

## JENKINS ASSIGNMENT 01

Q1. Install Jenkins on one of the server on your setup (Local VM / Ec2 / WSL).

Once Jenkins is installed , try install plugins with and without restart option.

Please verify plugins installed successfully.

### ➔ SOLUTION

```
aws Services Search [Alt+S]
[root@ip-172-31-42-222 ~]# sudo yum update
Last metadata expiration check: 0:01:55 ago on Tue Mar 12 08:02:33 2024.
Dependencies resolved.
Nothing to do.
Complete!
```

```
[root@ip-172-31-42-222 ~]# sudo wget -O /etc/yum.repos.d/jenkins.repo \
https://pkg.jenkins.io/redhat-stable/jenkins.repo
--2024-03-12 08:04:39-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.154.133, 2a04:4e42:24::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.154.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'

/etc/yum.repos.d/jenkins.repo      100%[=====>]      85  --.-KB/s   in 0s
```

```
[root@ip-172-31-42-222 ~]# sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io-2023.key
[root@ip-172-31-42-222 ~]# sudo yum upgrade
Jenkins-stable
Dependencies resolved.
Nothing to do.
Complete!
```

```
[root@ip-172-31-42-222 ~]# sudo dnf install java-11-amazon-corretto -y
Last metadata expiration check: 0:00:10 ago on Tue Mar 12 08:05:29 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
java-11-amazon-corretto	x86_64	1:11.0.22+7-1.amzn2023	amazonlinux	198 k
Installing dependencies:				
alsa-lib	x86_64	1.2.7.2-1.amzn2023.0.2	amazonlinux	504 k
cairo	x86_64	1.17.6-2.amzn2023.0.1	amazonlinux	684 k
dejavu-sans-fonts	noarch	2.37-16.amzn2023.0.2	amazonlinux	1.3 M
dejavu-sans-mono-fonts	noarch	2.37-16.amzn2023.0.2	amazonlinux	469 k
dejavu-serif-fonts	noarch	2.37-16.amzn2023.0.2	amazonlinux	1.0 M
fontconfig	x86_64	2.13.94-2.amzn2023.0.2	amazonlinux	273 k
fonts-filesystem	noarch	1:2.0.5-12.amzn2023.0.2	amazonlinux	9.5 k
freetype	x86_64	2.13.0-2.amzn2023.0.1	amazonlinux	422 k
glib	x86_64	5.2.1-9.amzn2023.0.1	amazonlinux	49 k
google-noto-fonts-common	noarch	20201206-2.amzn2023.0.2	amazonlinux	15 k
google-noto-sans-vf-fonts	noarch	20201206-2.amzn2023.0.2	amazonlinux	492 k
graphite2	x86_64	1.3.14-7.amzn2023.0.2	amazonlinux	97 k
harfbuzz	x86_64	7.0.0-2.amzn2023.0.1	amazonlinux	868 k
java-11-amazon-corretto-headless	x86_64	1:11.0.22+7-1.amzn2023	amazonlinux	91 M
javapackages-filesystem	noarch	6.0.0-7.amzn2023.0.6	amazonlinux	12 k
langpacks-core-font-en	noarch	3.0-21.amzn2023.0.4	amazonlinux	10 k
libICE	x86_64	1.0.10-6.amzn2023.0.2	amazonlinux	71 k
libSW	x86_64	1.2-3-8.amzn2023.0.2	amazonlinux	42 k
libX11	x86_64	1.7.2-3.amzn2023.0.4	amazonlinux	657 k
libX11-common	noarch	1.7.2-3.amzn2023.0.4	amazonlinux	152 k
libXau	x86_64	1.0.9-6.amzn2023.0.2	amazonlinux	31 k

```
[root@ip-172-31-42-222 ~]# sudo yum install jenkins -y
Last metadata expiration check: 0:00:51 ago on Tue Mar 12 08:05:29 2024.
Dependencies resolved.
```

Package	Architecture	Version	Repository	Size
Installing:				
jenkins	noarch	2.440.1-1.1	jenkins	82 M

```
Transaction Summary
Install 1 Package

Total download size: 82 M
Installed size: 82 M
Downloading Packages:
jenkins-2.440.1-1.1.noarch.rpm
18 MB/s | 82 MB 00:04

Total
18 MB/s | 82 MB 00:04

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing                :
  Running scriptlet: jenkins-2.440.1-1.1.noarch
  Installing              : jenkins-2.440.1-1.1.noarch
  Running scriptlet: jenkins-2.440.1-1.1.noarch
  Verifying                : jenkins-2.440.1-1.1.noarch

