

# Docker

## 1. docker info

```
Server:
Containers: 1
  Running: 0
  Paused: 0
  Stopped: 1
Images: 2
Server Version: 27.4.0
Storage Driver: overlayfs
  driver-type: io.containerd.snapshotter.v1
Logging Driver: json-file
Cgroup Driver: cgroupfs
Cgroup Version: 1
Plugins:
  Volume: local
  Network: bridge host ipvlan macvlan null overlay
  Log: awslogs fluentd gcplogs gelf journald json-file local splunk syslog
CDI spec directories:
  /etc/cdi
  /var/run/cdi
Swarm: inactive
Runtimes: nvidia runc io.containerd.runc.v2
Default Runtime: runc
Init Binary: docker-init
containerd version: 472731909fa34bd7bc9c087e4c27943f9835f111
runc version: v1.1.13-0-g58aa920
init version: de40ad0
Security Options:
  seccomp
  Profile: unconfined
Kernel Version: 5.15.153.1-microsoft-standard-WSL2
Operating System: Docker Desktop
OSType: linux
Architecture: x86_64
CPUs: 8
Total Memory: 7.682GiB
Name: docker-desktop
ID: 501ae6ea-4fa4-47d8-8c04-587cc81647c9
Docker Root Dir: /var/lib/docker
```

## 2. Running first container

```

root@e2e7e8fbc139: /
PS C:\Users\Beqir> docker run -it ubuntu bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
5a7813e071bf: Download complete
Digest: sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782
Status: Downloaded newer image for ubuntu:latest
root@e2e7e8fbc139: /# |

```

## 3. Hostname

```

root@e2e7e8fbc139: /etc
root@e2e7e8fbc139: /# hostname
e2e7e8fbc139
root@e2e7e8fbc139: /# ls
bin    dev    home  lib64  mnt    proc   run    srv    tmp    var
boot  etc    lib    media  opt    root   sbin   sys    usr
root@e2e7e8fbc139: /# cd etc
root@e2e7e8fbc139: /etc# ls
alternatives      gshadow-      networks      rmt
apt               host.conf     nsswitch.conf security
bash.bashrc       hostname      opt            selinux
bindresvport.blacklist hosts          os-release    shadow
cloud             init.d        pam.conf       shadow-
cron.d            issue         pam.d          shells
cron.daily        issue.net     passwd        skel
debconf.conf      kernel        passwd-       subgid
debian_version    ld.so.cache   profile        subgid-
default           ld.so.conf    profile.d      subuid
dpkg              ld.so.conf.d  rc0.d          subuid-
e2scrub.conf      legal         rc1.d          sysctl.conf
environment       libaudit.conf rc2.d          sysctl.d
fstab             login.defs    rc3.d          systemd
gai.conf          logrotate.d   rc4.d          terminfo
gnutls            lsb-release   rc5.d          update-motd.d
group            machine-id    rc6.d          xattr.conf
group-            mke2fs.conf   rcS.d
gshadow           mtab          resolv.conf
root@e2e7e8fbc139: /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
172.17.0.2        e2e7e8fbc139
root@e2e7e8fbc139: /etc# |

```

## 4. Network configuration and Container processes

```

root@e2e7e8fbc139: /
root@e2e7e8fbc139:/etc# cd ..
root@e2e7e8fbc139:/# hostname -I
172.17.0.2
root@e2e7e8fbc139:/# ps -aux
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1   0.0   0.0   4588   3980 pts/0    Ss   15:13   0:00 bash
root        17   0.0   0.0   7888   3976 pts/0    R+   15:17   0:00 ps -aux
root@e2e7e8fbc139:/# |

```

## 5. Installing vim and I get a prompt for to set the time zone.

```

root@e2e7e8fbc139:/# apt-get update; apt-get install vim
Get:1 http://archive.ubuntu.com/ubuntu noble InRelease [256 kB]
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [841 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:5 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [1062 kB]

```

Please select the geographic area in which you live. Subsequent configuration questions will narrow this down by presenting a list of cities, representing the time zones in which they are located.

- |               |             |              |             |
|---------------|-------------|--------------|-------------|
| 1. Africa     | 4. Arctic   | 7. Australia | 10. Pacific |
| 2. America    | 5. Asia     | 8. Europe    | 11. Etc     |
| 3. Antarctica | 6. Atlantic | 9. Indian    | 12. Legacy  |

Geographic area: 8

Please select the city or region corresponding to your time zone.

- |                |                 |                |               |
|----------------|-----------------|----------------|---------------|
| 1. Amsterdam   | 17. Guernsey    | 33. Monaco     | 49. Stockholm |
| 2. Andorra     | 18. Helsinki    | 34. Moscow     | 50. Tallinn   |
| 3. Astrakhan   | 19. Isle_of_Man | 35. Nicosia    | 51. Tirane    |
| 4. Athens      | 20. Istanbul    | 36. Oslo       | 52. Tiraspol  |
| 5. Belfast     | 21. Jersey      | 37. Paris      | 53. Ulyanovsk |
| 6. Belgrade    | 22. Kaliningrad | 38. Podgorica  | 54. Vaduz     |
| 7. Berlin      | 23. Kirov       | 39. Prague     | 55. Vatican   |
| 8. Bratislava  | 24. Kyiv        | 40. Riga       | 56. Vienna    |
| 9. Brussels    | 25. Lisbon      | 41. Rome       | 57. Vilnius   |
| 10. Bucharest  | 26. Ljubljana   | 42. Samara     | 58. Volgograd |
| 11. Budapest   | 27. London      | 43. San_Marino | 59. Warsaw    |
| 12. Busingen   | 28. Luxembourg  | 44. Sarajevo   | 60. Zagreb    |
| 13. Chisinau   | 29. Madrid      | 45. Saratov    | 61. Zurich    |
| 14. Copenhagen | 30. Malta       | 46. Simferopol |               |
| 15. Dublin     | 31. Mariehamn   | 47. Skopje     |               |
| 16. Gibraltar  | 32. Minsk       | 48. Sofia      |               |

Time zone: 17

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## 6. Listing all containers

```
PowerShell
PS C:\Users\Beqir> docker ps -a
```

