

Marwa Ahmed Darwish

Lab 2:

4- configure jenkins image to run docker commands on your host docker daemon

## Dockerfile

FROM jenkins/jenkins:lts

USER root

RUN apt-get update -qq \

&& apt-get install -qqy apt-transport-https ca-certificates curl gnupg2 software-properties-common

RUN curl -fsSL https://download.docker.com/linux/debian/gpg | apt-key add -

RUN add-apt-repository \

"deb [arch=amd64] https://download.docker.com/linux/debian \

\$(lsb\_release -cs) \

stable"

RUN apt-get update -qq \

&& apt-get -y install docker-ce

\$ docker build -t my-image .

\$ docker run -it -d -p 8083:8080 -v /var/run/docker.sock:/var/run/docker.sock my-image

\$ docker ps -a

\$ docker exec -it dbf861506002 bash

\$ docker ps -a

```
marwa@marwa:~/desktop/jenkins/lab2$ docker run -it -d -p 8084:8080 -v /var/run/docker.sock:/var/run/docker.sock my-tnage
dbf861506002ebb7426a9a67786c9a9596c55e03a97aff284e93e2a1f3c32
marwa@marwa:~/desktop/jenkins/lab2$ docker ps
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                               NAMES
dbf861506002   my-tnage  "/usr/bin/tini -- /u..." 5 seconds ago  Up 4 seconds  50000/tcp, 0.0.0.0:8084->8080/tcp, :::8084->8080/tcp  awesome_khayyan
5f4754c5f724   jenkins/jenkins:lts  "/usr/bin/tini -- /u..." 4 days ago    Up 3 minutes  50000/tcp, 0.0.0.0:8083->8080/tcp, :::8083->8080/tcp  ecstatic_wu
marwa@marwa:~/desktop/jenkins/lab2$ docker ps-a
docker: 'ps-a' is not a docker command.
See 'docker --help'.
marwa@marwa:~/desktop/jenkins/lab2$ docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                               NAMES
dbf861506002   my-tnage  "/usr/bin/tini -- /u..." 23 seconds ago  Up 22 seconds  50000/tcp, 0.0.0.0:8084->8080/tcp, :::8084->8080/tcp  awesome_khayyan
c0891c7f69e5   my-tnage  "/usr/bin/tini -- /u..." 39 seconds ago  Created                                confident_gould
81348e610879   1ae81ee32868  "/bin/sh -c 'export ..." 30 hours ago   Exited (130) 28 hours ago  quirky_babbage
e5a021b6e835   8d4650510e6d  "/bin/sh -c 'export ..." 30 hours ago   Exited (0) 30 hours ago  laughing_gates
64aca7e6713   f769d9dcbf9  "/bin/sh -c bash"         30 hours ago   Exited (0) 30 hours ago  jovial_raman
7b21c73b74f4   7faecbccdce  "python hello.py"         30 hours ago   Exited (1) 30 hours ago  new-cont
d2a1d63cea0e   2235542424fc  "docker-entrypoint.s..." 30 hours ago   Exited (1) 30 hours ago  cont
120fec217013   redis      "docker-entrypoint.s..." 30 hours ago   Exited (0) 24 hours ago  redis-cont
b0153f991637   redis      "docker-entrypoint.s..." 30 hours ago   Exited (1) 30 hours ago  nifty_villant
b4f5e63f8aba   a037112b1932  "python3"                 36 hours ago   Exited (0) 36 hours ago  exciting_sinoussi
68c4d6c99122   d5349c2f878c  "python hello.py"         36 hours ago   Exited (1) 36 hours ago  python
e3e07d403a1   jenkins/jenkins:lts  "/usr/bin/tini -- /u..." 4 days ago     Exited (143) 4 days ago  relaxed_jones
5f4754c5f724   jenkins/jenkins:lts  "/usr/bin/tini -- /u..." 4 days ago     Up 3 minutes          50000/tcp, 0.0.0.0:8083->8080/tcp, :::8083->8080/tcp  ecstatic_wu
marwa@marwa:~/desktop/jenkins/lab2$ docker exec -it dbf861506002 bash
root@dbf861506002:/# docker ps -a
CONTAINER ID   IMAGE      COMMAND                  CREATED        STATUS        PORTS                               NAMES
dbf861506002   my-tnage  "/usr/bin/tini -- /u..." About a minute ago  Up About a minute  50000/tcp, 0.0.0.0:8084->8080/tcp, :::8084->8080/tcp  awesome_khayyan
c0891c7f69e5   my-tnage  "/usr/bin/tini -- /u..." About a minute ago  Created                                confident_gould
81348e610879   1ae81ee32868  "/bin/sh -c 'export ..." 30 hours ago   Exited (130) 28 hours ago  quirky_babbage
e5a021b6e835   8d4650510e6d  "/bin/sh -c 'export ..." 30 hours ago   Exited (0) 30 hours ago  laughing_gates
64aca7e6713   f769d9dcbf9  "/bin/sh -c bash"         30 hours ago   Exited (0) 30 hours ago  jovial_raman
7b21c73b74f4   7faecbccdce  "python hello.py"         30 hours ago   Exited (1) 30 hours ago  new-cont
d2a1d63cea0e   2235542424fc  "docker-entrypoint.s..." 30 hours ago   Exited (0) 24 hours ago  cont
120fec217013   redis      "docker-entrypoint.s..." 30 hours ago   Exited (1) 30 hours ago  redis-cont
b0153f991637   redis      "docker-entrypoint.s..." 30 hours ago   Exited (1) 30 hours ago  nifty_villant
b4f5e63f8aba   a037112b1932  "python3"                 36 hours ago   Exited (0) 36 hours ago  exciting_sinoussi
68c4d6c99122   d5349c2f878c  "python hello.py"         36 hours ago   Exited (1) 36 hours ago  python
e3e07d403a1   jenkins/jenkins:lts  "/usr/bin/tini -- /u..." 4 days ago     Exited (143) 4 days ago  relaxed_jones
5f4754c5f724   jenkins/jenkins:lts  "/usr/bin/tini -- /u..." 4 days ago     Up 4 minutes          50000/tcp, 0.0.0.0:8083->8080/tcp, :::8083->8080/tcp  ecstatic_wu
root@dbf861506002:/#
```

