0.1 - - [14/Nov/2020:13:37:21 +0000] "GET /apple-touch-icon.png HTTP/1.1" 200 3959
172.17.0.1 - - [14/Nov/2020:13:37:21 +0000] "GET /favicon.ico HTTP/1.1" 200 766
```

## View logs of Container (Foreground process)

```
docker logs -ft efd179866fdf
```

```
2020-11-14T13:30:05.244248200Z AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 172.17.0.4. Set the 'ServerName' directive globally to suppress this message
2020-11-14T13:30:05.259856300Z AH00558: httpd: Could not reliably determine the server's fully qualified domain name, using 172.17.0.4. Set the 'ServerName' directive globally to suppress this message
2020-11-14T13:30:05.264263700Z [Sat Nov 14 13:30:05.263530 2020] [mpm_event:notice] [pid 1:tid 139947570611328] AH00489: Apache/2.4.46 (Unix) configured -- resuming normal operations
2020-11-14T13:30:05.264894200Z [Sat Nov 14 13:30:05.264430 2020] [core:notice] [pid 1:tid 139947570611328] AH00094: Command line: 'httpd -D FOREGROUND'
2020-11-14T13:37:20.741968100Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET / HTTP/1.1" 200 3294
2020-11-14T13:37:20.960557800Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /css/bootstrap.min.css HTTP/1.1" 200 113498
2020-11-14T13:37:20.967350200Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /js/vendor/modernizr-2.8.3-respond-1.4.2.min.js HTTP/1.1" 200 20106
2020-11-14T13:37:20.967425600Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /css/main.css HTTP/1.1" 200 204
2020-11-14T13:37:20.967449900Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /js/main.js HTTP/1.1" 200 1
2020-11-14T13:37:20.967481500Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /css/bootstrap-theme.min.css HTTP/1.1" 200 19835
2020-11-14T13:37:20.968213500Z 172.17.0.1 - - [14/Nov/2020:13:37:20 +0000] "GET /js/vendor/bootstrap.min.js HTTP/1.1" 200 35601
2020-11-14T13:37:21.242419300Z 172.17.0.1 - - [14/Nov/2020:13:37:21 +0000] "GET /apple-touch-icon.png HTTP/1.1" 200 3959
2020-11-14T13:37:21.242736500Z 172.17.0.1 - - [14/Nov/2020:13:37:21 +0000] "GET /favicon.ico HTTP/1.1" 200 766
2020-11-14T14:09:42.065130400Z 172.17.0.1 - - [14/Nov/2020:14:09:42 +0000] "GET / HTTP/1.1" 200 3294
2020-11-14T14:09:42.150581800Z 172.17.0.1 - - [14/Nov/2020:14:09:42 +0000] "GET /js/vendor/modernizr-2.8.3-respond-1.4.2.min.js HTTP/1.1" 200 20106
2020-11-14T14:09:42.160251800Z 172.17.0.1 - - [14/Nov/2020:14:09:42
```

```
+0000] "GET /js/vendor/bootstrap.min.js HTTP/1.1" 304 -
2020-11-14T14:09:42.171051900Z 172.17.0.1 - - [14/Nov/2020:14:09:42
+0000] "GET /js/main.js HTTP/1.1" 304 -
2020-11-14T14:10:24.199992900Z 172.17.0.1 - - [14/Nov/2020:14:10:24
+0000] "GET / HTTP/1.1" 304 -
2020-11-14T14:10:24.283321100Z 172.17.0.1 - - [14/Nov/2020:14:10:24
+0000] "GET /js/vendor/modernizr-2.8.3-respond-1.4.2.min.js HTTP/
1.1" 304 -
2020-11-14T14:10:24.283395700Z 172.17.0.1 - - [14/Nov/2020:14:10:24
+0000] "GET /js/main.js HTTP/1.1" 304 -
2020-11-14T14:10:24.287171500Z 172.17.0.1 - - [14/Nov/2020:14:10:24
+0000] "GET /js/vendor/bootstrap.min.js HTTP/1.1" 304 -
2020-11-14T14:10:25.551750400Z 172.17.0.1 - - [14/Nov/2020:14:10:25
+0000] "GET / HTTP/1.1" 304 -
2020-11-14T14:10:25.618032500Z 172.17.0.1 - - [14/Nov/2020:14:10:25
+0000] "GET /js/vendor/modernizr-2.8.3-respond-1.4.2.min.js HTTP/
1.1" 304 -
2020-11-14T14:10:25.626368000Z 172.17.0.1 - - [14/Nov/2020:14:10:25
+0000] "GET /js/main.js HTTP/1.1" 304 -
2020-11-14T14:10:25.627156200Z 172.17.0.1 - - [14/Nov/2020:14:10:25
+0000] "GET /js/vendor/bootstrap.min.js HTTP/1.1" 304 -
2020-11-14T14:10:26.571552800Z 172.17.0.1 - - [14/Nov/2020:14:10:26
+0000] "GET / HTTP/1.1" 304 -
2020-11-14T14:10:26.626670600Z 172.17.0.1 - - [14/Nov/2020:14:10:26
+0000] "GET /js/vendor/modernizr-2.8.3-respond-1.4.2.min.js HTTP/
1.1" 304 -
2020-11-14T14:10:26.630018600Z 172.17.0.1 - - [14/Nov/2020:14:10:26
+0000] "GET /js/vendor/bootstrap.min.js HTTP/1.1" 304 -
2020-11-14T14:10:26.630556400Z 172.17.0.1 - - [14/Nov/2020:14:10:26
+0000] "GET /js/main.js HTTP/1.1" 304 -
```

#### **docker ps -a**

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS	NAMES	
efd179866fdf	my-httpd:latest	"httpd-foreground"	About
an hour ago	Up About an hour	0.0.0.0:32768->80/tcp	my-
http-container-with-random-port			
9fdf31d91125	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-10-not-detached-mode			
2ba7e708705c	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-not-detached-mode			
811683a80a82	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-5-non-detached			
0e20474d75a8	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-4-non-detached			
4fa94aa7a333	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-3-non-detached			
218bc35ba1ff	my-httpd:latest	"httpd-foreground"	3 hours
ago	Created		my-