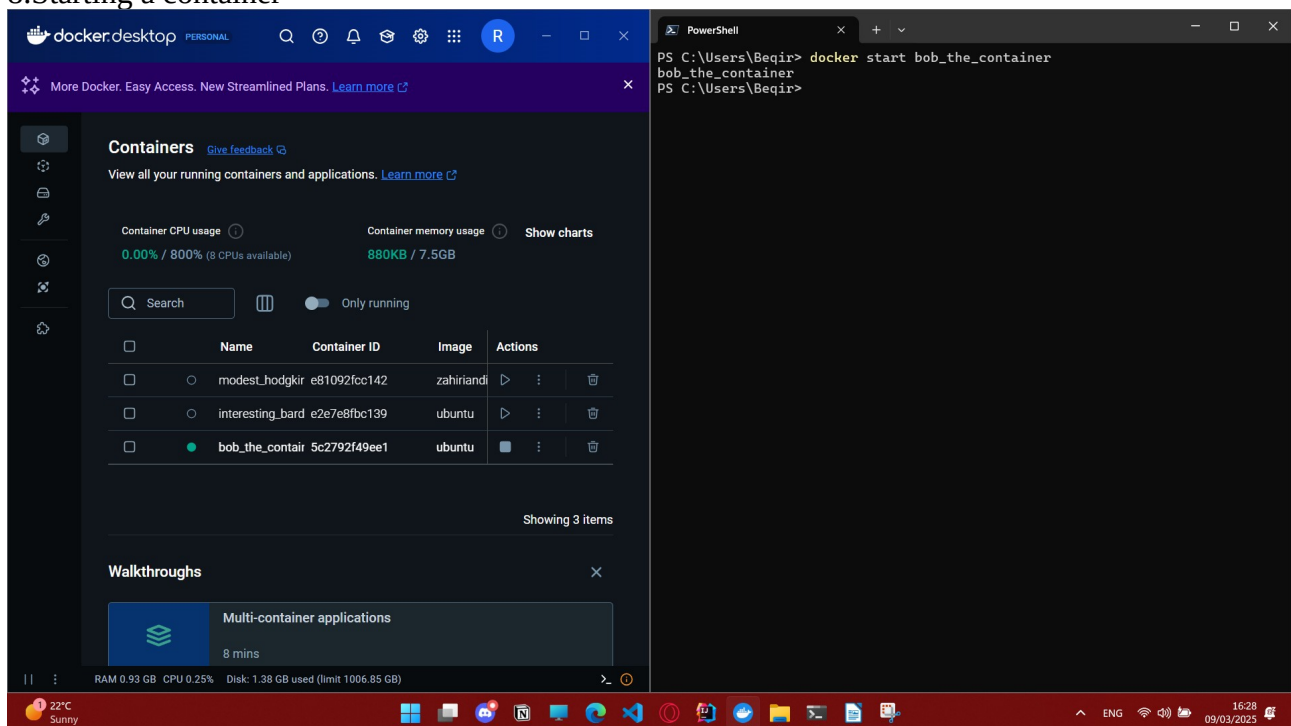
CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
e2e7e8fbc139	ubuntu	"bash"	10 minutes ago	Exited (0) 26 seconds ago		interesting_bardeen
e81092fcc142	zahiriandii/audio-editor-app	"/docker-entrypoint..."	3 weeks ago	Exited (0) 3 weeks ago		modest_hodgkin

```
PS C:\Users\Beqir>
```

## 7. Naming a container

```
PS C:\Users\Beqir> docker run --name bob_the_container -it ubuntu bash
root@5c2792f49ee1:/#
```

## 8. Starting a container



## 9. Attaching to running container

```
root@5c2792f49ee1: /
PS C:\Users\Beqir> docker attach bob_the_container
root@5c2792f49ee1:/# hostname
5c2792f49ee1
root@5c2792f49ee1:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
```

## 10.Creating , viewing and fetching the logs from the daemon\_dave container

[illegible]

## 11.Tailing the logs from the daemon\_dave container

```
2025-03-09T15:38:45.969636566Z hello world
2025-03-09T15:38:46.970612005Z hello world
2025-03-09T15:38:47.971688450Z hello world
2025-03-09T15:38:48.972719892Z hello world
2025-03-09T15:38:49.973801138Z hello world
2025-03-09T15:38:50.974929185Z hello world
2025-03-09T15:38:51.976035077Z hello world
2025-03-09T15:38:52.977184738Z hello world
2025-03-09T15:38:53.978255995Z hello world
2025-03-09T15:38:54.979326453Z hello world
2025-03-09T15:38:55.980316705Z hello world
2025-03-09T15:38:56.981430565Z hello world
2025-03-09T15:38:57.982609128Z hello world
2025-03-09T15:38:58.983713987Z hello world
2025-03-09T15:38:59.984765586Z hello world
2025-03-09T15:39:00.986144412Z hello world
2025-03-09T15:39:01.986185144Z hello world
2025-03-09T15:39:02.987474865Z hello world
2025-03-09T15:39:03.988903394Z hello world
2025-03-09T15:39:04.990029407Z hello world
2025-03-09T15:39:05.991388232Z hello world
2025-03-09T15:39:06.992384038Z hello world
2025-03-09T15:39:07.993426938Z hello world
2025-03-09T15:39:08.994538408Z hello world
2025-03-09T15:39:09.995983795Z hello world
2025-03-09T15:39:10.997199270Z hello world
2025-03-09T15:39:11.998559052Z hello world
2025-03-09T15:39:12.999723025Z hello world
```

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## 12. Enabling Syslog in container level

```
PowerShell
PS C:\Users\Beqir> docker run --log-driver="syslog" --name daemon_dwayne -d
ubuntu /bin/sh -c "while true; do echo hello world; sleep 1; done"
32fa6818a17d607951009269c8a9c5cb84d8428f87e401ae3fe0bda458a0cbbb
docker: Error response from daemon: failed to create task for container: fai
led to initialize logging driver: Unix syslog delivery error.
PS C:\Users\Beqir> docker logs daemon_dwayne
Error response from daemon: Unix syslog delivery error
PS C:\Users\Beqir> |
```

## 13. Inspecting the processes of daemonized container

```
PowerShell
PS C:\Users\Beqir> docker top daemon_dave
UID      PID      PPID     C        STIME     TTY      TIME          CMD
root     2202     2182     0        15:44     ?        00:00:00     /bin/sh -c while
true; do echo hello world; sleep 1; done
root     2232     2202     0        15:44     ?        00:00:00     sleep 1
PS C:\Users\Beqir> |
```

## 14. Docker stats

```
PowerShell
CONTAINER ID   NAME          CPU %      MEM USAGE / LIMIT   MEM %      NET I/O      BLOCK I/O   PIDS
29225d80b7db   daemon_dave   0.20%     564KiB / 7.682GiB   0.01%     1.05kB / 0B   0B / 0B     2
32fa6818a17d   daemon_dwayne 0.00%     0B / 0B             0.00%     0B / 0B       0B / 0B     0
|
```

