**Install Jenkins on RHEL**

* **JAVA should be installed in EC2-machine or VM. Use below command to check whether Java is available or not**
  + **$** alternatives –config java - when multiple versions of Java exist
  + **Java –version**
* **If Java does not exist then install it otherwise go to next step**
  + sudo yum install java
* Go to google.com and search – “Jenkins download”, open first link – [www.jenkins.io/download/](http://www.jenkins.io/download/) & choose the OS.
* The opened page contains set of commands which we need to execute to install Jenkins

1. sudo wget -O /etc/yum.repos.d/jenkins.repo <https://pkg.jenkins.io/redhat-stable/jenkins.repo>
2. sudo rpm --import <https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key>
3. sudo yum upgrade
4. sudo yum install fontconfig java-21-openjdk
5. sudo yum install Jenkins
6. sudo systemctl daemon-reload

* **Now start Jenkins**

sudo systemctl start Jenkins

* **Check status of Jenkins**

sudo systemctl status Jenkins -> It should return the running status with process id

* Check port of Jenkins
  + $ sudo netstat -lntup | grep <process\_id>

NOTE:- if netstat command not found then install the package net-tools. By default, it should be 8080. In Security Group of your EC2 machine, In Inbound rules port 8080 should be open.

sudo yum install net-tools

* Check Jenkins configurations –
  + $ sudo cat /etc/sysconfig/Jenkins

NOTE: From this file we can change port or other configurations.

Now Go to browser & open your public IP with port 8080

First time when we launch Jenkins then it used to be in locked state. We need to open it through Administrator password which is available in /var/lib/Jenkins/secrets/initialAdminPassword

In terminal use below command to get Administrator Password

**$ sudo cat /var/lib/Jenkins/secrets/initialAdminPassword**

After this Jenkins will be unlocked, Create account and redirect to the dashboard page.

**What is job in Jenkins?**

* A Jenkins job is a sequential set of tasks that a user defines. For example: a job can fetch source code from version control, compile the code, run unit tests and more.

**Create a sample Job**

* From dashboard click on New Item
* Enter an item name
* Choose ‘Free style Project’
* Click on ‘OK’ button
* In opened page, from left panel (configuration) choose ‘Build Steps’
* In ‘Build steps’ drop down, choose ‘Execute shell’
* Now let’s run a basic shell script

**echo “This is my first Jenkins task”**

**date >> /tmp/date.txt**

* Now click on “Save” button
* Now from the left menu options, choose ‘Build Now’ (Build Now means running the job)
* In Build History section (At the bottom of left menu) we can see Build No. like #1, #2 and so on. Click on any build No to see the console output.

**Automate the Build**

* **Timer** (Similar to cron job)
* **Poll scm** (Poll means watching & SCM is Source code management)
* **GITHub hook trigger for GITSCM polling** (Web Hooks)

**Timer:** Set a time & in that particular time make a build

Step 1 – Go to Dashboard

Step 2 – Choose any existing job or create a free style project

Step 3 – Click on Configure

Step 4 – Click on ‘Triggers’

From the list of triggers, choose –

**Build Periodically**

Step 5 – Choose ‘Buid Periodically’

**\*/2 \* \* \* \***

**\*/2 --- Minutes (0 to 59)**

**\*--- Hour (0 to 23)**

**\* --- Day of Month (1 to 31)**

**\* --- Month (1 to 12)**

**\* --- Day of the week (0 to 7)**

Step 6 – Now wait for 2 minutes & refresh the page & we can see there will be one new build. Click on the build number & then click on “Console Output” & we can see the message

* Started by **timer**

**Poll SCM:** When-ever developer makes a change in code and push it in GIT then a build generates after specified time.

Step 1: Go to Dashboard, choose any existing job or click on new item to create a new free style job

Step2: Click on Configure

Step 3: Click on Source Code Management

Step 4: Select ‘GIT’ and enter details –

Repository URL: <https://github.com/gautam100/project-demo.git>

NOTE: After entering repository URL, if you find error – “Failed to connect to repository”; it means git is not installed in this machine, so install git into the machine.

Step 5: Now in build trigger section choose ‘Poll SCM’

In schedule text-area enter a timer which will watch the repository in given time to check any updates.

**\*/2 \* \* \* \***

NOTE: *This timer will not execute the job or build the job in every 2 minutes rather it will watch the repository in every 2 minutes.*

Step 6: Click on “Save”

Step 7: Do some commit and push in Repo and wait for 2 minutes

Step8: After 2 min, we can see a new build. Click on that we can find the message

* Started by an SCM change

**GITHub hook trigger for GITSCM polling**

**~** As soon as any GIT push will made, a new build will generate, there is no watch mechanism.

Step 1: Go to github.com & choose any repository.

Step 2: Click on Settings & then web hooks.

Step 3: Click on Add Webhook button

Payload URL:

*Enter URL of Jenkins Server*/github-webhook/

(\*\*\* at the end of URL add **/github-webhook/**)

Example 54.162.135.194:8080/github-webhook/

Step 4: Now go to Jenkin’s dashboard choose a task

Step 5: Click on configure

Step 6: In Source Code management section –

* Choose GIT
* In Repository URL – Put the URL of github repository.
* In Branch Specifier - \*/master

Step 7: Click on Save.

Step 8: Now create a file & push it in the Repo.

Step 9: Now in Jenkins, we can see in the task a new build is created. Click on that & we can see started by Github push by <user name>