DOCKER 01

1) Install docker on ec2.

→Create one EC2 instance and connect then follow below commands

--yum install docker

--systemctl start docker

--systemctl status docker

```
[root@ip-172-31-7-238 ~]# systemctl status docker
● docker.service - Docker Application Container Engine
     Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; preset: disabled)
     Active: active (running) since Wed 2025-04-02 10:15:27 UTC; 2h 5min ago
TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
    Process: 27381 ExecStartPre=/bin/mkdir -p /run/docker (code=exited, status=0/SUCCESS)
    Process: 27382 ExecStartPre=/usr/libexec/docker/docker-setup-runtimes.sh (code=exited,
   Main PID: 27383 (dockerd)
      Tasks: 26
     Memory: 1.3G
        CPU: 32.776s
     CGroup: /system.slice/docker.service
             ├─27383 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock
             ├─30126 /usr/bin/docker-proxy -proto tcp -host-ip 0.0.0.0 -host-port 81 -conta
             └─30132 /usr/bin/docker-proxy -proto tcp -host-ip :: -host-port 81 -container-

Apr 02 10:15:27 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:15:27 ip-172-31-7-238.us-east-2.compute.internal systemd[1]: Started docker.servi
Apr 02 10:19:46 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:22:27 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:22:27 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:25:39 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:40:19 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:40:19 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:56:36 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
Apr 02 10:56:36 ip-172-31-7-238.us-east-2.compute.internal dockerd[27383]: time="2025-04-02
lines 1-26/26 (END)
```

i-0babd69af48e8196f (docker-server)

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2) Pull 5 docker images.

(nginx,apache tomcat,ubuntu,jenkins,sonarqube)

→Follow these commands to pull above docker images:

--docker pull nginx/nginx-ingress

--docker pull tomcat

--docker pull ubuntu

--docker pull Jenkins/Jenkins

--docker pull sonarqube

→Then check status by using below command:

--docker images

```
[root@ip-172-31-7-238 ~]# docker images
REPOSITORY        TAG       IMAGE ID       CREATED          SIZE
jenkins/jenkins   latest    d331b6bde0f8   45 minutes ago   467MB
tomcat            latest    88b0f1cee84c   3 weeks ago      519MB
sonarqube         latest    94a7de374354   4 weeks ago      1.17GB
nginx             latest    53a18edff809   7 weeks ago      192MB
ubuntu            latest    a04dc4851cbc   2 months ago     78.1MB
[root@ip-172-31-7-238 ~]#
```

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3) Run nginx container and expose on port 81.

→run below command

```
[root@ip-172-31-7-238 ~]# docker container run -itd -p 81:80 --name test-container nginx
```

→run publicip of ec2:81 on browser

4) Delete the apache tomcat image from local.

→to delete tomcat image from local follow below command

--docker image rmi tomcat (use image id or image name)

```
[root@ip-172-31-7-238 ~]# docker image rmi 88b0f1cee84c
Untagged: tomcat:latest
Untagged: tomcat@sha256:1374a565d5122fdb42807f3a5f2d4fcc245a5e15420ff5bb5123afedc8ef769d
Deleted: sha256:88b0f1cee84c76bb84a450edacdc37fb3ee00a8706be9298dfe8ec69e5040cdb
Deleted: sha256:554b93e4efae63e670310d49458e7ca7901fc90c647f999797084c28e5a33164
Deleted: sha256:8b6e9da6ba7a87bac5b98abb1050ee3f7ce0d7f0c46e5d82a4c6c688199b80c7
Deleted: sha256:8a6df4884b902faae9e4d5036537d74435ebb00f3c70fedbf93d88bf3d11a4b4
Deleted: sha256:2c2c7a0cae5f13fb5b883bc20fa88a75212bcc15cf4adef5a9868bdb944ecf5b
Deleted: sha256:41eac632d049d1723c63f840862edbb9277b229bffa0771f5634216d4be532e1
Deleted: sha256:0502c25b5f5c805c4bdffa87e08e7688d2bb500a7bedaf29e74762051e473591
Deleted: sha256:078db589602a51936a4c9d2d88398cf70fab89bdc539a46577280951579ab237
Deleted: sha256:81a845f1c33c725b3ad836c9d7d2a3fbeabe8781b8fc7979e8f86288821310cb
```