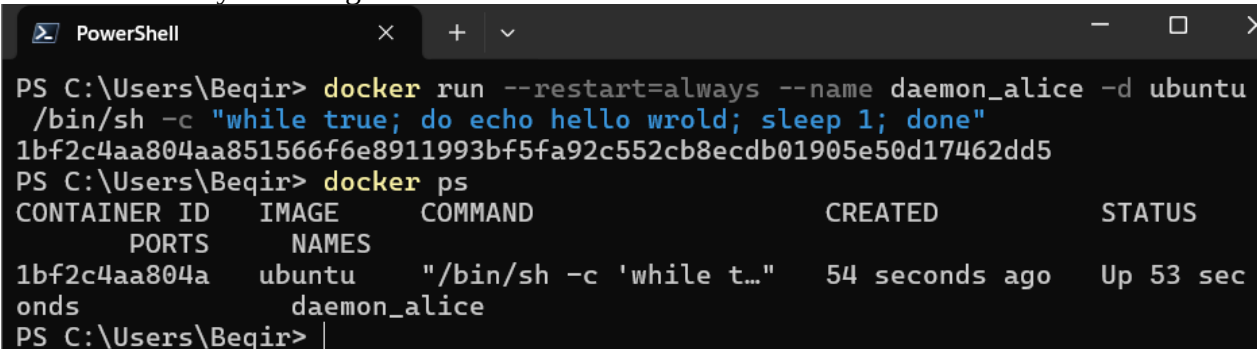
## 15. Background task and Interactive command running inside the container

```
root@29225d80b7db: /etc
PS C:\Users\Beqir> docker exec -d daemon_dave touch /etc/new_cofig_file
PS C:\Users\Beqir> docker exec -it daemon_dave bash
root@29225d80b7db:/# ls
bin  dev  home  lib64  mnt  proc  run  srv  tmp  var
boot  etc  lib  media  opt  root  sbin  sys  usr
root@29225d80b7db:/# cd etc
root@29225d80b7db:/etc# ls
alternatives          gshadow-          networks           resolv.conf
apt                   host.conf         new_cofig_file     rmt
bash.bashrc           hostname          nsswitch.conf      security
bindresvport.blacklist hosts             opt                selinux
cloud                 init.d            os-release         shadow
cron.d               issue             pam.conf           shadow-
cron.daily            issue.net         pam.d              shells
debconf.conf         kernel            passwd             skel
debian_version        ld.so.cache       passwd-            subgid
default              ld.so.conf        profile            subgid-
dpkg                 ld.so.conf.d      profile.d          subuid
e2scrub.conf          legal             rc0.d              subuid-
environment           libaudit.conf     rc1.d              sysctl.conf
fstab                 login.defs        rc2.d              sysctl.d
gai.conf              logrotate.d       rc3.d              systemd
gnutls               machine-id        rc4.d              terminfo
group                 mke2fs.conf       rc5.d              update-motd.d
group-                mtab              rc6.d              xattr.conf
gshadow
root@29225d80b7db:/etc# |
```

## 16. Stopping a running container

```
PS C:\Users\Beqir> docker stop daemon_dave
daemon_dave
PS C:\Users\Beqir> docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS    PORTS    NAMES
PS C:\Users\Beqir> |
```

## 17. Automatically restarting containers



```
PowerShell
PS C:\Users\Beqir> docker run --restart=always --name daemon_alice -d ubuntu
/bin/sh -c "while true; do echo hello wrold; sleep 1; done"
1bf2c4aa804aa851566f6e8911993bf5fa92c552cb8ecdb01905e50d17462dd5
PS C:\Users\Beqir> docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS
PORTS         NAMES
1bf2c4aa804a  ubuntu   "/bin/sh -c 'while t..."  54 seconds ago  Up 53 sec
onds
daemon_alice
PS C:\Users\Beqir> |
```

## 18. Inspecting a container

```
PS C:\Users\Beqir> docker inspect daemon_alice
[
  {
    "Id": "1bf2c4aa804aa851566f6e8911993bf5fa92c552cb8ecdb01905e50d17462dd5",
    "Created": "2025-03-09T15:54:14.762656779Z",
    "Path": "/bin/sh",
    "Args": [
      "-c",
      "while true; do echo hello wrold; sleep 1; done"
    ],
    "State": {
      "Status": "running",
      "Running": true,
      "Paused": false,
      "Restarting": false,
      "OOMKilled": false,
      "Dead": false,
      "Pid": 2914,
      "ExitCode": 0,
      "Error": "",
      "StartedAt": "2025-03-09T15:54:15.094266074Z",
      "FinishedAt": "0001-01-01T00:00:00Z"
    },
    "Image": "sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782",
    "ResolveConfPath": "/var/lib/docker/containers/1bf2c4aa804aa851566f6e8911993bf5fa92c552cb8ecdb01905e50d17462dd5/resolve.conf",
    "HostnamePath": "/var/lib/docker/containers/1bf2c4aa804aa851566f6e8911993bf5fa92c552cb8ecdb01905e50d17462dd5/hostname",
    "HostsPath": "/var/lib/docker/containers/1bf2c4aa804aa851566f6e8911993bf5fa92c552cb8ecdb01905e50d17462dd5/hosts",
    "LogPath": "/var/lib/docker/containers/1bf2c4aa804aa851566f6e8911993"
```



## 19. Selectively inspecting a container

```

PowerShell
PS C:\Users\Beqir> docker inspect --format='{{ .State.Running }}' daemon_alice
true
PS C:\Users\Beqir> |

```

## 20. Deleting containers

```

PS C:\Users\Beqir> docker rm 1bf2c4aa804aa851566f6e8911993bf5fa92c552cb8ecdb01905e50d17462dd5
Error response from daemon: cannot remove container "/daemon_alice": container is running: stop the container before removing or force remove
PS C:\Users\Beqir> docker rm daemon_dave
daemon_dave
PS C:\Users\Beqir> |

```

## Chapter 4

## 21. Listing Docker images

```

PowerShell
PS C:\Users\Beqir> docker run -it --name another_container_mum ubuntu bash
root@49a9106d7edd:/# exit
exit
PS C:\Users\Beqir> docker images
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
zahiriandii/audio-editor-app  latest      1039f145acd9      3 weeks ago     74.2MB
ubuntu              latest      72297848456d      5 weeks ago     117MB
PS C:\Users\Beqir> |

```

## 22. Pulling images from Docker hub

```

PowerShell
PS C:\Users\Beqir> docker pull ubuntu:18.04
18.04: Pulling from library/ubuntu
7c457f213c76: Download complete
Digest: sha256:152dc042452c496007f07ca9127571cb9c29697f42acbfad72324b2bb2e43c98
Status: Downloaded newer image for ubuntu:18.04
docker.io/library/ubuntu:18.04
PS C:\Users\Beqir> docker images
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
zahiriandii/audio-editor-app  latest      1039f145acd9      3 weeks ago     74.2MB
ubuntu              latest      72297848456d      5 weeks ago     117MB
ubuntu              18.04      152dc042452c      21 months ago   97.5MB
PS C:\Users\Beqir> |

```

## 23. Running a tagged docker image

```

root@2ba0c25a0ca5: /
PS C:\Users\Beqir> docker run -it --name new_container ubuntu:18.04 bash
root@2ba0c25a0ca5:/# |

```



## 24. Pulling and Viewing fedora image

```

PS C:\Users\Beqir> docker pull fedora:21
21: Pulling from library/fedora
fced6e4a4c06: Download complete
Digest: sha256:a268e5e12257c7770eb44c24041baf5e728fba2eed1a84f007b81845ded0a485
Status: Downloaded newer image for fedora:21
docker.io/library/fedora:21
PS C:\Users\Beqir> docker images fedora
REPOSITORY      TAG          IMAGE ID      CREATED      SIZE
fedora          21          a268e5e12257  8 years ago  358MB
PS C:\Users\Beqir> |

