

1- Configure Jenkins image to run docker commands on your host docker daemon.

```
abdelrahman@abdelrahman-HP-EliteBook-745-G3:~$ docker ps
CONTAINER ID   IMAGE                                COMMAND                  CREATED        STATUS        PORTS
78b64f461f78   cec2651c412d                       "/sbin/tini -- /usr/..." 31 hours ago   Up 26 minutes 50000/tcp, 0.0.0.0:900
0->8080/tcp, :::9000->8080/tcp   pedantic wing
47472a1a1b2a   jenkins/jenkins:lts                "/sbin/tini -- /usr/..." 2 days ago     Up 24 minutes 50000/tcp, 0.0.0.0:90-
>8080/tcp, :::90->8080/tcp       infallible_meitner
abdelrahman@abdelrahman-HP-EliteBook-745-G3:~$ docker exec -it 78b64f461f78 bash
root@78b64f461f78:/# docker --version
Docker version 20.10.10, build b485636
root@78b64f461f78:/#
```

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

Dashboard > docker-pipeline >

General Build Triggers Advanced Project Options Pipeline

Definition

Pipeline script

Script

```
1 pipeline {
2   agent any
3
4   stages {
5     stage('preparation') {
6       steps {
7         // Get some code from a Github repository
8         git 'https://github.com/mahmoud254/jenkins_nodejs_example.git'
9       }
10    }
11    stage('CI') {
12      steps {
13        withCredentials([usernamePassword(credentialsId: 'dockerhub', passwordVariable: 'password', usernameVariable: 'username')])
14        // Get some code from a Github repository
15        sh '''docker build -f dockerfile -t abdelrahmanzaki179/docker_with_jenkins_ex:latest
16           docker login -u ${username} -p ${password}
17           docker push abdelrahmanzaki179/docker_with_jenkins_ex:latest
18           '''
19      }
20    }
21  }
```

☒ Use Groovy Sandbox

Pipeline Syntax

Save Apply

Dashboard > docker-pipeline > #1

Back to Project

Status

Changes

Console Output

View as plain text

Edit Build Information

Thread Dump

Pause/resume

Replay

Pipeline Steps

Workspaces

## Console Output

Started by user admin

[Pipeline] Start of Pipeline

[Pipeline] node

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

[Pipeline] {

[Pipeline] stage

[Pipeline] { (preparation)

[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](https://github.com/mahmoud254/jenkins_nodejs_example.git)

> git init /var/jenkins\_home/workspace/docker-pipeline # timeout=10

Fetching upstream changes from [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git)

> git --version # timeout=10

> git --version # 'git version 2.30.2'

> git fetch --tags --force --progress -- [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git)

+refs/heads/\*:refs/remotes/origin/\* # timeout=10

> git config remote.origin.url [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git) # 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 8b23b90d16627ba5bea48bfa8d920121ea75ff87 (refs/remotes/origin/master)

> git config core.sparsecheckout # timeout=10

> git checkout -f 8b23b90d16627ba5bea48bfa8d920121ea75ff87 # timeout=10

> git branch -a -v --no-abbrev # timeout=10

> git checkout -b master 8b23b90d16627ba5bea48bfa8d920121ea75ff87 # timeout=10

Commit message: "Delete Jenkinsfile"

First time build. Skipping changelog.