5- create CI/CD for this repo [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git)

- create credential for docker hub account first

### pipeline script

```
pipeline {
  agent any

  stages {
    stage('CI') {
      steps {
        withCredentials([usernamePassword(credentialsId: 'dockerhubaccount',
usernameVariable: 'USERNAME', passwordVariable: 'PASSWORD')]) {
          git 'https://github.com/mahmoud254/jenkins_nodejs_example'
          sh """
            docker login -u ${USERNAME} -p ${PASSWORD}
            docker build . -f dockerfile -t marwaahmed11/node-app:v1.0
            docker push marwaahmed11/node-app:v1.0
          """
        }
      }
    }
    stage('CD') {
      steps {
        withCredentials([usernamePassword(credentialsId: 'dockerhubaccount',
usernameVariable: 'USERNAME', passwordVariable: 'PASSWORD')]) {
          git 'https://github.com/mahmoud254/jenkins_nodejs_example'
          sh """
            docker login -u ${USERNAME} -p ${PASSWORD}
            docker run -d -p 3000:3000 marwaahmed11/node-app:v1.0
          """
        }
      }
    }
  }
}
```

- Status
- Changes
- Console Output
- View as plain text
- Edit Build Information
- Delete build #2
- Git Build Data
- Restart from Stage
- Replay
- Pipeline Steps
- Workspaces
- Previous Build