```

## 25. Docker search

```

PowerShell
PS C:\Users\Beqir> docker search puppet
NAME                                DESCRIPTION
-----
puppet/continuous-delivery-for-puppet-enterprise  Automated testing and promotion of inf
rastru...  7
puppet/puppetserver                    A Docker Image for running Puppet Serv
er. Wi...  116
puppet/puppetboard                    The Puppet Board dashboard for PuppetD
B        20
puppet/puppetdb                      A Docker image for running PuppetDB
38
puppet/puppet-dev-tools              Puppet development tools such as PDK,
onceov...  9
puppet/puppet-agent                  Puppet Agent as a Docker Image.
16
puppet/puppet-agent-alpine           Puppet Agent as a Docker Image. Based
on Alp...  17
puppet/puppet-agent-ubuntu           Puppet Agent as a Docker Image. Based
on the...  13
puppet/pdk                          Puppet Development Kit (PDK)
3

```

## 26. Puppet pull

```

PowerShell
PS C:\Users\Beqir> docker pull puppet/puppetserver
Using default tag: latest
latest: Pulling from puppet/puppetserver
0342090618f9: Download complete
0e2a9f5ae292: Download complete
72398b61ad0e: Download complete
5f3ce541df9d: Download complete
6017f2536963: Download complete
b9a27fe0286a: Download complete
e706e0a9f423: Download complete
a4699ad2b0e6: Download complete
e1a9e0da0051: Download complete
a39c94a38840: Download complete
e80d878b7505: Download complete
1fa946a383eb: Download complete
Digest: sha256:1511a483c8b320cefa324fbee428e0888329bd430f90c689198483dbdd2476
Status: Downloaded newer image for puppet/puppetserver:latest
docker.io/puppet/puppetserver:latest

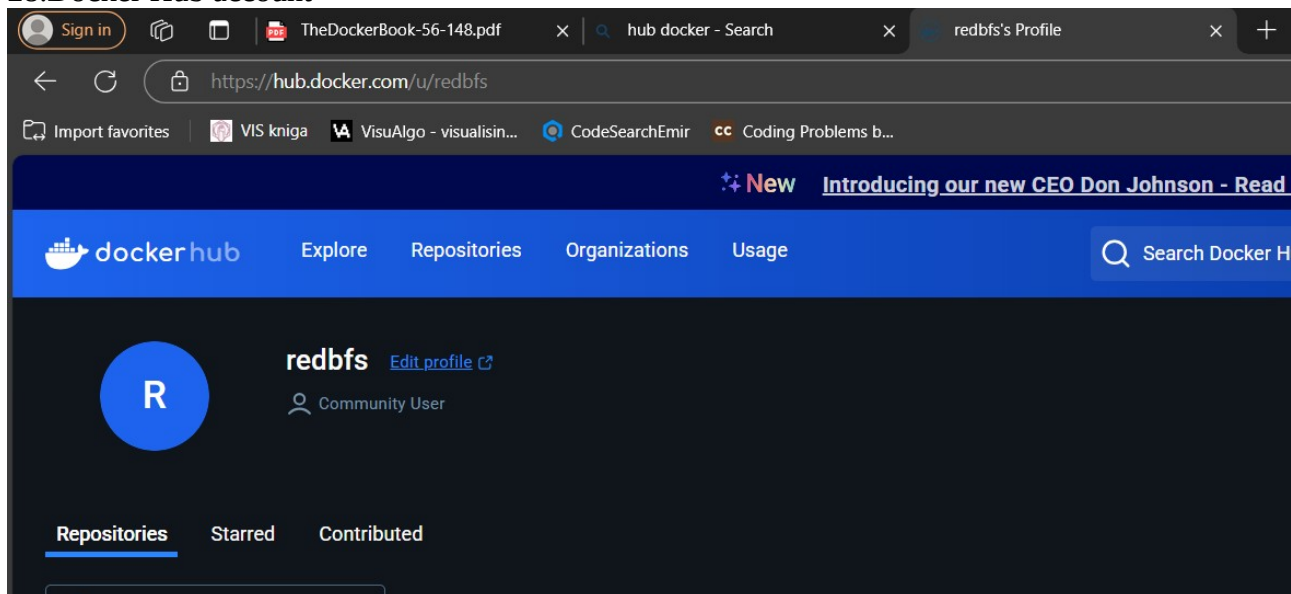
```

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## 27. Creating container and running bash on puppetserver

```
root@e8de14d4a979: /
PS C:\Users\Beqir> docker run --name puppetserver -d puppet/puppetserver
e8de14d4a97906baf4d3095eb9d48aa783f9d5a683cb0b0d9c0ac16136f14b74
PS C:\Users\Beqir> docker exec -it puppetserver bash
root@e8de14d4a979:/# ls
Dockerfile  dev          etc          lib          mnt          root         srv          usr
bin          docker-entrypoint.d  healthcheck.sh  lib64        opt          run          sys          var
boot        docker-entrypoint.sh  home          media        proc         sbin         tmp
root@e8de14d4a979:/# puppet --version
7.20.0
root@e8de14d4a979:/# |
```

## 28. Docker Hub account



## 29. Login in Docker Hub with Github

```
PS C:\Users\Beqir> docker login ghcr.io -u Fazlibeqir -p ghp_dbq1PlK5Boo2hMPE9pn16y13d9gNx
WARNING! Using --password via the CLI is insecure. Use --password-stdin.
Login Succeeded
PS C:\Users\Beqir> |
```

## 30. Installing apache

```

Login Succeeded
PS C:\Users\Beqir> docker run -it ubuntu bash
root@ea2fa3b7767a:/# apt-get -yqq update
root@ea2fa3b7767a:/# apt-get -y install apache2
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  adduser apache2-bin apache2-data apache2-utils ca-certificates krb5-locales
  libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 libbrotli1
  libcurl4t64 libexpat1 libgdbm-compat4t64 libgdbm6t64 libgssapi-krb5-2 libicu74
  libjansson4 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-common
  libldap2 liblua5.4-0 libnghttp2-14 libperl5.38t64 libpsl5t64 librtmp1 libsasl2-2
  libsasl2-modules libsasl2-modules-db libsqlite3-0 libssh-4 libssl3t64 libxml2
  media-types netbase openssl perl perl-base perl-modules-5.38 publicsuffix ssl-cert
Suggested packages:
  liblocale-gettext-perl cron quota ecryptfs-utils apache2-doc apache2-suexec-pristine
  | apache2-suexec-custom www-browser ufw gdbm-l10n krb5-doc krb5-user
  libsasl2-modules-gssapi-mit | libsasl2-modules-gssapi-heimdal libsasl2-modules-ldap
  libsasl2-modules-otp libsasl2-modules-sql perl-doc libterm-readline-gnu-perl
  | libterm-readline-perl-perl make libtap-harness-archive-perl
The following NEW packages will be installed:
  adduser apache2 apache2-bin apache2-data apache2-utils ca-certificates krb5-locales
  libapr1t64 libaprutil1-dbd-sqlite3 libaprutil1-ldap libaprutil1t64 libbrotli1
  libcurl4t64 libexpat1 libgdbm-compat4t64 libgdbm6t64 libgssapi-krb5-2 libicu74
  libjansson4 libk5crypto3 libkeyutils1 libkrb5-3 libkrb5support0 libldap-common