Installed:
jenkins-2.440.1-1.1.noarch

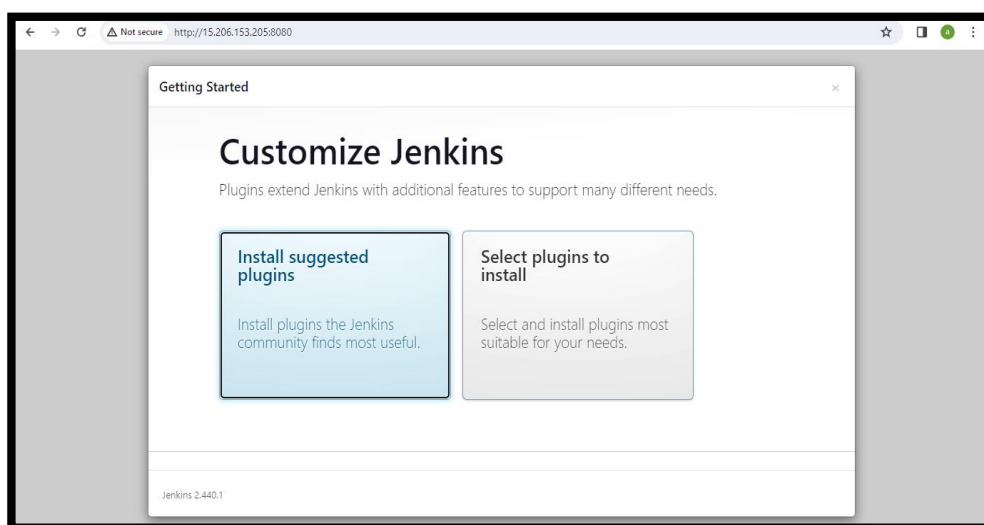
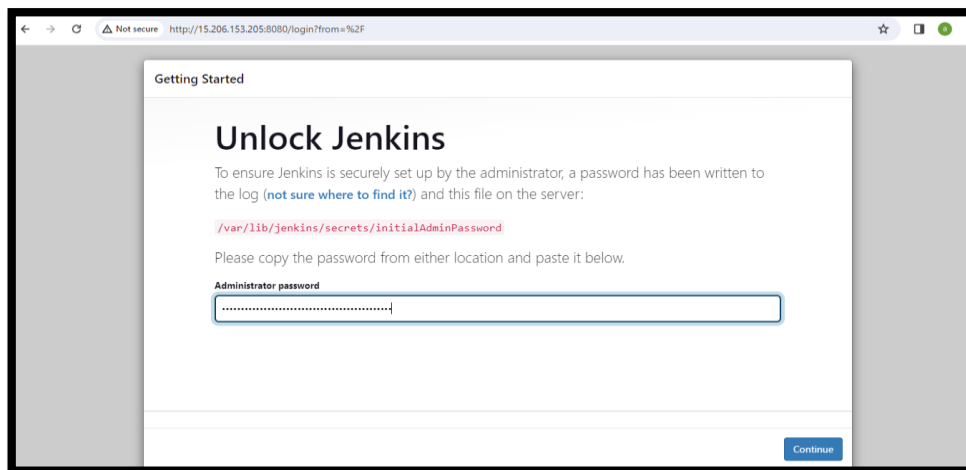
Complete!
```

```
[root@ip-172-31-42-222 ~]# sudo systemctl enable jenkins
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /usr/lib/systemd/system/jenkins.service.
[root@ip-172-31-42-222 ~]# sudo systemctl start jenkins
```

```
[root@ip-172-31-42-222 ~]# sudo systemctl status jenkins
jenkins.service - Jenkins Continuous Integration Server
Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; preset: disabled)
Active: active (running) since Tue 2024-03-12 08:07:27 UTC; 26s ago
Main PID: 26065 (java)
Tasks: 43 (limit: 1114)
Memory: 373.3M
CPU: 43.114s
CGroup: /system.slice/jenkins.service
└─26065 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Mar 12 08:06:52 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 12 08:06:52 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: *****
Mar 12 08:06:52 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: *****
Mar 12 08:06:52 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: *****
Mar 12 08:07:27 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: 2024-03-12 08:07:27.390+0000 [id=29] INFO jenkins.InitReactorRunner$1onAttained: Completed in
Mar 12 08:07:27 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: 2024-03-12 08:07:27.417+0000 [id=22] INFO hudson.lifecycle.Lifecycle#onReady: Jenkins is fully
Mar 12 08:07:27 ip-172-31-42-222.ap-south-1.compute.internal systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
Mar 12 08:07:28 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: 2024-03-12 08:07:28.296+0000 [id=45] INFO h.n.DownloadService$Downloadable#load: Obtained the
Mar 12 08:07:28 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: 2024-03-12 08:07:28.297+0000 [id=45] INFO hudson.util.Retrier$1start: Performed the action che
Mar 12 08:07:32 ip-172-31-42-222.ap-south-1.compute.internal jenkins[26065]: 2024-03-12 08:07:32.546+0000 [id=58] WARNING h.n.DiskSpaceMonitorDescriptor#markNodeOfflineOrC
```