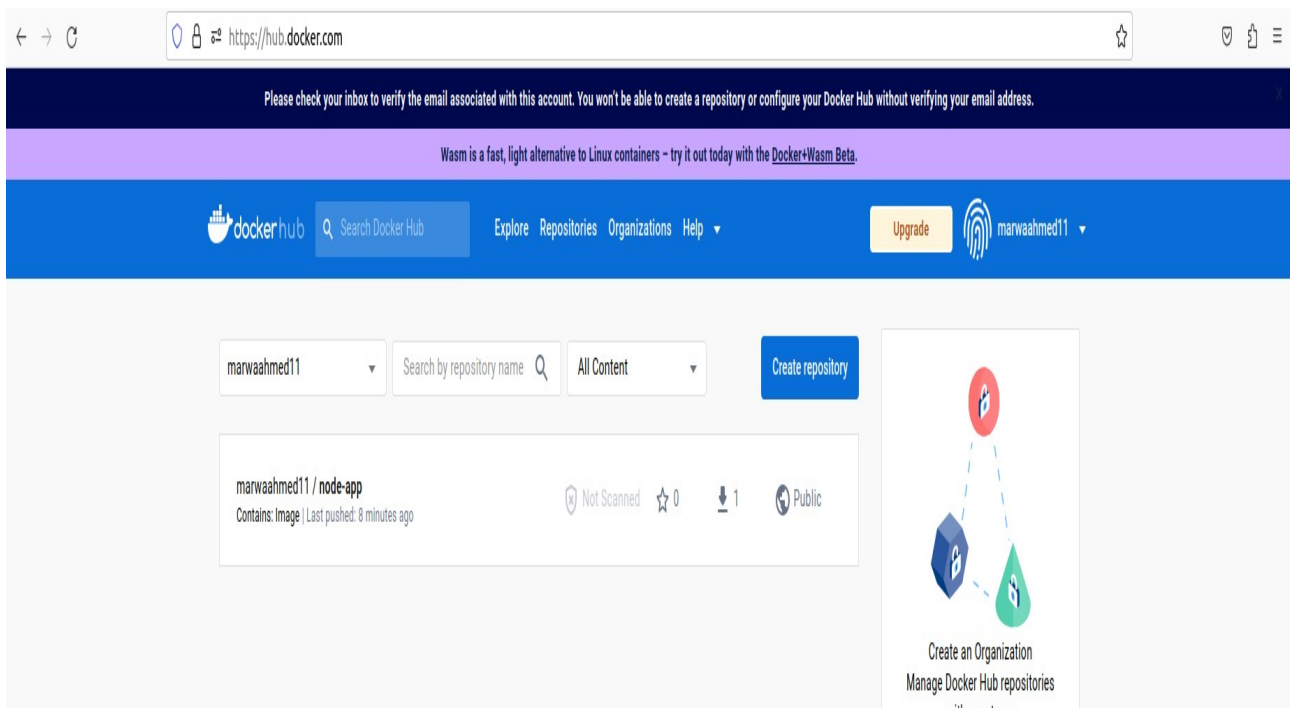
✓

Console Output

```
Started by user newadmin
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/jenkins_home/workspace/nodejs-pipeline
[Pipeline] {
[Pipeline] stage
[Pipeline] { CI
[Pipeline] withCredentials
Masking supported pattern matches of $PASSWORD
[Pipeline] {
[Pipeline] git
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/mahmoud254/jenkins_nodejs_example
> git init /var/jenkins_home/workspace/nodejs-pipeline # timeout=10
Fetching upstream changes from https://github.com/mahmoud254/jenkins_nodejs_example
> git --version # timeout=10
> git --version # 'git version 2.30.2'
> git fetch --tags --force --progress -- https://github.com/mahmoud254/jenkins_nodejs_example +refs/heads/*:refs/remotes/origin/* # timeout=10
> git config remote.origin.url https://github.com/mahmoud254/jenkins_nodejs_example # timeout=10
> git config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision 76b82f9debde852cca6b5c1d574c0ce0b9c1600 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f 76b82f9debde852cca6b5c1d574c0ce0b9c1600 # timeout=10
> git branch -a -v --no-abbrev # timeout=10
> git checkout -b master 76b82f9debde852cca6b5c1d574c0ce0b9c1600 # timeout=10
Commit message: "Update docker-publish.yml"
First time build. Skipping changelog.
[Pipeline] sh
Warning: A secret was passed to "sh" using Groovy String interpolation, which is insecure.
Affected argument(s) used the following variable(s): [PASSWORD]
```

```
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/nodejs-pipeline/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/mahmoud254/jenkins_nodejs_example # timeout=10
Fetching upstream changes from https://github.com/mahmoud254/jenkins_nodejs_example
> git --version # timeout=10
> git --version # 'git version 2.30.2'
> git fetch --tags --force --progress -- https://github.com/mahmoud254/jenkins_nodejs_example +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/master^{commit} # timeout=10
Checking out Revision 76b82f9debde852cca6b5c1d574c0ce0b9c1600 (refs/remotes/origin/master)
> git config core.sparsecheckout # timeout=10
> git checkout -f 76b82f9debde852cca6b5c1d574c0ce0b9c1600 # timeout=10
> git branch -a -v --no-abbrev # timeout=10
> git branch -D master # timeout=10
> git checkout -b master 76b82f9debde852cca6b5c1d574c0ce0b9c1600 # timeout=10
Commit message: "Update docker-publish.yml"
[Pipeline] sh
Warning: A secret was passed to "sh" using Groovy String interpolation, which is insecure.