```

## 31. Making a docker commit

```

PS C:\Users\Beqir> docker commit ea2fa3b7767a redbfs/apache2
sha256:7f0d0c1694c04eb12b4a01d520670b41ddb41557337192e9bae5254844c70304
PS C:\Users\Beqir> docker images redbfs/apache2
REPOSITORY          TAG          IMAGE ID          CREATED           SIZE
redbfs/apache2      latest       7f0d0c1694c0     About a minute ago 369MB
PS C:\Users\Beqir>

```

## 32. Committing another custom container

```

PS C:\Users\Beqir> docker commit -m "A new custom image" -a "Beqir Fazli" ea2fa3b7767a redbfs/apache2:webserver
sha256:5443852cfb77b4da49c033f8b5ad7f7513f082848a9071e7aab3dd15c605cc8a
PS C:\Users\Beqir> docker inspect redbfs/apache2:webserver
[
  {
    "Id": "sha256:5443852cfb77b4da49c033f8b5ad7f7513f082848a9071e7aab3dd15c605cc8a",
    "RepoTags": [
      "redbfs/apache2:webserver"
    ],
    "RepoDigests": [
      "redbfs/apache2@sha256:5443852cfb77b4da49c033f8b5ad7f7513f082848a9071e7aab3dd15c605cc8a"
    ],
    "Parent": "sha256:72297848456d5d37d1262630108ab308d3e9ec7ed1c3286a32fe09856619a782",
    "Comment": "A new custom image",
    "Created": "2025-03-09T17:35:02.528479073Z",
    "DockerVersion": "27.4.0",
    "Author": "Beqir Fazli",
    "Config": {
      "Hostname": "",

```

## 33. Running a container from the committed image

```

root@cf5aca5341fc: /
PS C:\Users\Beqir> docker run -it redbfs/apache2:webserver bash
root@cf5aca5341fc:/# service apache2 status
* apache2 is not running
root@cf5aca5341fc:/#

```

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## 34.Creating Dockerfile

[illegible]

## 35. Building the image

```

PowerShell
PS F:\Repo\KIII\Docke\static_web> docker build -t="redbfs/static_web" .
[+] Building 58.1s (8/8) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.1s
=> => transferring dockerfile: 220B                             0.0s
=> [internal] load metadata for docker.io/library/ubuntu:18.04  0.1s
=> [internal] load .dockerignore                                0.1s
=> => transferring context: 2B                                   0.0s
=> [1/3] FROM docker.io/library/ubuntu:18.04@sha256:152dc042452c496007f07ca9127571cb9c2 2.6s
=> => resolve docker.io/library/ubuntu:18.04@sha256:152dc042452c496007f07ca9127571cb9c2 2.5s
=> [auth] library/ubuntu:pull token for registry-1.docker.io    0.0s
=> [2/3] RUN apt-get update; apt-get install -y nginx           45.5s
=> [3/3] RUN echo 'Hi, Iam in your container' >/var/www/html/index.html 0.5s
=> exporting to image                                           8.5s
=> => exporting layers                                           6.8s
=> => exporting manifest sha256:c9879e23c7e5974090d459f70cbd76390e6953c5fc4af83e4868088 0.1s
=> => exporting config sha256:d348be37b035efe1098f020dcc188cfbe9b09b5709c89115342d6ee69 0.1s
=> => exporting attestation manifest sha256:62b0fae9db85ccb1d37063eba12a81987df7d5bb0f9 0.1s
=> => exporting manifest list sha256:2f29c43b6ddd782eef336e4bc119528e0051dc439c1301707c 0.1s
=> => naming to docker.io/redbfs/static_web:latest              0.0s
=> => unpacking to docker.io/redbfs/static_web:latest           1.2s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/pyre75q5np2hy8
5lkxp7d91pl
PS F:\Repo\KIII\Docke\static_web>

```

## 36. Tagged the image and used the cache

```

PS F:\Repo\KIII\Docke\static_web> docker build -t="redbfs/static_web:v1" .
[+] Building 0.9s (7/7) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.0s
=> => transferring dockerfile: 220B                             0.0s
=> [internal] load metadata for docker.io/library/ubuntu:18.04  0.1s
=> [internal] load .dockerignore                                0.0s
=> => transferring context: 2B                                   0.0s
=> [1/3] FROM docker.io/library/ubuntu:18.04@sha256:152dc042452c496007f07ca9127571cb9c2 0.1s
=> => resolve docker.io/library/ubuntu:18.04@sha256:152dc042452c496007f07ca9127571cb9c2 0.1s
=> CACHED [2/3] RUN apt-get update; apt-get install -y nginx    0.0s
=> CACHED [3/3] RUN echo 'Hi, Iam in your container' >/var/www/html/index.html 0.0s
=> exporting to image                                           0.3s
=> => exporting layers                                           0.0s
=> => exporting manifest sha256:c9879e23c7e5974090d459f70cbd76390e6953c5fc4af83e4868088 0.0s
=> => exporting config sha256:d348be37b035efe1098f020dcc188cfbe9b09b5709c89115342d6ee69 0.0s
=> => exporting attestation manifest sha256:5e1aeb818079d5315bdf981c084217029f93838e603 0.1s
=> => exporting manifest list sha256:592d6548eb8d478f818957f1c12aada58670ece6d312ad6d8d 0.1s
=> => naming to docker.io/redbfs/static_web:v1                  0.0s
=> => unpacking to docker.io/redbfs/static_web:v1                0.0s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/iu746i9xhwiwog
3rudb2klawb
PS F:\Repo\KIII\Docke\static_web>

```

## 37. Creating a container for the image

```

PS F:\Repo\KIII\Docke\static_web> docker run -d -p 80 --name static_web redbfs/static_web nginx
x -g "daemon off;"
eea6fbb340f8e984ebab8544d6ae2cf7aa3109b870f3e09f334a2552af4f7456
PS F:\Repo\KIII\Docke\static_web>