```
[root@ip-172-31-42-222 ~]# cd /var/lib/jenkins/secrets/
[root@ip-172-31-42-222 secrets]# ll
total 12
-rw-r-----. 1 jenkins jenkins 33 Mar 12 08:06 initialAdminPassword
-rw-r--r--. 1 jenkins jenkins 32 Mar 12 08:06 jenkins.model.Jenkins.crumbSalt
-rw-r--r--. 1 jenkins jenkins 256 Mar 12 08:06 master.key
[root@ip-172-31-42-222 secrets]# cat initialAdminPassword
f59c3bacbdf0493b8abdc6b1821c3b89
```



Getting Started

## Create First Admin User

Username

SHAIKH ASFIYA

Password

.....

Confirm password

.....

Full name

SHAIKH ASFIYA

E-mail address

asfiya@asfiya.com

Jenkins 2.440.1

Skip and continue as admin

Save and Continue

Getting Started

## Instance Configuration

Jenkins URL:

http://15.206.153.205:8080/

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD\_URL environment variable provided to build steps.

The proposed default value shown is not saved yet and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.440.1

Not now

Save and Finish

## INSTALL PLUGIN ROLE BASED WITHOUT RESTARTING

Jenkins

Search (CTRL+K)

SHAIKH ASFIYA

log out

Dashboard

Manage Jenkins

Plugins

Plugins

role

Install

Updates

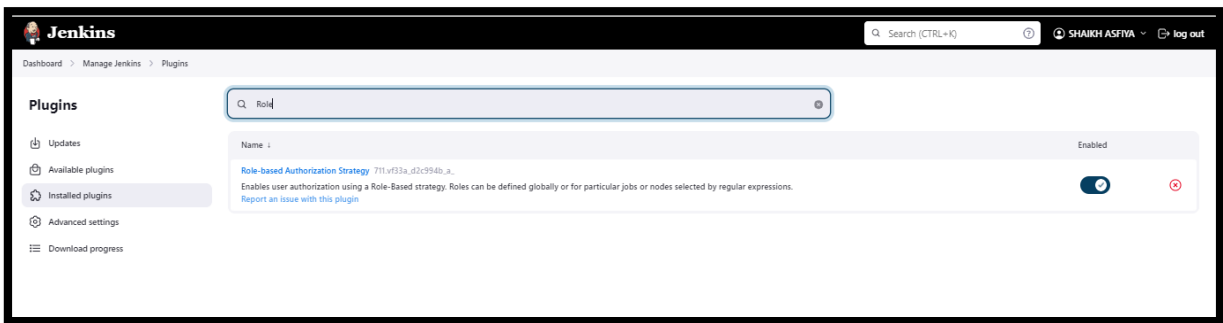
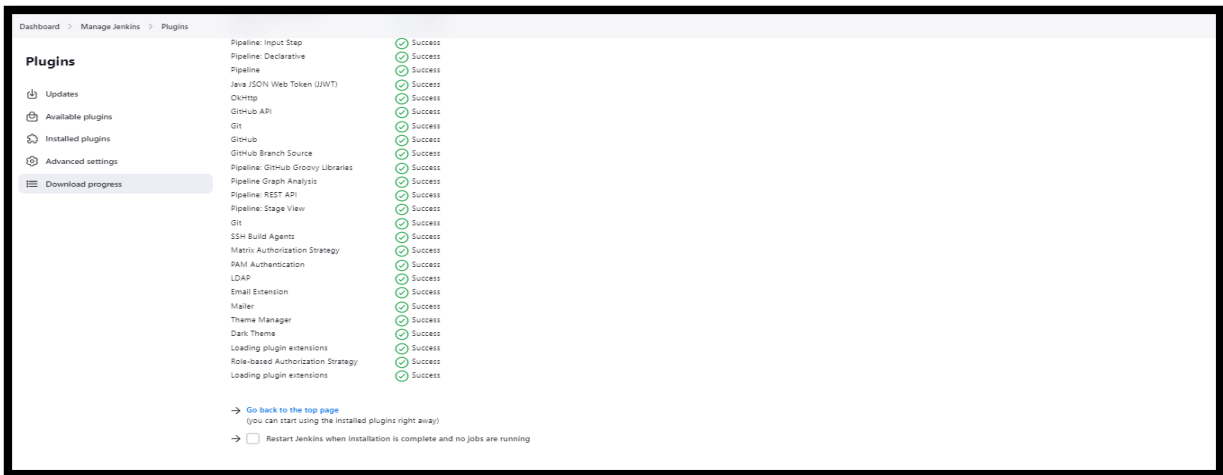
Available plugins

Installed plugins

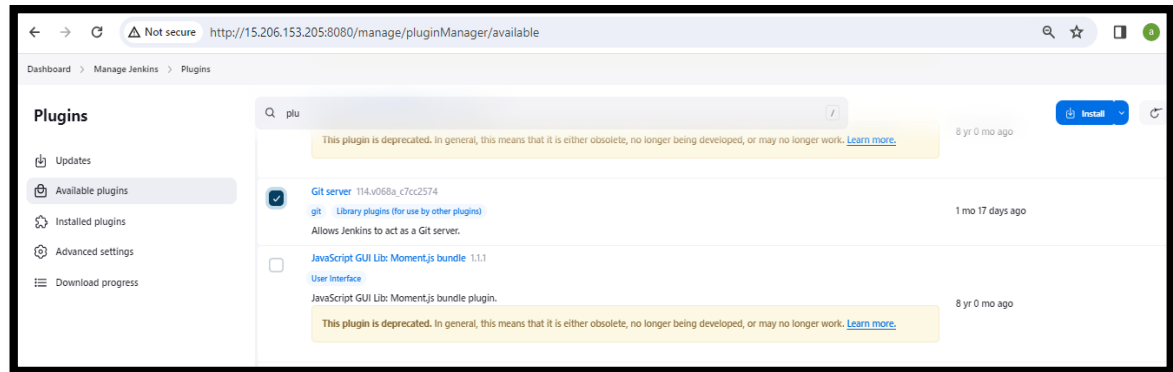
Advanced settings

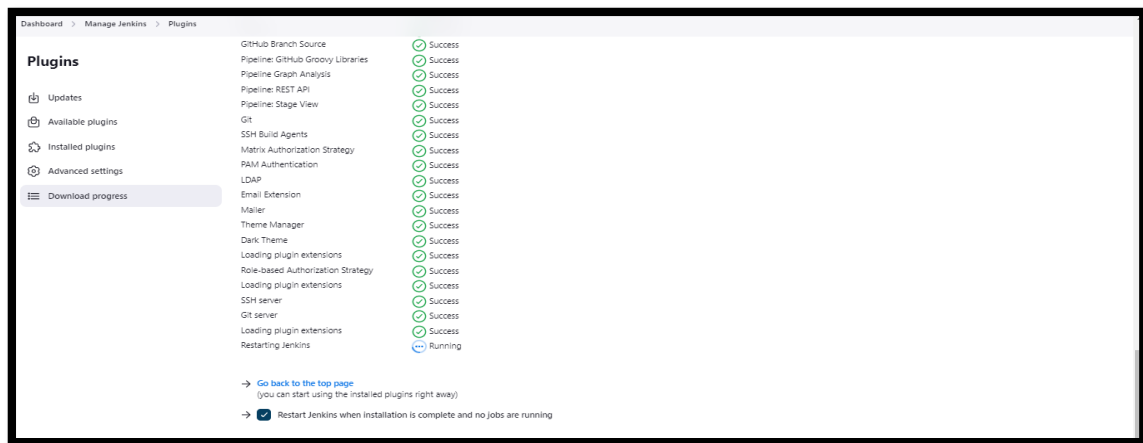
Download progress

Install	Name	Released
<input checked="" type="checkbox"/>	<div><div>Role-based Authorization Strategy</div><div>711.vf33a_d2c994b_a</div><div>Security</div><div>Authentication and User Management</div></div> <div>Enables user authorization using a Role-Based strategy. Roles can be defined globally or for particular jobs or nodes selected by regular expressions.</div>	11 days ago