```

http-container-3
8b15eb7b5aab      my-httpd:latest      "httpd-foreground"    3 hours
ago              Up 3 hours           0.0.0.0:5556->80/tcp    my-
http-container-2
cf5f8e28a72c      my-httpd:latest      "httpd-foreground"    3 hours
ago              Up 3 hours           0.0.0.0:5555->80/tcp    my-
http-container-1
cde22a5de0cd      hello-world           "/hello"               7 hours
ago              Exited (0) 7 hours ago
jolly_jang

```

## Stop and start Container

```

docker stop efd179866fdf
efd179866fdf

```

We even don't need to mention short name of Container to stop or start. By mentioning start letter of container will be enough (Docker will automatically finds it)

`docker stop e` (Since there is no container starts with e except one docker will find it recognise it easily)

```

docker ps -a

```

CONTAINER ID	IMAGE	COMMAND	CREATED
efd179866fdf	my-httpd:latest	"httpd-foreground"	About my-
an hour ago	Exited (0) 3 seconds ago		
http-container-with-random-port	my-httpd:latest	"httpd-foreground"	2 hours my-
9fdf31d91125	my-httpd:latest	"httpd-foreground"	2 hours my-
ago	Exited (0) 2 hours ago		
http-container-10-not-detached-mode	my-httpd:latest	"httpd-foreground"	2 hours my-
2ba7e708705c	my-httpd:latest	"httpd-foreground"	2 hours my-
ago	Exited (0) 2 hours ago		
http-container-not-detached-mode	my-httpd:latest	"httpd-foreground"	2 hours my-
811683a80a82	my-httpd:latest	"httpd-foreground"	2 hours my-
ago	Exited (0) 2 hours ago		
http-container-5-non-detached	my-httpd:latest	"httpd-foreground"	2 hours my-
0e20474d75a8	my-httpd:latest	"httpd-foreground"	2 hours my-
ago	Exited (0) 2 hours ago		
http-container-4-non-detached	my-httpd:latest	"httpd-foreground"	2 hours my-
4fa94aa7a333	my-httpd:latest	"httpd-foreground"	2 hours my-
ago	Exited (0) 2 hours ago		
http-container-3-non-detached	my-httpd:latest	"httpd-foreground"	3 hours my-
218bc35ba1ff	my-httpd:latest	"httpd-foreground"	3 hours my-
ago	Created		
http-container-3	my-httpd:latest	"httpd-foreground"	3 hours my-
8b15eb7b5aab	my-httpd:latest	"httpd-foreground"	3 hours my-
ago	Up 3 hours	0.0.0.0:5556->80/tcp	
http-container-2	my-httpd:latest	"httpd-foreground"	3 hours my-
cf5f8e28a72c	my-httpd:latest	"httpd-foreground"	3 hours my-
ago	Up 3 hours	0.0.0.0:5555->80/tcp	
http-container-1	hello-world	" /hello"	7 hours
cde22a5de0cd	hello-world	" /hello"	7 hours
ago	Exited (0) 7 hours ago		



jolly\_jang

**docker start efd179866fdf**

efd179866fdf

**docker ps -a**

CONTAINER ID	IMAGE	COMMAND	CREATED
STATUS	PORTS	NAMES	
efd179866fdf	my-httpd:latest	"httpd-foreground"	About
an hour ago	Up 51 seconds	0.0.0.0:32769->80/tcp	my-
http-container-with-random-port			
9fdf31d91125	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-10-not-detached-mode			
2ba7e708705c	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-not-detached-mode			
811683a80a82	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-5-non-detached			
0e20474d75a8	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-4-non-detached			
4fa94aa7a333	my-httpd:latest	"httpd-foreground"	2 hours
ago	Exited (0) 2 hours ago		my-
http-container-3-non-detached			
218bc35ba1ff	my-httpd:latest	"httpd-foreground"	3 hours
ago	Created		my-
http-container-3			
8b15eb7b5aab	my-httpd:latest	"httpd-foreground"	3 hours
ago	Up 3 hours	0.0.0.0:5556->80/tcp	my-
http-container-2			
cf5f8e28a72c	my-httpd:latest	"httpd-foreground"	3 hours
ago	Up 3 hours	0.0.0.0:5555->80/tcp	my-
http-container-1			
cde22a5de0cd	hello-world	"/hello"	7 hours
ago	Exited (0) 7 hours ago		

jolly\_jang