Affected argument(s) used the following variable(s): [PASSWORD]
See https://jenkins.io/redirect/groovy-string-interpolation for details.
+ docker login -u marwaahmed11 -p ****
WARNING! Using --password via the CLI is insecure. Use --password-stdin.
WARNING! Your password will be stored unencrypted in /root/.docker/config.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
+ docker run -d -p 3000:3000 marwaahmed11/node-app:v1.0
8f9fc9f10b0827aacad0a01404c22f77ffd146a1bf795cd82c4813ac50048039
[Pipeline] }
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```



1- create docker file to build image for jenkins slave

### **Dockerfile**

FROM ubuntu

USER root

RUN mkdir -p jenkins\_home

RUN chmod 777 jenkins\_home

ENV DEBIAN\_FRONTEND noninteractive

ENV TZ=Africa/Cairo

RUN apt-get update

RUN apt-get install -y tzdata

RUN apt-get install -y openjdk-11-jdk

RUN apt-get install -y openssh-server

# Install dependencies required to install Docker

RUN apt-get install -y apt-transport-https ca-certificates curl gnupg-agent software-properties-common

# Add the Docker GPG key

RUN curl -fsSL https://download.docker.com/linux/ubuntu/gpg | apt-key add -

# Add the Docker repository

RUN add-apt-repository "deb [arch=amd64] https://download.docker.com/linux/ubuntu \$(lsb\_release -cs) stable"

# Update the package repository again

RUN apt-get update

# Install Docker

RUN apt-get install -y docker-ce docker-ce-cli containerd.io

# Verify the Docker installation

RUN docker --version

RUN useradd -ms /bin/bash jenkins

RUN usermod -aG docker jenkins

WORKDIR jenkins\_home

CMD [ "/bin/bash" ]

**\$ docker build -t jenkins-slave .**

2- create container from this image and configure ssh

**\$ docker run -it -d --name jenkins-slave-cont jenkins-slave**

**\$ docker ps**

**\$ docker exec -it fdabc4475046 bash**

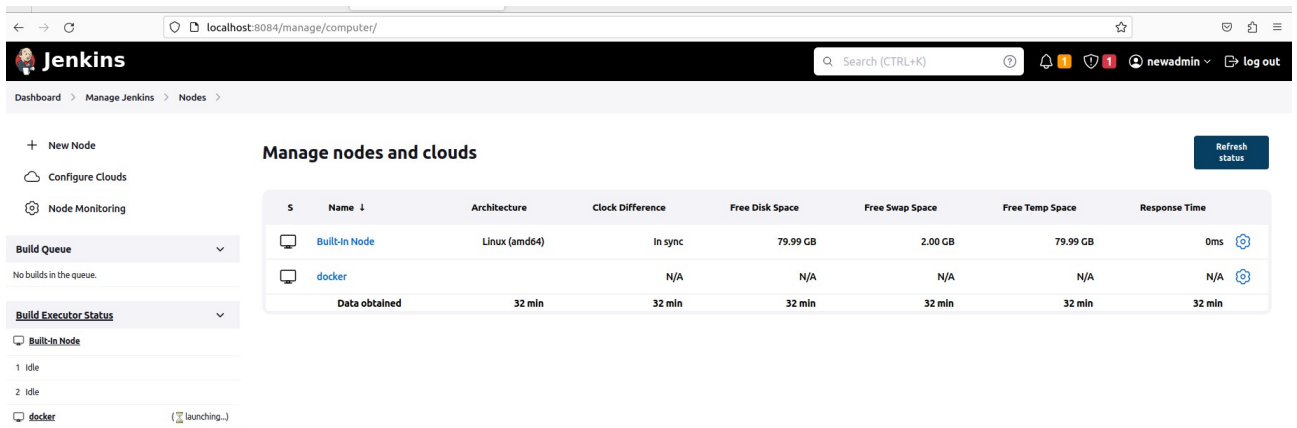
**# ssh-keygen**

**# cd /root/.ssh**

**# cp id\_rsa.pub authorized-keys**

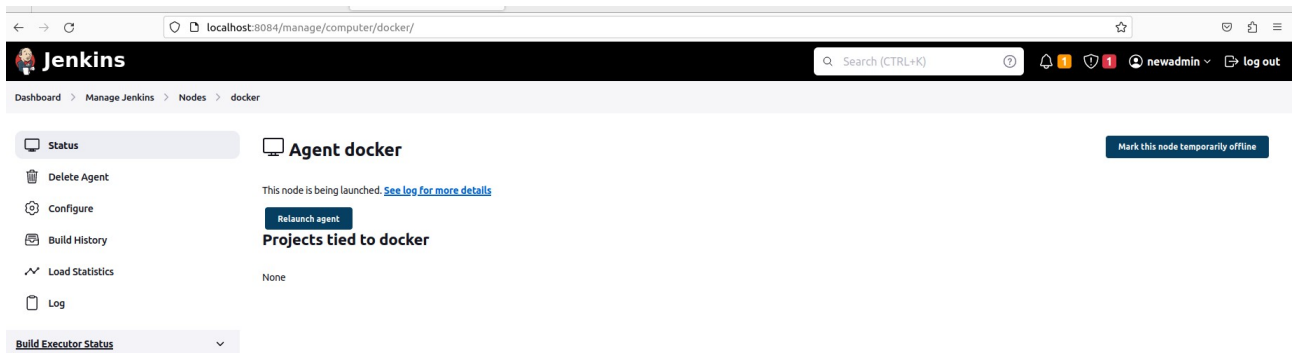
```
marwa@marwa: ~/Desktop/jenkins/lab2/q1$ docker run -it -d --name jenkins-slave-cont jenkins-slave
fdabc4475046a7dff22a4fb9c106be9ea856719df2adef25a847d42120107130
marwa@marwa: ~/Desktop/jenkins/lab2/q1$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                               NAMES
fdabc4475046   jenkins-slave  "/bin/bash"             5 minutes ago  Up 5 minutes  0.0.0.0:3000->3000/tcp, :::3000->3000/tcp  jenkins-slave-cont
8f9fc9f10b08   marwaahmed11/node-app:vi.0  "docker-entrypoint.s..."  5 hours ago   Up 5 hours    50000/tcp, 0.0.0.0:8084->8080/tcp, :::8084->8080/tcp  angry_haslett
dbf861506002   my-image       "/usr/bin/tini -- ./u..."  12 hours ago  Up 5 hours    50000/tcp, 0.0.0.0:8084->8080/tcp, :::8084->8080/tcp  awesome_khayyan
marwa@marwa: ~/Desktop/jenkins/lab2/q1$ docker exec -it fdabc4475046 bash
root@fdabc4475046:/jenkins_home# ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key (/root/.ssh/id_rsa):
Created directory '/root/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_rsa
Your public key has been saved in /root/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:9uf6WHG8NR7EC9HMLv98BVCH9rIL3BHxx+76rUlyTtk root@fdabc4475046
The key's randomart image is:
+---[RSA 3072]-----+
|  ..+0...  |
| 000..0.  |
|..+ +..  |
|...+..+  |
| S .0.= E. |
|...+0+ .0+|
| o=+0..00.|
| .0+0+ .0 |
| o+0 +..+ |
+---[SHA256]-----+
root@fdabc4475046:/jenkins_home# cd ~/.ssh
bash: cd: ~/.ssh: No such file or directory
root@fdabc4475046:/jenkins_home# cd /root/.ssh
root@fdabc4475046:~/.ssh# ls
id_rsa  id_rsa.pub
root@fdabc4475046:~/.ssh# cp id_rsa.pub authorized-keys
```

3- from jenkins master create new node with the slave container



The screenshot shows the Jenkins 'Manage nodes and clouds' page. The left sidebar contains links for 'New Node', 'Configure Clouds', 'Node Monitoring', 'Build Queue', 'Build Executor Status', and 'Build-In Node'. The main area displays a table of nodes. The 'docker' node is shown as 'launching...'. A 'Refresh status' button is in the top right.

S	Name ↓	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Linux (amd64)	In sync	79.99 GB	2.00 GB	79.99 GB	0ms
	docker		N/A	N/A	N/A	N/A	N/A
	Data obtained	32 min	32 min	32 min	32 min	32 min	32 min




The screenshot shows the Jenkins 'Agent docker' page. The left sidebar contains links for 'Status', 'Delete Agent', 'Configure', 'Build History', 'Load Statistics', 'Log', and 'Build Executor Status'. The main area shows the agent is being launched, with a 'Relaunch agent' button and a 'Mark this node temporarily offline' button. Below, it says 'Projects tied to docker' with 'None' listed.

#### 4- integrate slack with jenkins

Dashboard > Manage Jenkins > Configure System >


---

 Advanced...


☐ Test configuration by sending test e-mail

---


### Slack

Workspace 


---

Credential 


---


 Add

---

Default channel / member id 

---

☐ Custom slack app bot user 

 Advanced...

#### 5- send slack message when stage in your pipeline is successful

- Install slack notification plugin

##### **pipeline script**