```

## 38. docker Port mapped

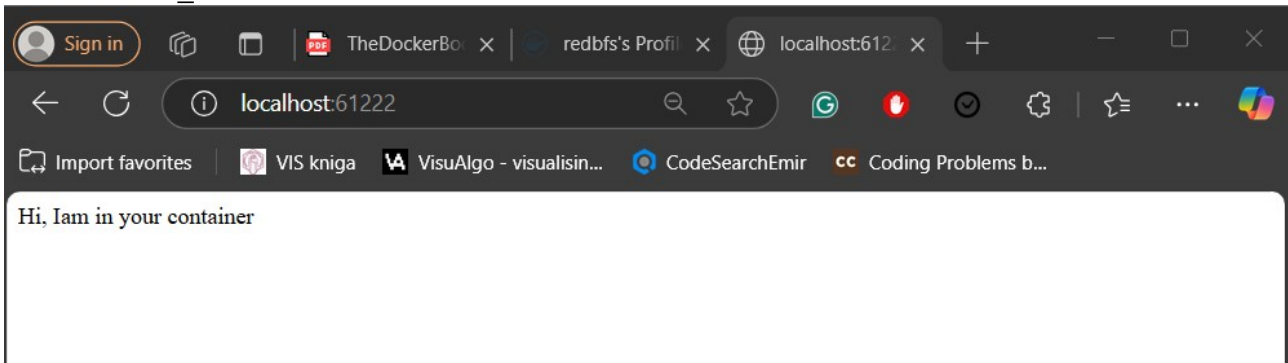
```

PS F:\Repo\KIII\Docke\static_web> docker ps -l
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORT
S              NAMES
eea6fbb340f8   redbfs/static_web  "nginx -g 'daemon of..."  5 minutes ago  Up 5 minutes  0.0.
0.0:61222->80/tcp   static_web
PS F:\Repo\KIII\Docke\static_web>

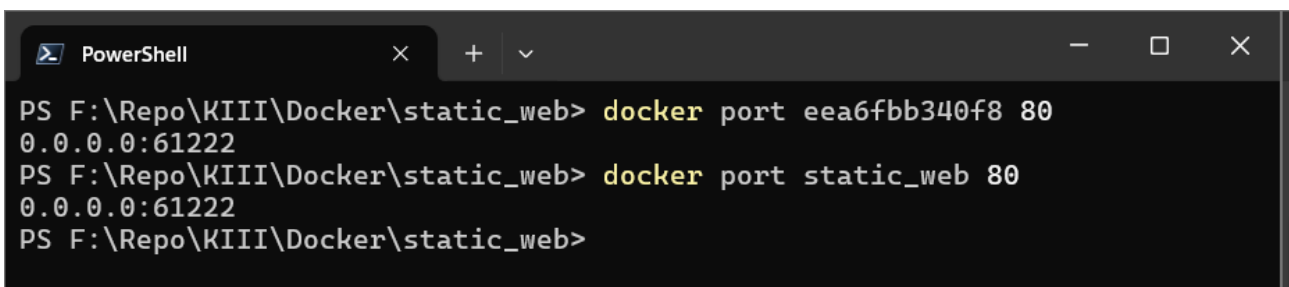
```

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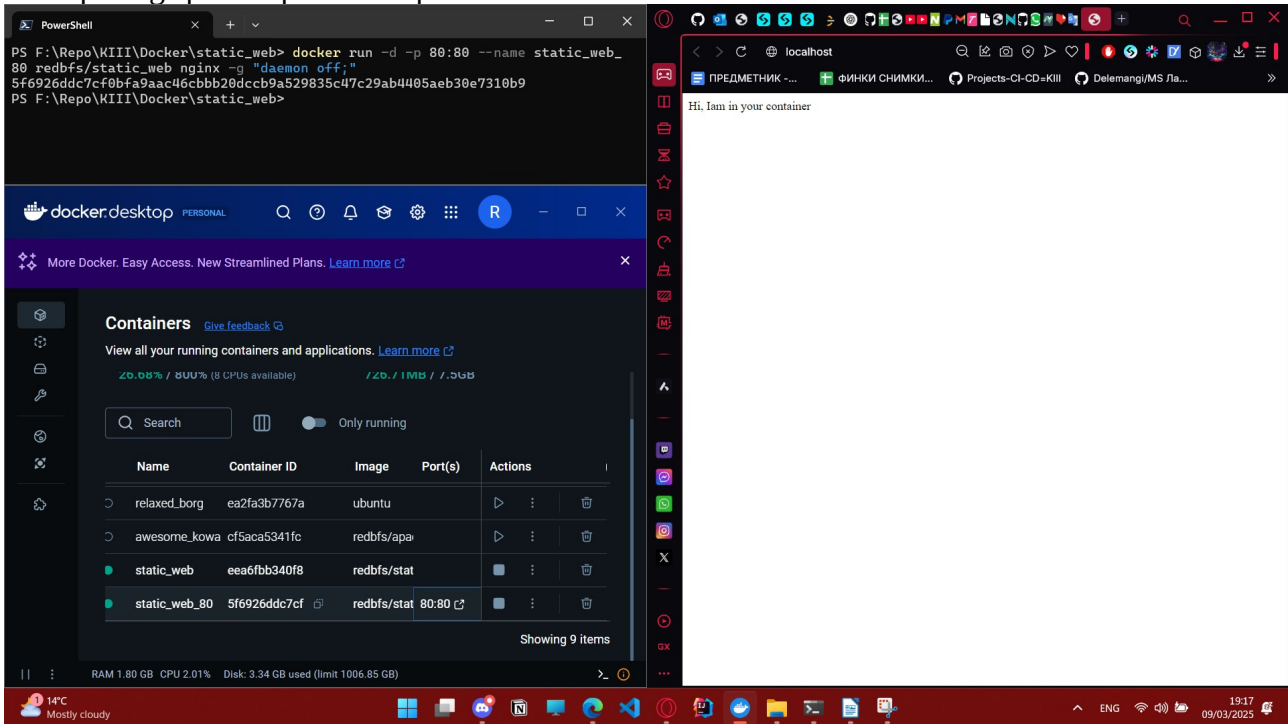
### 39. The static\_web.html



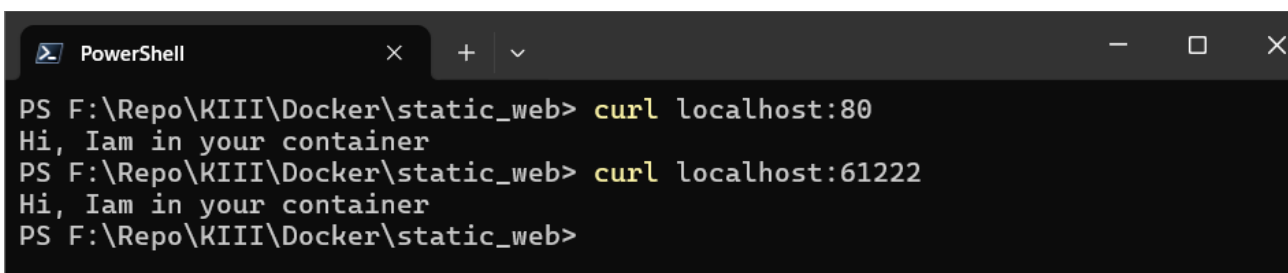
### 40. Docker port



### 41. Exposing specific port with -p



### 42. Some ports





## 43.Added ENTRYPOINT

```

PowerShell
x + v - □ ×
PS F:\Repo\KIII\Docke\static_web> ls

Directory: F:\Repo\KIII\Docke\static_web

Mode                LastWriteTime         Length Name
----                -
-a---             09/03/2025   18:53           3242 .Dockerfile.un~
-a---             09/03/2025   18:53            181 Dockerfile
-a---             09/03/2025   18:51            181 Dockerfile~

PS F:\Repo\KIII\Docke\static_web> vim Dockerfile
PS F:\Repo\KIII\Docke\static_web> docker build -t="redbfs/static_web" .
[+] Building 2.5s (8/8) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.0s
=> => transferring dockerfile: 271B                             0.0s
=> [internal] load metadata for docker.io/library/ubuntu:18.04  0.1s
=> [internal] load .dockerignore                                0.1s
=> => transferring context: 2B                                    0.0s
=> [1/3] FROM docker.io/library/ubuntu:18.04@sha256:152dc042452c4960 1.4s
=> => resolve docker.io/library/ubuntu:18.04@sha256:152dc042452c4960 1.4s
=> [auth] library/ubuntu:pull token for registry-1.docker.io    0.0s
=> CACHED [2/3] RUN apt-get update; apt-get install -y nginx    0.0s
=> CACHED [3/3] RUN echo 'Hi, Iam in your container' >/var/www/html/ 0.0s
=> exporting to image                                           0.4s
=> => exporting layers                                           0.0s
=> => exporting manifest sha256:3e0d3e7c517732ad90449c07ff9219721e5e 0.1s
=> => exporting config sha256:b8119c8b42048cfe272c49548f8416e1dda163 0.0s
=> => exporting attestation manifest sha256:fc0d42051170d567b96058c2 0.1s
=> => exporting manifest list sha256:d4563a41b881ae3eb40995d8a96428d 0.1s
=> => naming to docker.io/redbfs/static_web:latest              0.0s
=> => unpacking to docker.io/redbfs/static_web:latest           0.0s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/kn7hufwhxem7v6757iv3zshay
PS F:\Repo\KIII\Docke\static_web>

```



## 44. ENV, COPY, STOPIGNAL

```

FROM ubuntu:20.04
LABEL maintainer="fazlibeqir@gmail.com"
ENV RVM_PATH /home/rvm/
RUN apt-get update && apt-get install -y vim

RUN useradd -m myuser
USER myuser
VOLUME ["/mydata"]
COPY sample.txt /home/myuser/

WORKDIR /home/myuser

STOPSIGNAL SIGTERM

CMD["bash"]
~

```

## 45. Building the dockerfile

```

C:\Windows\System32\cmd.e  ×  +  ▾

F:\Repo\KIII\Docker>vim Dockerfile

F:\Repo\KIII\Docker>echo "Hello from the container!" > sample.txt

F:\Repo\KIII\Docker>dir
Volume in drive F is Data
Volume Serial Number is 3C80-8EC4

Directory of F:\Repo\KIII\Docker

10/03/2025  20:14    <DIR>          .
09/03/2025  16:04    <DIR>          ..
10/03/2025  20:14             3,584  .Dockerfile.un~
10/03/2025  20:12        2,506,029  Docker.odt
10/03/2025  20:14             282  Dockerfile
10/03/2025  20:12             281  Dockerfile~
09/03/2025  20:07              0  PAGE 108.txt
10/03/2025  20:15             30  sample.txt
09/03/2025  20:04    <DIR>          static_web
09/03/2025  15:52        1,525,163  TheDockerBook-56-148.pdf
              7 File(s)          4,035,369 bytes
              3 Dir(s)  49,461,936,128 bytes free

F:\Repo\KIII\Docker>docker build -t custom_image .
[+] Building 53.1s (11/11) FINISHED          docker:desktop-linux
=> [internal] load build definition from Dockerfile      0.0s
=> => transferring dockerfile: 321B                      0.0s
=> [internal] load metadata for docker.io/library/ubuntu:20.04 2.3s
=> [auth] library/ubuntu:pull token for registry-1.docker.io 0.0s
=> [internal] load .dockerignore                          0.1s
=> => transferring context: 2B                             0.0s
=> [1/5] FROM docker.io/library/ubuntu:20.04@sha256:8e5c4f0285ecbb4e 3.2s
=> => resolve docker.io/library/ubuntu:20.04@sha256:8e5c4f0285ecbb4e 0.0s
=> => sha256:d9802f032d6798e2086607424bfe88cb8ec1d 27.51MB / 27.51MB 1.8s
=> => extracting sha256:d9802f032d6798e2086607424bfe88cb8ec1d6f116e1 1.2s
=> [internal] load build context                          0.1s
=> => transferring context: 67B                             0.0s
=> [2/5] RUN apt-get update && apt-get install -y vim      34.7s
=> [3/5] RUN useradd -m myuser                            0.8s
=> [4/5] COPY sample.txt /home/myuser/                    0.3s

```

## 46. Running

```

F:\Repo\KIII\Docke>docker run -it custom_image
myuser@75430aa30b0e:~$ vim --version
VIM - Vi IMproved 8.1 (2018 May 18, compiled Feb 03 2025 12:35:26)
Included patches: 1-16, 647, 17-213, 1840, 214-579, 1969, 580-647, 678, 648-
1848, 4975, 5023, 2110, 1849-1854, 1857, 1855-1857, 1331, 1858, 1858-1859, 1
873, 1860-1969, 1992, 1970-1992, 2010, 1993-2068, 2106, 2069-2106, 2108, 210
7-2109, 2109-2111, 2111-2112, 2112-2269, 3612, 3625, 3669, 3741, 1847
Modified by team+vim@tracker.debian.org
Compiled by team+vim@tracker.debian.org
Huge version without GUI. Features included (+) or not (-):
+acl               -farsi               -mouse_sysmouse    -tag_any_white
+arabic            +file_in_path        +mouse_urxvt       -tcl
+autocmd           +find_in_path        +mouse_xterm       +termguicolors
+autochdir         +float               +multi_byte        +terminal
-autoservername    +folding             +multi_lang        +terminfo

```

```

myuser@75430aa30b0e:~$ echo $RVM_PATH
/home/rvm/
myuser@75430aa30b0e:~$ cat sample.txt
"Hello from the container!"
myuser@75430aa30b0e:~$ |

```

## 47. SHELL , HEALTHCHECK, ONBUILD

```

FROM ubuntu:20.04
LABEL maintainer="fazlibeqir@gmail.com"

SHELL ["/bin/bash", "-c"]

RUN apt-get update && apt-get install -y curl

HEALTHCHECK --interval=10s --timeout=5s --retries=3 \
    CMD curl -f http://localhost || exit 1
ONBUILD RUN echo "This command runs when another image is built fomr this one."

CMD ["bash"]