<input type="checkbox"/>	<div><div>AWS Credentials</div><div>218.v1b_e9466ec5da</div><div>aws</div></div> <div>Allows storing Amazon IAM credentials within the Jenkins Credentials API. Store Amazon IAM access keys (AWSAccessKeyId and AWSSecretKey) within the Jenkins Credentials API. Also support IAM Roles and IAM MFA Token.</div>	6 mo 16 days ago



## INSTALL PLUGIN GIT SERVER WITH RESTARTING





=====

**Q2. Create any 4 local Jenkins users on your Jenkins server. Also create 2 Jenkins roles named developers & delivery.**

**Once roles are created, assign developers role to 3 users and delivery role to project Manager user.**

➔ **SOLUTION**

**CREATED 4 USERS**

**1. JENKINS**


The screenshot shows the Jenkins 'Create User' form. The header includes the Jenkins logo, a search bar, and the user 'SHAIKH ASFIYA' with a 'log out' button. The breadcrumb trail is: Dashboard > Manage Jenkins > Jenkins' own user database > Create User.

The form fields are:

- Username:** JENKINS
- Password:** (masked with dots)
- Confirm password:** (masked with dots)
- Full name:** JENKINS
- E-mail address:** JENKINS@jenkins.com

At the bottom, there is a blue 'Create User' button.

## 2. DOCKER

 Jenkins

Search (CTRL+K)

SHAIKH ASFIYA log out

Dashboard > Jenkins' own user database > Create User

Create User

Username

DOCKER

Password

\*\*\*\*\*

Confirm password

\*\*\*\*\*

Full name


DOCKER

E-mail address

DOCKER@docker.com

Create User

## 3.NETWORKING

 Jenkins

Search (CTRL+K)

SHAIKH ASFIYA log out

Dashboard > Jenkins' own user database > Create User

Create User

Username

NETWORKING

Password

\*\*\*\*\*

Confirm password

\*\*\*\*\*

Full name


NETWORKING

E-mail address

NETWORKING@net.com

Create User

## 4.TERRAFORM

 Jenkins

Search (CTRL+K)

SHAIKH ASFIYA log out

Dashboard > Jenkins' own user database > Create User

Create User

Username

TERRAFORM

Password

\*\*\*\*\*

Confirm password

\*\*\*\*\*

Full name

TERRAFORM

E-mail address

TERRAFORM@terra.com

Create User

## Security

### Authentication

☐ Disable "Keep me signed in" ?

#### Security Realm

Jenkins' own user database 


☐ Allow users to sign up ?

### Authorization

Role-Based Strategy 

### Markup Formatter






#### Markup Formatter

Plain text 

Treats all input as plain text. HTML unsafe characters like < and & are escaped to their respective character entities.

[Save](#) [Apply](#)


## Security

-  **Security**  
Secure Jenkins; define who is allowed to access/use the system.
-  **Credentials**  
Configure credentials
-  **Credential Providers**  
Configure the credential providers and types
-  **Manage and Assign Roles**  
Handle permissions by creating roles and assigning them to users/groups
-  **Users**  
Create/delete/modify users that can log in to this Jenkins.

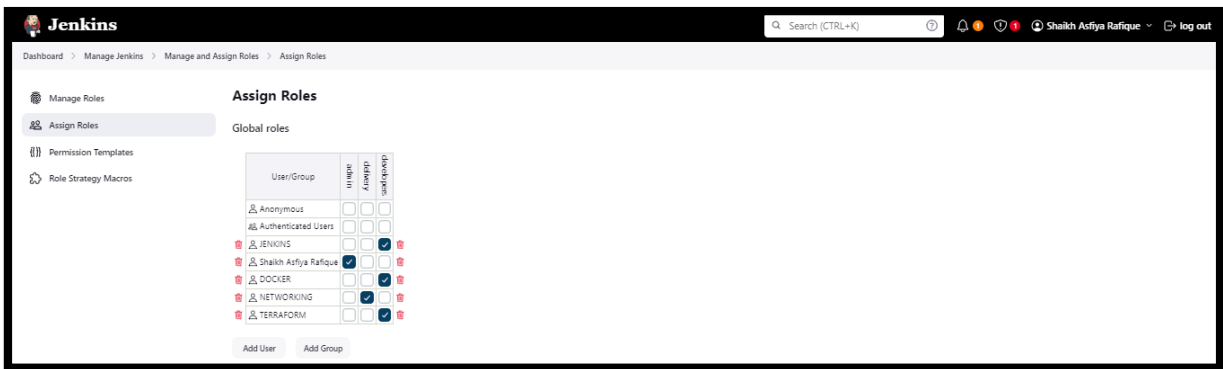
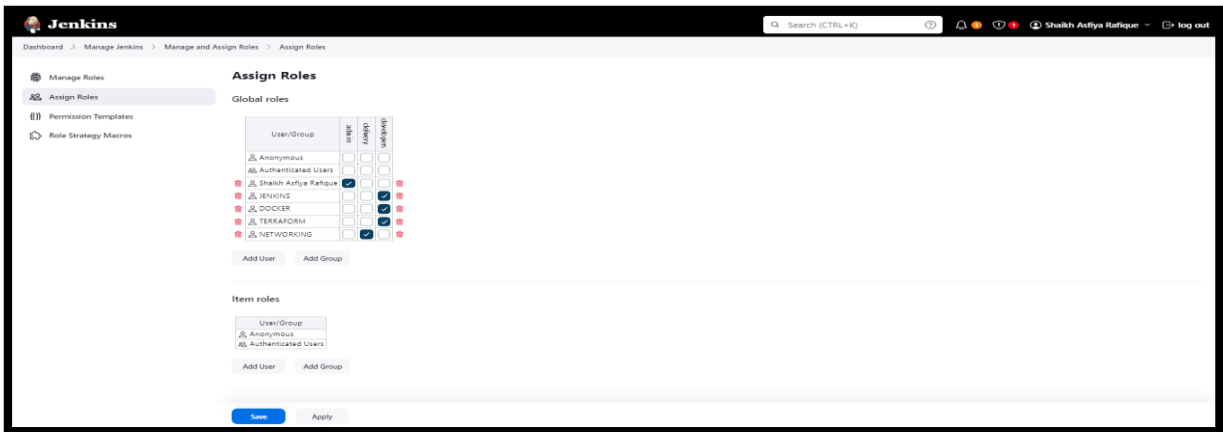
-  **Manage Roles**
-  Assign Roles
-  Permission Templates
-  Role Strategy Macros

## Manage Roles

### Global roles

Role	Overall	Credentials				Agent				Job				Run		View		SCM
	Administer	Read	Create	Delete	Manage	Connect	Configure	Read	Cancel	Create	Delete	Discover	Read	Execute	Reply	Configure	Read	Write
admin																		
developers																		
delivery																		

## Assign Roles



### 3. Create a Jenkins job named YOURNAME\_Job\_01 on a Jenkins Server.

This job should run below given shell script in the job.

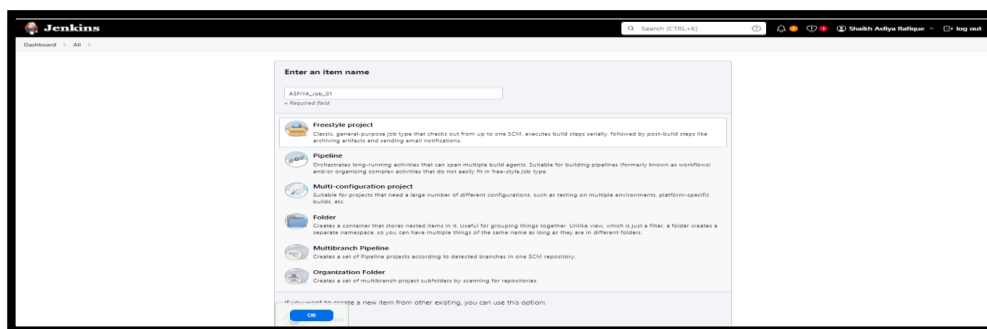
Please check the console output of job and make sure it is successful.