→checked available images

--docker images

```
[root@ip-172-31-7-238 ~]# docker images
REPOSITORY        TAG       IMAGE ID       CREATED             SIZE
jenkins/jenkins   latest    d331b6bde0f8   About an hour ago   467MB
sonarqube         latest    94a7de374354   4 weeks ago         1.17GB
nginx             latest    53a18edff809   7 weeks ago         192MB
ubuntu            latest    a04dc4851cbc   2 months ago        78.1MB
[root@ip-172-31-7-238 ~]#
```

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5) Inspect the jenkins image,sonarqube image.

→inspect the Jenkins image

-- docker inspect jenkins/Jenkins

```
[root@ip-172-31-7-238 ~]# docker inspect jenkins/jenkins
[
    {
        "Id": "sha256:d331b6bde0f8ea00fb8969cb4860e7519ba531e647bf89b57adeffe6b7da2c92",
        "RepoTags": [
            "jenkins/jenkins:latest"
        ],
        "RepoDigests": [
            "jenkins/jenkins@sha256:93554ebe9d60f711c63d1f71ce50cfd05d03ff3a26ab8b0203988854c7b3f1eb
        ],
        "Parent": "",
        "Comment": "buildkit.dockerfile.v0",
        "Created": "2025-04-02T11:50:38.953273657Z",
        "Container": "",
```

→It show about

> Environment variables

> Exposed ports (8080, 50000)

> Volumes (for persistent data)

> Image layers

> metadata

```
"Cmd": null,
"Image": "",
"Volumes": {
    "/var/jenkins_home": {}
},
"WorkingDir": "",
"Entrypoint": [
    "/usr/bin/tini",
    "--",
    "/usr/local/bin/jenkins.sh"
]
```

```
    }
},
"Architecture": "amd64",
"Os": "linux",
"Size": 467378925,
"GraphDriver": {
    "Data": {
        "LowerDir": "/var/lib/docker/o
    "AttachStderr": false,
    "ExposedPorts": {
        "50000/tcp": {},
        "8080/tcp": {}
    },
    "Tty": false,
    "OpenStdin": false,
    "StdinOnce": false,
},
"Metadata": {
    "LastTagTime": "0001-01-01T00:00:00Z"
}
```


→inspect the Jenkins image

--docker inspect sonarqube


```
[root@ip-172-31-7-238 ~]# docker inspect sonarqube
[
    {
        "Id": "sha256:94a7de374354b23c76d3c6296244b16ae46b6e1188aff06f81bea35b061ba4e1",
        "RepoTags": [
            "sonarqube:latest"
        ],
        "RepoDigests": [
            "sonarqube@sha256:c0a734bd7e62c1a35794e3a070b4945f5a081b0053201eb926bcb936b0e5d2e6
        ],
        "Parent": "",
        "Comment": "buildkit.dockerfile.v0",
        "Created": "2025-03-04T14:26:37Z",
        "Container": "",
        "ContainerConfig": {
            "Hostname": "",
            "Domainname": "",
            "User": "",
        "AttachStderr": false,
        "ExposedPorts": {
            "9000/tcp": {}
        },
        "Tty": false,
        "OpenStdin": false,
        "StdinOnce": false,
        "Env": [
            "PATH=/opt/java/openjdk/bin:/usr/lo
            "JAVA_HOME=/opt/java/openjdk",
            "LANG=en_US.UTF-8"
```

6) Run jenkins contianer and run one sample job.