```

## 48. Running

```

C:\Windows\System32\cmd.e  x  +  v  -  □  x

F:\Repo\KIII\Docker>vim Dockerfile

F:\Repo\KIII\Docker>docker build -t health_image .
[+] Building 36.1s (7/7) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.0s
=> => transferring dockerfile: 371B                                0.0s
=> [internal] load metadata for docker.io/library/ubuntu:20.04    1.4s
=> [auth] library/ubuntu:pull token for registry-1.docker.io      0.0s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> CACHED [1/2] FROM docker.io/library/ubuntu:20.04@sha256:8e5c4f0285ecb 0.1s
=> => resolve docker.io/library/ubuntu:20.04@sha256:8e5c4f0285ecbb4ead07 0.1s
=> [2/2] RUN apt-get update && apt-get install -y curl           29.1s
=> exporting to image                                              5.2s
=> => exporting layers                                              4.2s
=> => exporting manifest sha256:a56d201a17a9951961435699938eae53dbd8b941 0.0s
=> => exporting config sha256:1ad1f0ee9202a0afe33acbcc681b99972447ce9e2 0.0s
=> => exporting attestation manifest sha256:c8d01580c729c4bc56b19bce699e 0.1s
=> => exporting manifest list sha256:20256cd81b4fd4332544b07b8d5e1a26aca 0.0s
=> => naming to docker.io/library/health_image:latest              0.0s
=> => unpacking to docker.io/library/health_image:latest           0.7s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/j0tti1mzzmffb2rezjefo7svz

F:\Repo\KIII\Docker>docker run -d --name health_container health_image
a1e82cb3f3c753ddc67ee1ec8469a6948bc2a0fa6019836f6a8c458255e76f2e

F:\Repo\KIII\Docker>docker inspect --format '{{.State.Health.Status}}' health_containe
r
'unhealthy'

F:\Repo\KIII\Docker>

```

## 49. ONBUILD dockerfile\_child

```

Dockerfile_child (F:\Repo\KIII)  x  +  v  -  □  x

FROM health_image
RUN echo "Building from ONBUILD image"
~

```

```

C:\Windows\System32\cmd.e  x  +  v  -  □  ×

F:\Repo\KIII\Docke>vim Dockerfile_child

F:\Repo\KIII\Docke>docker build -t child_image -f Dockerfile_child .
[+] Building 3.8s (9/9) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile_child      0.0s
=> => transferring dockerfile: 102B                             0.0s
=> [internal] load metadata for docker.io/library/health_image:latest 0.0s
=> [internal] load .dockerignore                               0.0s
=> => transferring context: 2B                                    0.0s
=> [1/2] FROM docker.io/library/health_image:latest@sha256:20256cd81b4fd433254 1.9s
=> => resolve docker.io/library/health_image:latest@sha256:20256cd81b4fd433254 1.9s
=> [auth] library/health_image:pull token for registry-1.docker.io 0.0s
=> [auth] library/health_image:pull token for registry-1.docker.io 0.0s
=> [2/3] ONBUILD RUN echo "This command runs when another image is built fomr 0.4s
=> [3/3] RUN echo "Building from ONBUILD image"                0.6s
=> exporting to image                                          0.6s
=> => exporting layers                                          0.3s
=> => exporting manifest sha256:ba78c037a703a0780bf643a6d34bf6363f91caf2caa531 0.0s
=> => exporting config sha256:59de06f22dfd573d4dd7ab7a0a2b455ab0e21a3fc95edba2 0.0s
=> => exporting attestation manifest sha256:ca8cc59f741364e531c169f5c5c9a4947b 0.1s
=> => exporting manifest list sha256:6239ef03e73ed0fab03e91bbb6fc7feled296ac0f 0.0s
=> => naming to docker.io/library/child_image:latest          0.0s
=> => unpacking to docker.io/library/child_image:latest        0.1s

View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/a10yk6jkhvho8w0wgeg9vahskj

```

## 50. Dockerfile

```

Dockerfile + (F:\Repo\KIII\Doi  x  +  v  -  □  ×

FROM ubuntu:20.04
LABEL maintainer="fazlibeqir@gmail.com"

SHELL ["/bin/bash", "-c"]

RUN apt-get update && apt-get install -y vim

COPY sample.txt /app/data/sample.txt

VOLUME ["/app/data"]

HEALTHCHECK --interval=10s --timeout=5s --retries=3 \
    CMD curl -f http://localhost || exit 1

CMD ["bash"]
~

```

## 51. Building

```

C:\Windows\System32\cmd.e x + v
F:\Repo\KIII\Docker>vim Dockerfile
F:\Repo\KIII\Docker>echo "Data inside container" > sample.txt
F:\Repo\KIII\Docker>docker build -t volume_image .
[+] Building 53.7s (9/9) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                0.1s
=> => transferring dockerfile: 353B                                0.0s
=> [internal] load metadata for docker.io/library/ubuntu:20.04    1.5s
=> [auth] library/ubuntu:pull token for registry-1.docker.io      0.0s
=> [internal] load .dockerignore                                  0.0s
=> => transferring context: 2B                                       0.0s
=> CACHED [1/3] FROM docker.io/library/ubuntu:20.04@sha256:8e5c4f0285ecbb4ead0 0.1s
=> => resolve docker.io/library/ubuntu:20.04@sha256:8e5c4f0285ecbb4ead070431d2 0.1s
=> [internal] load build context                                  0.1s
=> => transferring context: 63B                                       0.0s
=> [2/3] RUN apt-get update && apt-get install -y vim             42.1s
=> [3/3] COPY sample.txt /app/data/sample.txt                     0.4s
=> exporting to image                                             9.2s
=> => exporting layers                                              7.0s
=> => exporting manifest sha256:b48b49dbf01a40af7685fc96157a613e4717703ebf3fb8 0.0s
=> => exporting config sha256:4ab6d77bdd994c34b59e5e24655f5738bd524fd415e89818 0.0s
=> => exporting attestation manifest sha256:6e4cba0787014612b3ce0b1d824a7cd9d2 0.1s
=> => exporting manifest list sha256:58178e0034ae581b1db6a122ee774b33e05360db8 0.0s
=> => naming to docker.io/library/volume_image:latest              0.0s
=> => unpacking to docker.io/library/volume_image:latest           2.0s

View build details: docker-desktop://dashboards/build/desktop-linux/desktop-linux/lik4z-zfpxrt3b02miwei09osb

F:\Repo\KIII\Docker>docker run -d --name volume_container volume_image
d7c2d9422eb6c399b8d266e6b3f2488928e31269efa398b025bd1dd4d544898d

```

## 52. Docker hub

```

C:\Windows\System32\cmd.e x + v
F:\Repo\KIII\Docker>docker login
Authenticating with existing credentials...
Login Succeeded

F:\Repo\KIII\Docker>docker tag volume_image redbfs/volume_image

F:\Repo\KIII\Docker>docker push redbfs/volume_image
Using default tag: latest
The push refers to repository [docker.io/redbfs/volume_image]
639860ff64b3: Pushed
054aec42fcb3: Pushed
d9802f032d67: Pushed
bd0919dfac25: Pushed
latest: digest: sha256:58178e0034ae581b1db6a122ee774b33e05360db808d64946 size: 855

F:\Repo\KIII\Docker>

```

The screenshot shows the Docker Hub web interface. The browser address bar displays 'https://hub.docker.com'. The page title is 'Introducing our new CEO Don Johnson - Read More'. The repository 'redbfs' is selected, and the search bar shows 'Search by repository name'. A table lists the repository 'redbfs/volume\_image' with columns: Name, Last Pushed (1 minute ago), Contains (IMAGE), Visibility (Public), and Scout (Inactive). The bottom of the page features a diagram with three nodes connected by dashed lines, representing a network or container architecture.

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## 53.Deleting Repository