[Pipeline] }

```
6f7f3f280040: Preparing
d6e0d602719c: Preparing
73c3e7ef7bc6: Preparing
f1486e967e48: Waiting
5750262417ad: Waiting
9ed3c35b4335: Waiting
6f7f3f280040: Waiting
d6e0d602719c: Waiting
73c3e7ef7bc6: Waiting
bb1bb031ad58: Mounted from library/node
f9f80a3f0f8f: Mounted from library/node
b8890c63f8f5: Mounted from library/node
2301f40c12fa: Pushed
5750262417ad: Mounted from library/node
f1486e967e48: Mounted from library/node
9ed3c35b4335: Mounted from library/node
6f7f3f280040: Mounted from library/node
d6e0d602719c: Mounted from library/node
73c3e7ef7bc6: Mounted from library/node
95b175045883: Pushed
latest: digest: sha256:f68ee0d1abcc6e05c2243b9209259acc720904d592424783e8b21132feecd7a6 size: 2633
[Pipeline] }
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

**abdelrahmanzaki179** [Edit profile](#)

Community User Joined September 12, 2021

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Displaying 2 of 2 repositories

**abdelrahmanzaki179/docker\_with\_jenkins\_ex**By [abdelrahmanzaki179](#) • Updated a minute ago

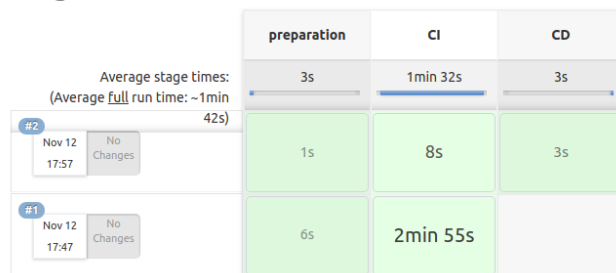
Container

4 0  
Downloads Stars[Back to Dashboard](#)[Status](#)[Changes](#)[Build Now](#)[Configure](#)[Delete Pipeline](#)[Full Stage View](#)[Rename](#)[Pipeline Syntax](#)[Build History](#) [trend](#) ^Find [#2](#) Nov 12, 2021, 3:57 PM[#1](#) Nov 12, 2021, 3:47 PM

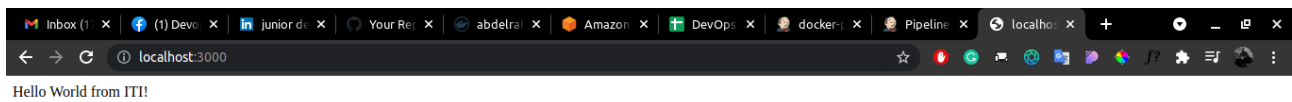
## Pipeline docker-pipeline

[add description](#)[Disable Project](#)[Recent Changes](#)

### Stage View



### Permalinks



3- Create docker file to build image for Jenkins slave.

Sol : <https://github.com/abdelrahman179/DevOps/blob/Jenkins/JKS/Dockerfile>

4- Create container from this image and configure ssh.

```
abdelrahman@abdelrahman-HP-EliteBook-745-G3:~$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
<none>               <none>             0ee0fecc9891       6 minutes ago      633MB
abdelrahmanzaki179/docker_with_jenkins_ex latest             b348349d8715       2 hours ago        921MB
<none>               <none>             cec2651c412d       32 hours ago       1.02GB
jenkins/jenkins      lts                 2219cea3096b       8 days ago         441MB
node                  12                  9f5f1136afe0       2 weeks ago        918MB
ubuntu                latest              ba6accce9d29       3 weeks ago        72.8MB
gcr.io/k8s-minikube/kicbase v0.0.27            9falcc16ad6d       8 weeks ago        1.08GB
abdelrahman@abdelrahman-HP-EliteBook-745-G3:~$
```

```
abdelrahman@abdelrahman-HP-EliteBook-745-G3:~$ docker ps -a
CONTAINER ID   IMAGE                                NAMES      COMMAND                  CREATED        STATUS        PORTS
9d5478e4c01c   0ee0fecc9891                       focused_go  "bash"                   3 minutes ago Exited (0) 52 seconds ago
1f1043321c86   abdelrahmanzaki179/docker_with_jenkins_ex:latest goofy_lew  "docker-entrypoint.s..." 2 hours ago   Up 2 hours   0.0.0.0:3000->3000/tcp, ::
78b64f461f78   cec2651c412d                       pedantic_w /sbin/tini -- /usr/... 32 hours ago   Up 2 hours   50000/tcp, 0.0.0.0:9000->8
080/tcp, :::9000->8080/tcp
47472a1ab2a    jenkins/jenkins:lts                infallible /sbin/tini -- /usr/... 2 days ago    Up 2 hours   50000/tcp, 0.0.0.0:90->808
0/tcp, :::90->8080/tcp
abdelrahman@abdelrahman-HP-EliteBook-745-G3:~$
```

```
root@f51c311bbb73:/# apt install openjdk-8-jdk
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
```

```
root@f51c311bbb73:/# service ssh start
* Starting OpenBSD Secure Shell server sshd
root@f51c311bbb73:/# service ssh status
* sshd is running
root@f51c311bbb73:/# mkdir ~/.ssh
root@f51c311bbb73:/# cd ~/.ssh/
root@f51c311bbb73:~/.ssh# apt install vim
```

5- From Jenkins master create new node with the slave container.

← → ↺ localhost:8081/computer/docker\_slave/configure ☆

Dashboard ▸ Nodes ▸ docker\_slave

**Name** ?

docker\_slave

**Description** ?

**Number of executors** ?

1

**Remote root directory** ?

/jenkins\_home

**Labels** ?

docker\_slave

Save

Dashboard ▾ ▸ Nodes ▸ docker\_slave

**Usage** ?

Only build jobs with label expressions matching this node ▾

**Launch method** ?

Launch agents via SSH ▾

**Host** ?

172.17.0.4

**Credentials** ?

root ▾ Add ▾



**Host Key Verification Strategy** ?

Non verifying Verification Strategy ▾

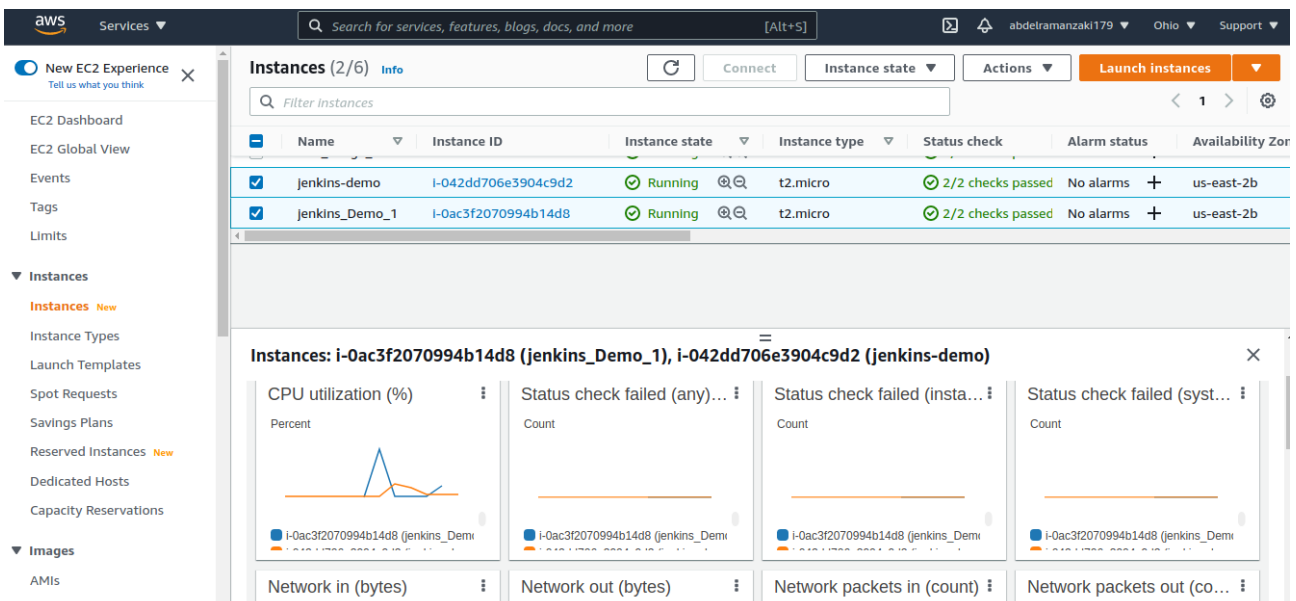
Save

## Dashboard ▸ Nodes ▸ docker\_slave

```
[10/17/21 23:23:34] [SSH] Checking java version of java
[10/17/21 23:23:35] [SSH] java -version returned 1.8.0_292.
[10/17/21 23:23:35] [SSH] Starting sftp client.
[10/17/21 23:23:35] [SSH] Copying latest remoting.jar...
[10/17/21 23:23:35] [SSH] Copied 1,507,326 bytes.
Expanded the channel window size to 4MB
[10/17/21 23:23:35] [SSH] Starting agent process: cd "/jenkins_home" && java -jar
remoting.jar -workDir /jenkins_home -jar-cache /jenkins_home/remoting/jarCache
Oct 17, 2021 11:23:39 PM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using /jenkins_home/remoting as a remoting work directory
Oct 17, 2021 11:23:39 PM org.jenkinsci.remoting.engine.WorkDirManager setupLogging
INFO: Both error and output logs will be printed to /jenkins_home/remoting
<===[JENKINS REMOTING CAPACITY]==>channel started
Remoting version: 4.10
This is a Unix agent
Evacuated stdout
Agent successfully connected and online
...
```

	<b>docker_slave</b>	Linux (amd64)	In sync	76.98 GB	1.43
	<b>master</b>	Linux (amd64)	In sync	76.98 GB	1.43
Data obtained		1 min 21 sec	1 min 21 sec	1 min 22 sec	1 min 21 sec
<div>Refresh status</div>					

## 6- Create 2 AWS ec2's



The screenshot displays the AWS Management Console interface. At the top, the navigation bar includes the AWS logo, 'Services', a search bar, and user information. The left sidebar shows the 'Instances' section selected. The main content area shows a table of EC2 instances with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, and Availability Zone. Two instances are listed: 'jenkins-demo' (ID: i-042dd706e3904c9d2) and 'jenkins\_Demo\_1' (ID: i-0ac3f2070994b14d8), both in a 'Running' state with '2/2 checks passed'. Below the table, a detailed view for the 'jenkins\_Demo\_1' instance is shown, featuring four panels: CPU utilization (a line graph showing a peak), Status check failed (any) (a bar chart showing zero failures), Status check failed (instance) (a bar chart showing zero failures), and Status check failed (system) (a bar chart showing zero failures). The bottom of the detailed view shows network statistics for both instances.

```
File Edit View Search Terminal Tabs Help
ubuntu@ip-172-31-25-102:... x ubuntu@ip-172-31-22-155:~ x abdelrahman@abdelrahma... x [x]
rename      Rename a container
restart     Restart one or more containers
rm          Remove one or more containers
rmi         Remove one or more images
run         Run a command in a new container
save        Save one or more images to a tar archive (streamed to STDOUT by default)
search      Search the Docker Hub for images
start       Start one or more stopped containers
stats       Display a live stream of container(s) resource usage statistics
stop        Stop one or more running containers
tag         Create a tag TARGET_IMAGE that refers to SOURCE_IMAGE
top         Display the running processes of a container
unpause     Unpause all processes within one or more containers
update      Update configuration of one or more containers
version     Show the Docker version information
wait        Block until one or more containers stop, then print their exit codes

Run 'docker COMMAND --help' for more information on a command.

To get more help with docker, check out our guides at https://docs.docker.com/go/guides/
ubuntu@ip-172-31-25-102:~$ ls
jenkins
ubuntu@ip-172-31-25-102:~$ cd jenkins/
ubuntu@ip-172-31-25-102:~/jenkins$ ls
caches  remoting  remoting.jar  workspace
ubuntu@ip-172-31-25-102:~/jenkins$
```

```
ubuntu@ip-172-31-25-102:... x ubuntu@ip-172-31-22-155:... x abdelrahman@abdelrahma... x [x]
* Support:      https://ubuntu.com/advantage

System information as of Sat Nov 13 19:19:54 UTC 2021

System load:  0.07          Processes:            113
Usage of /:   49.2% of 7.69GB Users logged in:       0
Memory usage: 40%          IPv4 address for docker0: 172.17.0.1
Swap usage:   0%           IPv4 address for eth0:   172.31.22.155


* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.


https://ubuntu.com/aws/pro


11 updates can be applied immediately.
To see these additional updates run: apt list --upgradable