```
pipeline { agent any stages { stage('Hello') { steps { echo 'Hello World' }  
post{ success{ slackSend(message:"build done successfully , here is the url ${BUILD_URL}") }  
failure{ slackSend(message:"buid failed , here is the url ${BUILD_URL}" ) } } } }
```

Jenkins

Search (CTRL+K)

2

1

Marwa

log out

Dashboard > slack-pipeline > #1

Status

Changes

Console Output

View as plain text

Edit Build Information

Delete build '#1'

Restart from Stage

Replay

Pipeline Steps

Workspaces

✓ Console Output

Started by user Marwa

[Pipeline] Start of Pipeline

[Pipeline] node

Running on Jenkins in /var/jenkins\_home/workspace/slack-pipeline

[Pipeline] {

[Pipeline] stage

[Pipeline] { (Hello)

[Pipeline] echo

Hello World

Post stage

[Pipeline] slackSend

Slack Send Pipeline step running, values are - baseUrl: <empty>, teamDomain: iti-be61819, channel: jenkins, color: <empty>, botUser: false, tokenCredentialId: slack-credential, notifyCommiters: false, iconEmoji: <empty>, username: <empty>, timestamp: <empty>

[Pipeline] }

[Pipeline] // stage

[Pipeline] }

[Pipeline] // node

[Pipeline] End of Pipeline

Finished: SUCCESS

ITI

Search ITI

Browse Slack

Channels

# general

# jenkins

# jenkins2

# random

Add channels

Direct messages

marwaahmed200126 you

Add teammates

# jenkins

+ Add a bookmark

💡

This is the very beginning of the # jenkins channel

This channel is for everything #jenkins. Hold meetings, share docs, and make decisions to

+ Add people

marwaahmed200126

2:12 AM

joined #jenkins.

marwaahmed200126

2:18 AM

added an integration to this channel: jenkins

jenkins

APP

2:23 AM

Slack/Jenkins plugin: you're all set on <http://localhost:8083/>

jenkins

APP

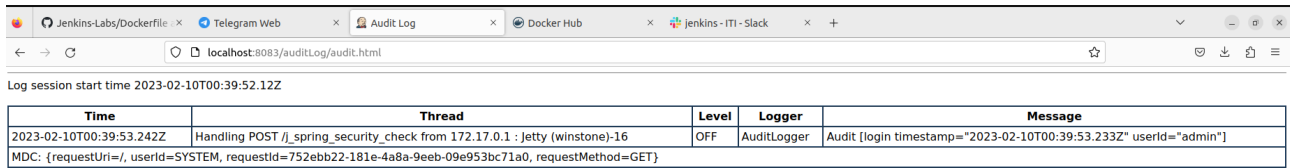
2:30 AM

build done successfully

 here is the url <http://localhost:8083/job/slack-pipeline/1/>



## 6- install audit logs plugin and test it



Time	Thread	Level	Logger	Message
2023-02-10T00:39:53.242Z	Handling POST /j_spring_security_check from 172.17.0.1 : Jetty (winstone)-16	OFF	AuditLogger	Audit [login timestamp="2023-02-10T00:39:53.233Z" userId="admin"]

MDC: {requestUri=/, userId=SYSTEM, requestId=752ebb22-181e-4a8a-9eeb-09e953bc71a0, requestMethod=GET}

7- fork the following repo [https://github.com/mahmoud254/Booster\\_CI\\_CD\\_Project](https://github.com/mahmoud254/Booster_CI_CD_Project) and add dockerfile to run this django app and use github actions to build the docker image and push it to your dockerhub

### Dockerfile