→run below command:

--docker container run -itd -p 8081:8080 --name stage-container jenkins/Jenkins

```
[root@ip-172-31-7-238 ~]# docker container run -itd -p 8081:8080 --name stage-container jenkins/jenkins
aba488587547d8d85e33e76d4de61031699ae91fc61a99a36126c533fca1c7b8
[root@ip-172-31-7-238 ~]#
```

i-0babd69af48e8196f (docker-server)

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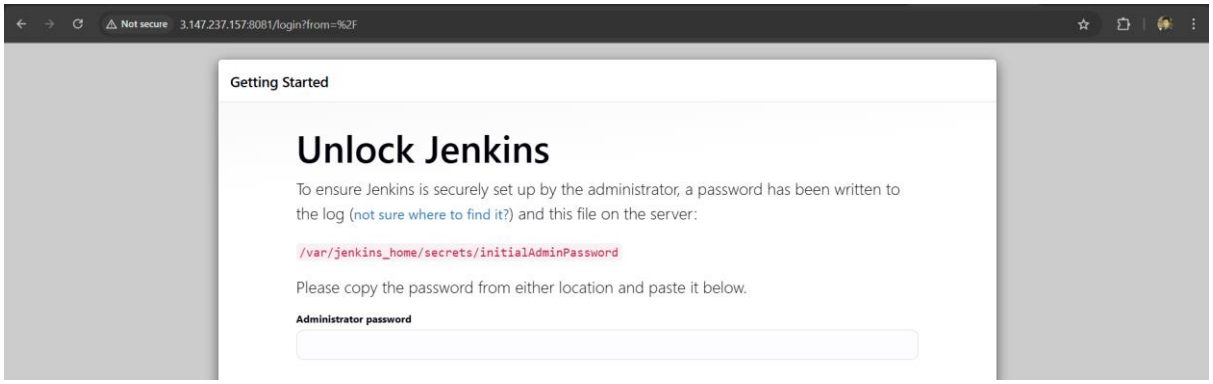
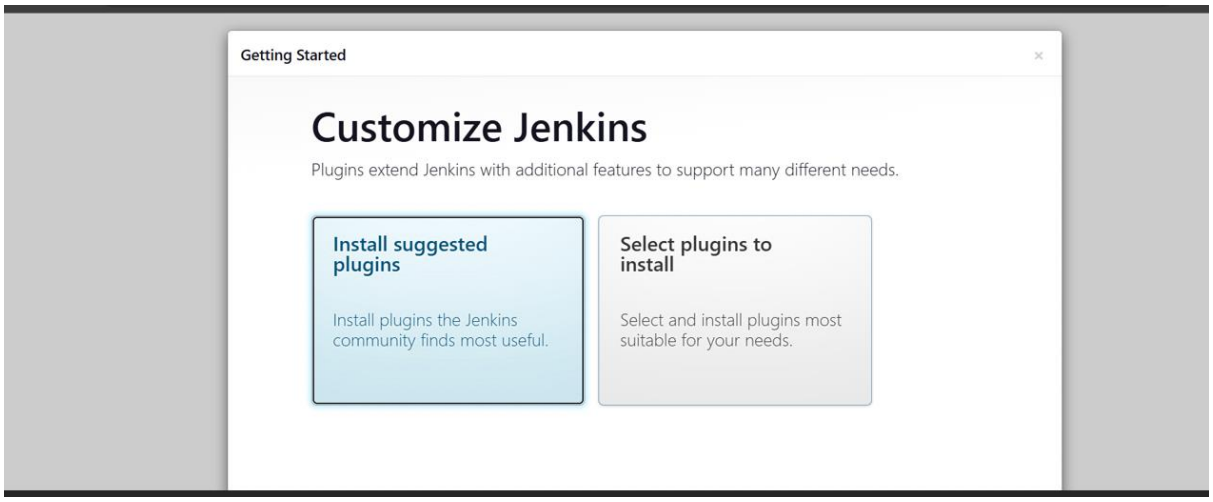
→run public ip of ec2:8081 on browser:





→Created and run one sample job in Jenkins: