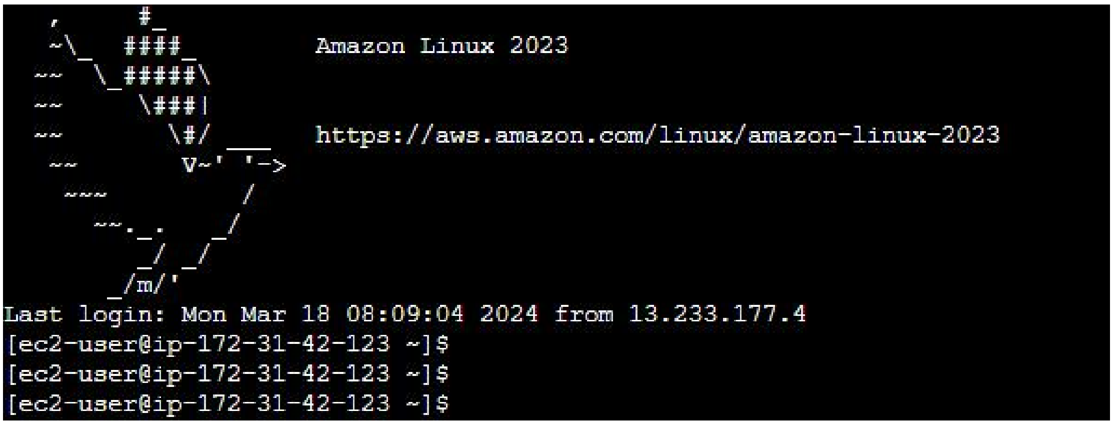
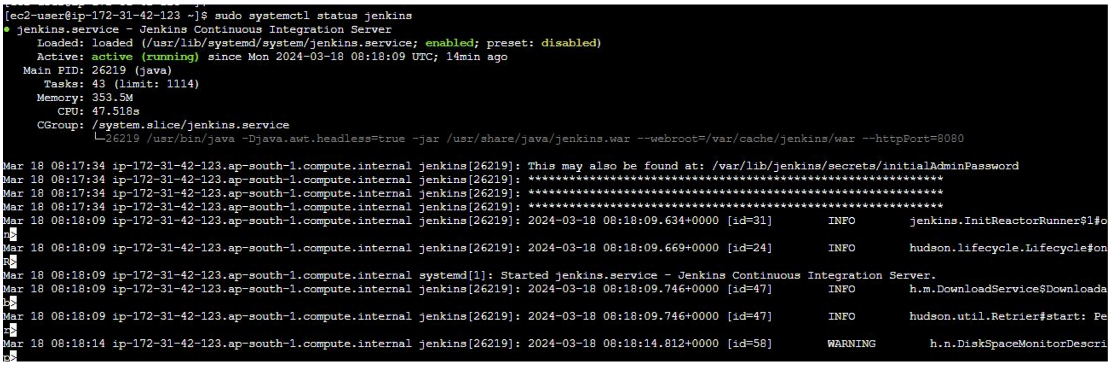
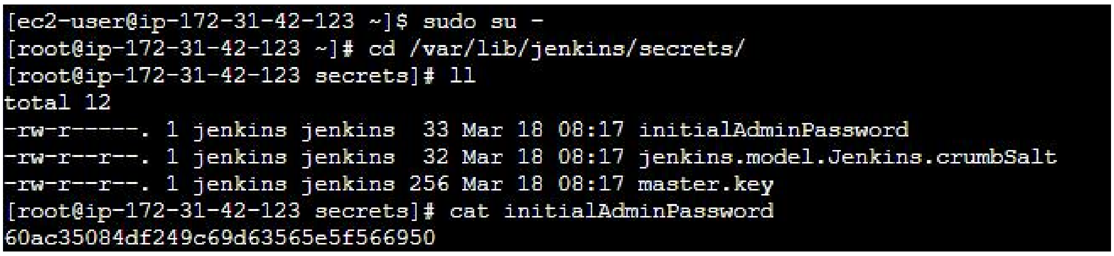
1. Install Jenkins on one of the server on your setup (Local VM / Ec2 / WSL).
   Once Jenkins is installed , try install plugins with and without restart option.
   Please verify plugins installed successfully.



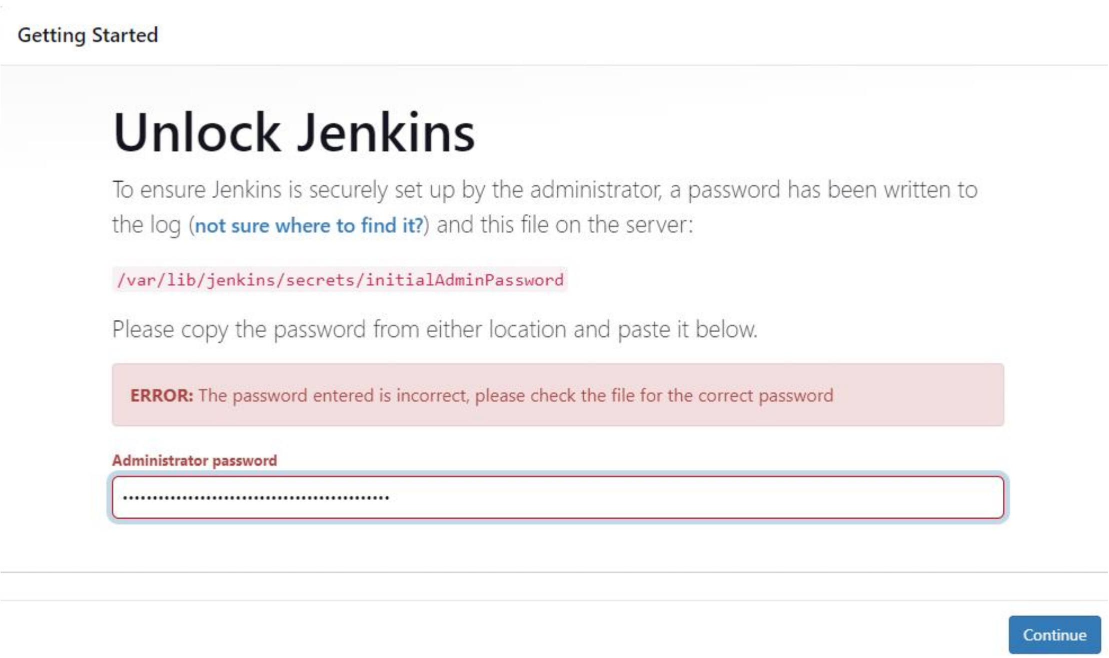
```
   ,     #_
   ~\_  ####_        Amazon Linux 2023
  ~~  \_#####\
  ~~     \###|
  ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
   ~~       V~' '->
    ~~~         /
      ~~._.   _/
         _/ _/
       _/m/'
Last login: Mon Mar 18 08:09:04 2024 from 13.233.177.4
[ec2-user@ip-172-31-42-123 ~]$
[ec2-user@ip-172-31-42-123 ~]$
[ec2-user@ip-172-31-42-123 ~]$
```



```
[ec2-user@ip-172-31-42-123 ~]$ 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 Mon 2024-03-18 08:18:09 UTC; 14min ago
   Main PID: 26219 (java)
      Tasks: 43 (limit: 1114)
     Memory: 353.5M
        CPU: 47.518s
     CGroup: /system.slice/jenkins.service
             └─26219 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080

Mar 18 08:17:34 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: This may also be found at: /var/lib/jenkins/secrets/initialAdminPassword
Mar 18 08:17:34 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: *************************************************************
Mar 18 08:17:34 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: *************************************************************
Mar 18 08:17:34 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: *************************************************************
Mar 18 08:18:09 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: 2024-03-18 08:18:09.634+0000 [id=31]       INFO      jenkins.InitReactorRunner$1#o
n>
Mar 18 08:18:09 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: 2024-03-18 08:18:09.669+0000 [id=24]       INFO      hudson.lifecycle.Lifecycle#on
R>
Mar 18 08:18:09 ip-172-31-42-123.ap-south-1.compute.internal systemd[1]: Started jenkins.service - Jenkins Continuous Integration Server.
Mar 18 08:18:09 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: 2024-03-18 08:18:09.746+0000 [id=47]       INFO      h.m.DownloadService$Downloada
b>
Mar 18 08:18:09 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: 2024-03-18 08:18:09.746+0000 [id=47]       INFO      hudson.util.Retrier#start: Pe
r>
Mar 18 08:18:14 ip-172-31-42-123.ap-south-1.compute.internal jenkins[26219]: 2024-03-18 08:18:14.812+0000 [id=58]       WARNING      h.n.DiskSpaceMonitorDescri
n>
```



```
[ec2-user@ip-172-31-42-123 ~]$ sudo su -
[root@ip-172-31-42-123 ~]# cd /var/lib/jenkins/secrets/
[root@ip-172-31-42-123 secrets]# ll
total 12
-rw-r-----. 1 jenkins jenkins  33 Mar 18 08:17 initialAdminPassword
-rw-r--r--. 1 jenkins jenkins  32 Mar 18 08:17 jenkins.model.Jenkins.crumbSalt
-rw-r--r--. 1 jenkins jenkins 256 Mar 18 08:17 master.key
[root@ip-172-31-42-123 secrets]# cat initialAdminPassword
60ac35084df249c69d63565e5f566950
```