```
#!/bin/bash
```

```
# This is a simple "Hello World" script
```

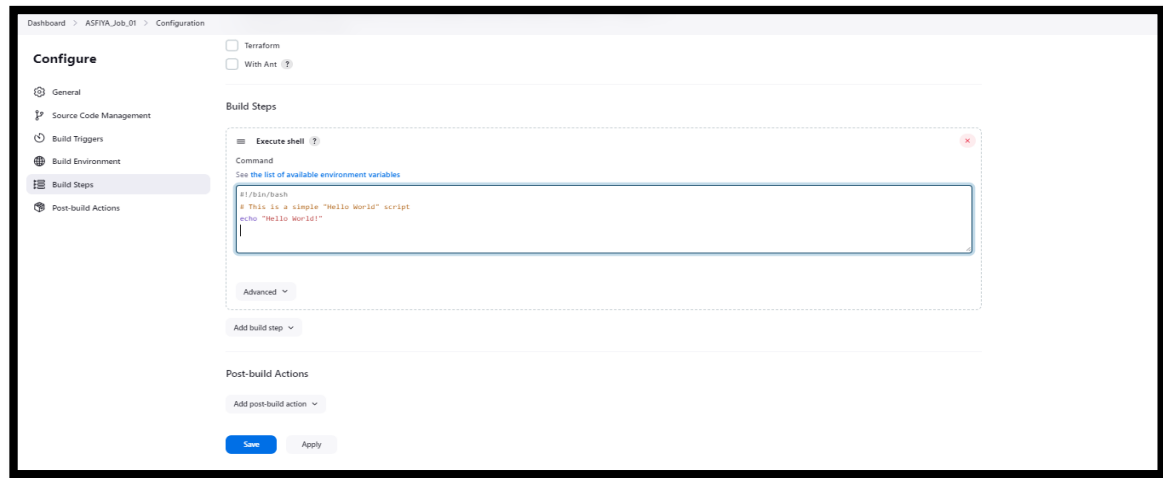
```
echo "Hello World!"
```

➔ **SOLUTION**





## Run Given Shell Script In The Job



## Console Output

Started by user [Shaikh Asfiya Rafique](#)

Running as SYSTEM

Building in workspace /var/jenkins\_home/workspace/ASFIYA\_Job\_01

[ASFIYA\_Job\_01] \$ /bin/bash /tmp/jenkins6772093537569483291.sh

Hello World!

Finished: SUCCESS

## **4. Create a Jenkins job named YOURNAME\_Job\_02 that runs a shell script on a local server Jenkins.**

**The script should take in two parameters, e.g. num1, num2 from Jenkins.**

**This shell is taking 2 command line arguments as numbers.**

**Try to execute script locally to understand it more.**

```
# sh your_script_name.sh 11 12
```

```
#] vim your_script_name.sh
```

```
#!/bin/bash
```

```
#Define a variable named "name"
```

```
name="John Doe"
```

```
#Print the value of the variable
```

```
echo "My name is $name"
```

```
#except the value from the user for two numbers and store the values in variables
```

