

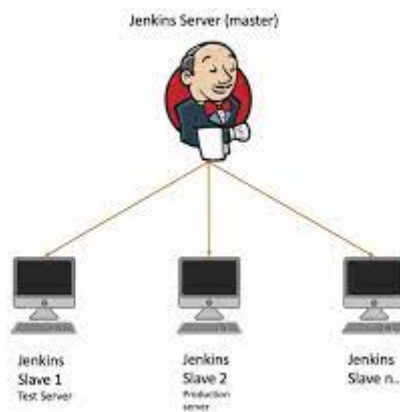
01) What is Jenkins used for?

It is used to implement CI/CD workflows, called pipelines. Pipelines automate testing and reporting on isolated changes in a larger code base in real time and facilitates the integration of disparate branches of the code into a main branch. They also rapidly detect defects in a code base, build the software, automate test of their builds, prepare the code base for deployment (delivery), and ultimately deploy code to containers and virtual machines, as well as bare metal and cloud servers

02) What is Jenkins agent? What is Jenkins executor (Build Executor)?

- An agent is typically a machine, or container, which connects to a Jenkins controller and executes tasks when directed by the controller.
- A Jenkins executor is **one of the basic building blocks which allow a build to run on a node/agent** (e.g. build server). Think of an executor as a single "process ID", or as the basic unit of resource that Jenkins executes on your machine to run a build.

03) Explain Jenkins master-slave architecture?



Master

The main Jenkins Server is the Master Server of Jenkins. This acts as a control server that arranges the defined workflow of the pipeline. The jobs of this Master are as follows:

- *scheduling jobs*
- *sending builds to slaves to execute the job*
- *keeping track of the slaves states (online/offline)*
- *can also directly execute build jobs*

Slave-

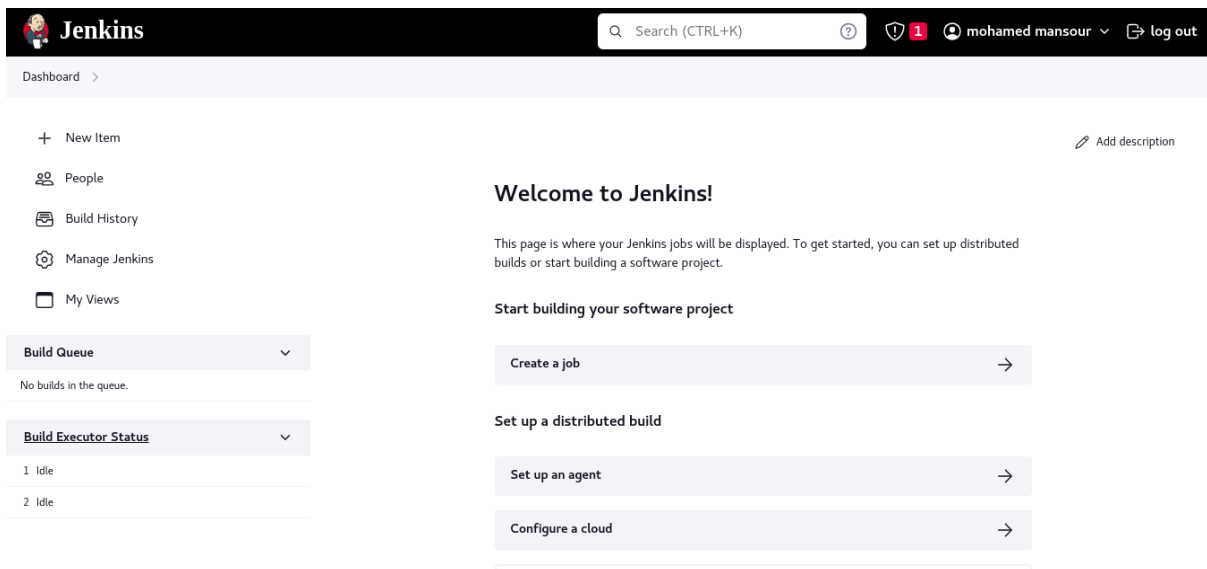
The slave is a part of the Jenkins environment that runs on a remote environment. The characteristics of slaves include:

- *it listens to the Master instance*
- *it's job is to do as they are told to, that includes executing build jobs conveyed by the Master*

04) Install jenkins with docker image.

```
[mmansour@localhost ~]$ sudo docker run -p 8080:8080 -p 50000:50000 -d \
> -v jenkins_home:/var/jenkins_home \
> -v /var/run/docker.sock:/var/run/docker.sock \
> -v $(which docker):/usr/bin/docker jenkins/jenkins:lts
Unable to find image 'jenkins/jenkins:lts' locally
lts: Pulling from jenkins/jenkins
```

```
[root@localhost mmansour]# docker ps
CONTAINER ID   IMAGE                COMMAND                  CREATED        STATUS        PORTS
15e6f279d8d7   jenkins/jenkins:lts  "/usr/bin/tini -- /u..."  4 minutes ago  Up           0.0.0.0:8080->8080/tcp, :::8080->8080/tcp, 0.0.0.0:50000->50000/tcp, :::50000->50000/tcp
awesome cerf
```



The screenshot shows the Jenkins web interface. At the top is a navigation bar with the Jenkins logo, a search bar, and user information (mohamed mansour). Below the navigation bar is a sidebar with links to 'New Item', 'People', 'Build History', 'Manage Jenkins', and 'My Views'. The main content area displays a 'Welcome to Jenkins!' message, explaining that this is where jobs are displayed and providing instructions on how to get started. It offers three main actions: 'Create a job', 'Set up a distributed build', and 'Configure a cloud', each with a right-pointing arrow button.