*** System restart required ***
Last login: Fri Nov 12 16:12:37 2021 from 197.37.206.181
ubuntu@ip-172-31-22-155:~$ ls
jenkins
ubuntu@ip-172-31-22-155:~$ cd jenkins/
ubuntu@ip-172-31-22-155:~/jenkins$ ls
caches  remoting  remoting.jar  workspace
ubuntu@ip-172-31-22-155:~/jenkins$
```


7- Configure them to work as Jenkins slaves

 Back to Dashboard

 Manage Jenkins


 New Node

 Configure Clouds


 Node Monitoring

**Build Queue** ▴  
No builds in the queue.


**Build Executor Status** ▴






 **master**

1 Idle


 Idle


2 Idle


 **AWS**


S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	<b>AWS</b>	Linux (amd64)	In sync	3.90 GB	 0 B	3.90 GB	2656ms
	<b>AWS_2</b>	Linux (amd64)	1.7 sec ahead	5.73 GB	 0 B	5.73 GB	7450ms
	<b>master</b>	Linux (amd64)	In sync	28.69 GB	1.36 GB	28.69 GB	0ms
Data obtained		10 min	10 min	10 min	10 min	10 min	10 min


Refresh status


 Delete Agent


 **Configure**


 Build History

 Load Statistics

 Script Console

 Log

 System Information

 Disconnect

**Build Executor Status** ▴

1 Idle

Number of executors

?

1

Remote root directory

?

/home/ubuntu/jenkins

Labels

?

AWS\_2

Usage

?

Only build jobs with label expressions matching this node ▾

Launch method

?

Launch agents via SSH ▾

Host

?

3.131.35.107

Credentials

?

Save

Dashboard ▾ ▸ Nodes ▸ AWS\_2

**Build Executor Status** ▴

1 Idle

Launch method

?

Launch agents via SSH ▾

Host

?

3.131.35.107

Credentials

?

ubuntu ▾  Add ▾

Host Key Verification Strategy

?

Non verifying Verification Strategy ▾

 Advanced... 

?

Availability

?

Keep this agent online as much as possible ▾

**Node Properties**

?


☐ Disable deferred wipeout on this node



☐ Environment variables

☐ Tool Locations


Save


## 8- Configure them in nodes section in Jenkins


 **Jenkins**


 **admin**  **log out**


Dashboard ▾ > docker-pipeline > #9


 Back to Project


 Status


 Changes


 **Console Output**


 View as plain text


 Edit Build Information


 Delete build '#9'


 Git Build Data

 Restart from Stage

 Replay

 Pipeline Steps

 Workspaces

 **Console Output**

Started by user **admin**

[Pipeline] Start of Pipeline

[Pipeline] node

Running on **AWS\_2** in /home/ubuntu/jenkins/workspace/docker-pipeline

[Pipeline] {

[Pipeline] stage

[Pipeline] { (preparation)

[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](https://github.com/mahmoud254/jenkins_nodejs_example.git)

> git init /home/ubuntu/jenkins/workspace/docker-pipeline # timeout=10

Fetching upstream changes from [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git)

> git --version # timeout=10

> git --version # 'git version 2.25.1'

> git fetch --tags --force --progress -- [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git) +refs/heads/\*:refs/remotes/origin/\* # timeout=10

Avoid second fetch

Checking out Revision 8b23b90d16627ba5bea48bfa8d920121ea75ff87 (refs/remotes/origin/master)

> git config remote.origin.url [https://github.com/mahmoud254/jenkins\\_nodejs\\_example.git](https://github.com/mahmoud254/jenkins_nodejs_example.git) # timeout=10

> git config --add remote.origin.fetch +refs/heads/\*:refs/remotes/origin/\* # timeout=10

> git rev-parse refs/remotes/origin/master^{commit} # timeout=10

> git config core.sparsecheckout # timeout=10

> git checkout -f 8b23b90d16627ba5bea48bfa8d920121ea75ff87 # timeout=10

Dashboard ▾ > docker-pipeline > #9

```
[Pipeline] }
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (CD)
[Pipeline] withCredentials
Masking supported pattern matches of $password
[Pipeline] {
[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.
+ sudo docker login -u abdelrahmanzakil179 -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
+ sudo docker run -p 3000:3000 -d abdelrahmanzakil179/docker_with_jenkins_ex:latest
0cf47af3fe5b57d913dd36128c430b8df3e791bcd581cea279467c2e7de085c7
[Pipeline] }
[Pipeline] // withCredentials
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Finished: SUCCESS
```

REST API

Jenkins 2.303.3