```
num1 = $1
```

```
num2 = $2
```

**#Use an if statement to check if the first number is greater than the second number**

**if [ \$num1 -gt \$num2 ]; then**

**echo "\$num1 is greater than \$num2"**

**else**

**echo "\$num2 is greater than \$num1"**

**fi**

**#Use a for loop to print the numbers from 1 to the value of the first number**

**for i in \$(seq 1 \$num1); do**

**echo \$i**

**done**

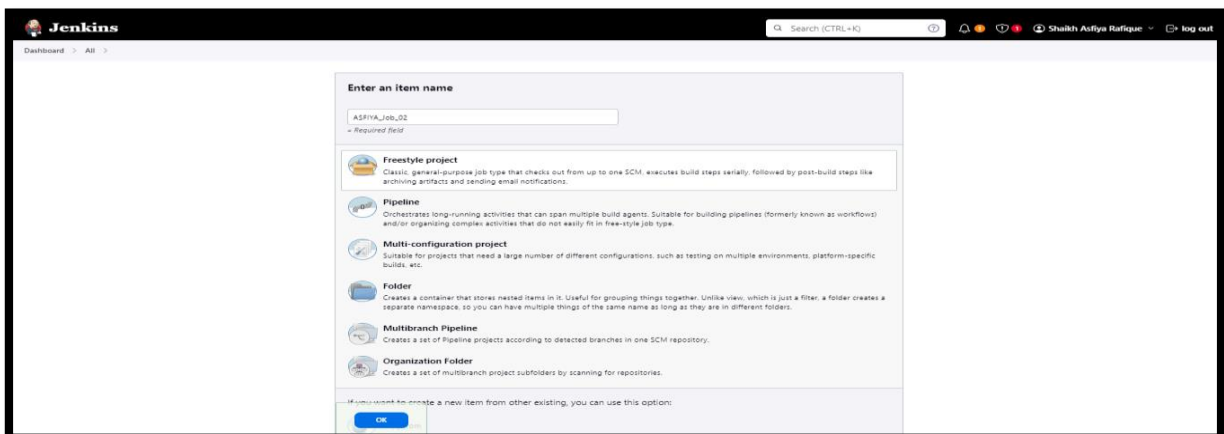
**#Print a message indicating that the script is finished**

**echo "Script finished."**

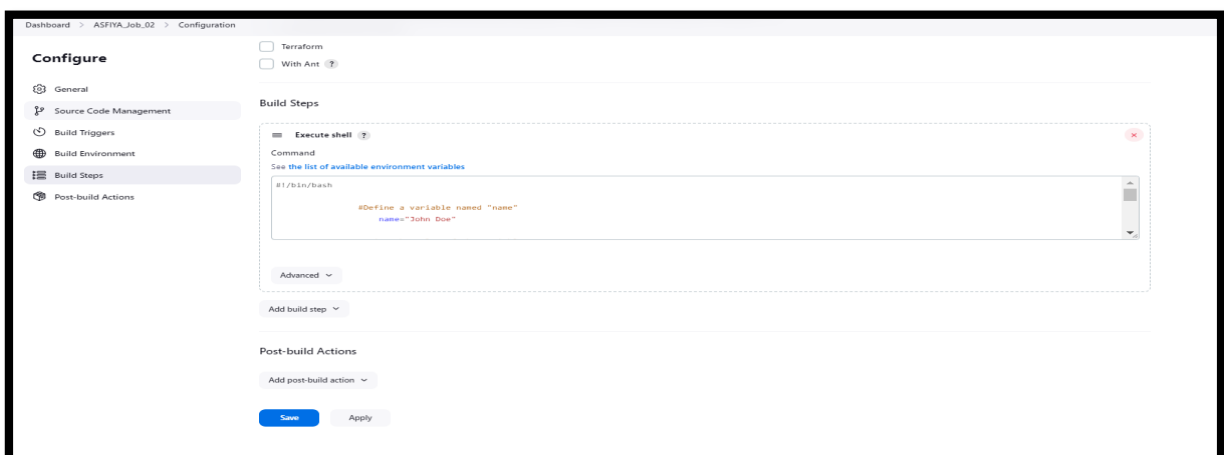
Once script is tested locally , create 2 parameters in Jenkins and pass those parameters to the shell script.

Run the Jenkins job and check the console out for detailed job logs.

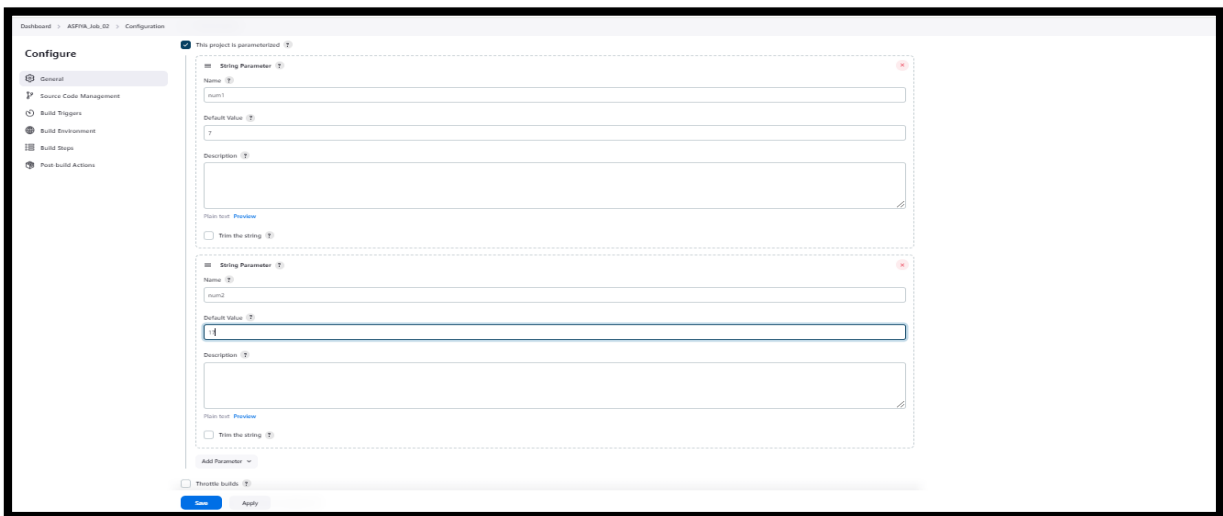
## ➤ SOLUTION



## Execute shell



## String Parameter



## Console Output

Started by user [Shaikh Asfiya Rafique](#)

Running as SYSTEM

Building in workspace /var/jenkins\_home/workspace/ASFIYA\_Job\_02

[ASFIYA\_Job\_02] \$ /bin/bash /tmp/jenkins3624874422382742510.sh

My name is John Doe

/tmp/jenkins3624874422382742510.sh: line 10: num1: command not found

/tmp/jenkins3624874422382742510.sh: line 11: num2: command not found

17 is greater than 7

1

2

3

4

5

6

7

Script finished.

Finished: SUCCESS

**5. Create a Jenkins job named YOURNAME\_Job\_03 that runs a shell script on a local server using Jenkins parameters.**

**The script should take in three parameters, like NAME, LAST\_NAME, SHOW.**

**Print the NAME and LAST\_NAME if value of SHOW is true.**

