

01) What is Jenkins used for?

Jenkins is a self-contained, open source automation server which can be used to automate all sorts of tasks related to building, testing, and delivering or deploying software.

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?

Controller (master): The central, coordinating process which stores configuration, loads plugins, and renders the various user interfaces for Jenkins.

Agent/node (slave): An agent is typically a machine, or container, which connects to a Jenkins controller and executes tasks when directed by the controller.

The Jenkins architecture is designed for distributed build environments. It allows us to use different environments for each build, balancing the workload among multiple agents running jobs in parallel.

04) Mention three security mechanisms used by Jenkins to authenticate users?

- 1- Delegate to servlet container.
- 2- Jenkins' own user database.
- 3- LDAP.

05) Mention ways that a job can be run/scheduled in Jenkins?

By configuring Build Triggers in the job configuration.

06) How can we restart Jenkins server (Hint it's an endpoint we visit in the browser)?

To restart Jenkins manually, you can enter either of the following URL in the browser:

`(jenkins_url)/safeRestart` - `(jenkins_url)/restart`

07) Install jenkins with docker image.

```
docker run -p 8080:8080 -p 50000:50000 --restart=on-failure -v jenkins_home:/var/jenkins_home --name jenkins_sprints jenkins/jenkins:lts-jdk11
```

08) Install role based authorization plugin.

Dashboard → manage Jenkins → manage plugins → available → role-based authorization

09) Create new user.

Dashboard → manage Jenkins → manage users → create user

10) Create read role and assign it to the new user

after installing role based authorization plugin:

Dashboard → manage Jenkins → manage and assign roles

11) Create free style project and link it to private git repo (inside it create directory and create file with "hello world").

It cannot connect to a private repo

mkdir dir

echo "hello world" >> ./dir/helloworld.txt