```
FROM ubuntu
RUN apt update -y
RUN apt-get install python3 -y
RUN apt install pip -y
COPY . .
RUN pip3 install -r requirements.txt
RUN python3 manage.py makemigrations
RUN python3 manage.py migrate
EXPOSE 8000
CMD ["python3","manage.py","runserver 0.0.0.0:8000"]
```

### Docker-compose.yaml

```
name: Docker Image CI

on:
  push:
    branches: [ "master" ]
  pull_request:
    branches: [ "master" ]

jobs:
  build:
    runs-on: ubuntu-latest

    steps:
      - uses: actions/checkout@v3
      - name: Build the Docker image
        run: |
          docker build . -f Dockerfile -t marwaahmed11/django-app:v1.0
          docker login -u ${secrets.DOCKER_USERNAME} -p ${secrets.DOCKER_PASSWORD}
          docker push marwaahmed11/django-app:v1.0
```

← → ↻

🔒 https://github.com/marwaahmed11/Booster\_CI\_CD\_Project/actions

☆

🔒

☰

🐙 Search or jump to...

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🔔 + 👤

🔍 marwaahmed11 / **Booster\_CI\_CD\_Project** Public

forked from mahmoud254/Booster\_CI\_CD\_Project

<> Code

🔍 Pull requests

🔄 **Actions**

📁 Projects

📖 Wiki

🔒 Security

📈 Insights

⚙️ Settings

New workflow

All workflows

Docker Image CI

Management

📦 Caches

All workflows

Showing runs from all workflows

1 workflow run

Event ▾ Status ▾ Branch ▾ Actor ▾

🟢 Create docker-image.yml

Docker Image CI #1: Commit e702934 pushed by marwaahmed11

🕒 2 minutes ago

🕒 1m 20s

⋮

← → ↻

🔒 https://github.com/marwaahmed11/Booster\_CI\_CD\_Project/actions/runs/4144167086

☆

🔒

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🔒 Security

📈 Insights

⚙️ Settings

← Docker Image CI

🟢 Create docker-image.yml #1

Re-run all jobs ⋮

🏠 Summary

Jobs

🟢 build

Run details

🔗 Usage

📄 Workflow file

Triggered via push 6 minutes ago

🟢 marwaahmed11 pushed ⇄ e702934 master

Status

**Success**

Total duration

**1m 20s**

Artifacts

—

**docker-image.yml**

on: push

🟢 build

1m 10s

🔄 - +