```
#!/bin/bash

# Define a variable and except the value from the user and store the values in variables

NAME=$1

LAST_NAME=$2

SHOW=$3

# Use an if statement to check if the value SHOW is TRUE.

if [[ $SHOW == "true" ]]
```

```

then

    echo " $NAME $LAST_NAME"

else

    echo " Not allowed to show the Names "

fi

# Print a message indicating that the script is finished

echo "Script finished."

```

## ➔ SOLUTION

root@DESKTOP-8OOG2HF:JENKINS# vim Asfiya.sh

```

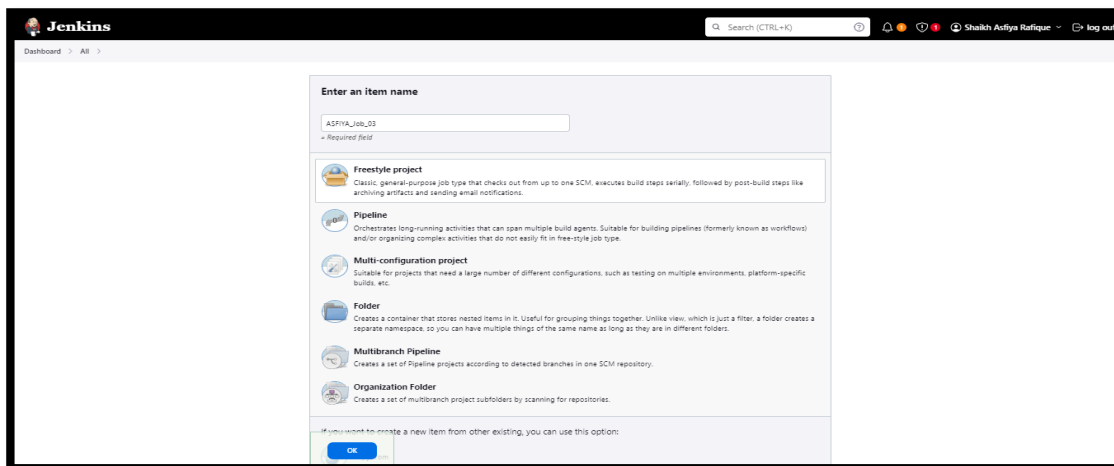
#!/bin/bash
# Define a variable and except the value from the user and store the values in
variables
NAME=$1
LAST_NAME=$2
SHOW=$3
# Use an if statement to check if the value SHOW is TRUE.
if [[ $SHOW == "true" ]]
then
    echo " $NAME $LAST_NAME"
else
    echo " Not allowed to show the Names "
fi
# Print a message indicating that the script is finished
echo "Script finished."

```

root@DESKTOP-8OOG2HF:JENKINS# ./Asfiya.sh Asfiya Shaikh true

Asfiya Shaikh

Script finished.



Build Steps

Execute shell ?

Command

See [the list of available environment variables](#)

```
bash /Asfiya.sh Asfiya Shaikh true
```

Advanced ▾

Add build step ▾

✓ This project is parameterized ?

String Parameter ?

Name ?

NAME

Default Value ?

Asfiya

Description ?

Plain text: [Preview](#)

☐ Trim the string ?

String Parameter ?

Name ?

LAST\_NAME

Default Value ?

Shaikh

Description ?

Plain text: [Preview](#)

☐ Trim the string ?

Choice Parameter ?

Name ?

SHOW

Choices ?

true  
false

Description ?

Plain text

Preview

root@DESKTOP-8OOG2HF:JENKINS# docker cp Asfiya.sh 2a4f128a7e7e:/

Successfully copied 2.05kB to 2a4f128a7e7e:/

Build Steps

Execute shell ?

Command

See the list of available environment variables

bash /Asfiya.sh Asfiya Shaikh true

Advanced

Jenkins

Search (CTRL+K)

Shaikh Asfiya Rafique

log out

Dashboard

ASFIYA\_Job\_03

Status

Changes

Workspace

Build with Parameters

Configure

Delete Project

Favorite

Open Blue Ocean

Rename

Build History

trend

Filter...

1

Project ASFIYA\_Job\_03

This build requires parameters:

NAME

Asfiya

LAST\_NAME

Shaikh

SHOW

true

Build

Cancel

Mon 20 2024, 9:34 AM

## Console Output

Started by user [Shaikh Asfiya Rafique](#)

Running as SYSTEM

Building in workspace /var/jenkins\_home/workspace/ASFIYA\_Job\_03

[ASFIYA\_Job\_03] \$ /bin/sh -xe /tmp/jenkins16856593075810806840.sh

+ bash /Asfiya.sh Asfiya Shaikh true

Asfiya Shaikh

Script finished.

[ASFIYA\_Job\_03] \$ /bin/sh -xe /tmp/jenkins5814563244420987821.sh

Finished: SUCCESS