Unlock Jenkins

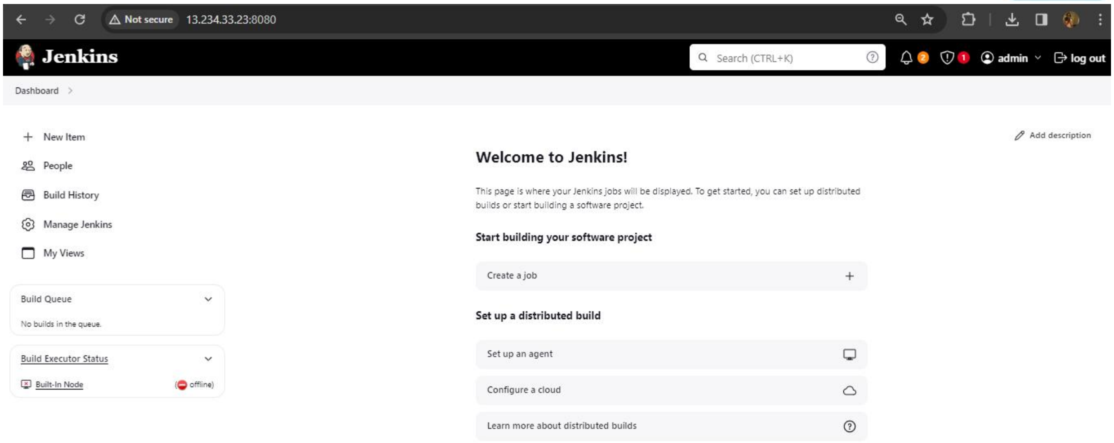
To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

`/var/lib/jenkins/secrets/initialAdminPassword`

Please copy the password from either location and paste it below.

ERROR: The password entered is incorrect, please check the file for the correct password

Administrator password: ••



No builds in the queue.

Welcome to Jenkins!

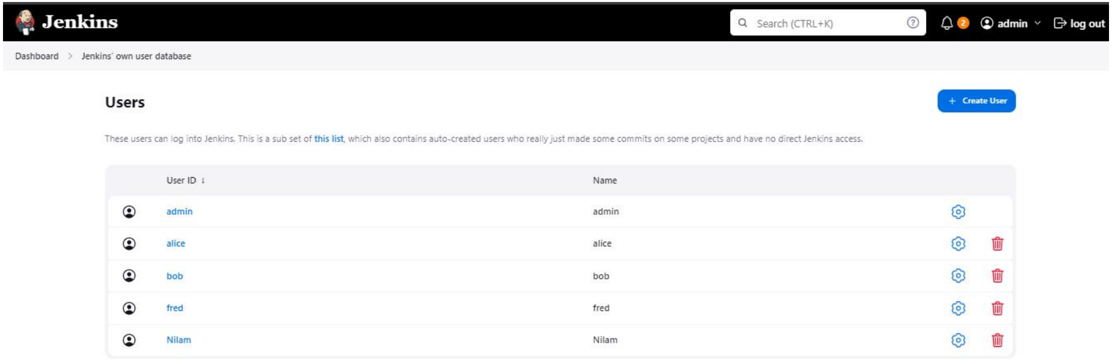
This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.

Start building your software project

Set up a distributed build

==

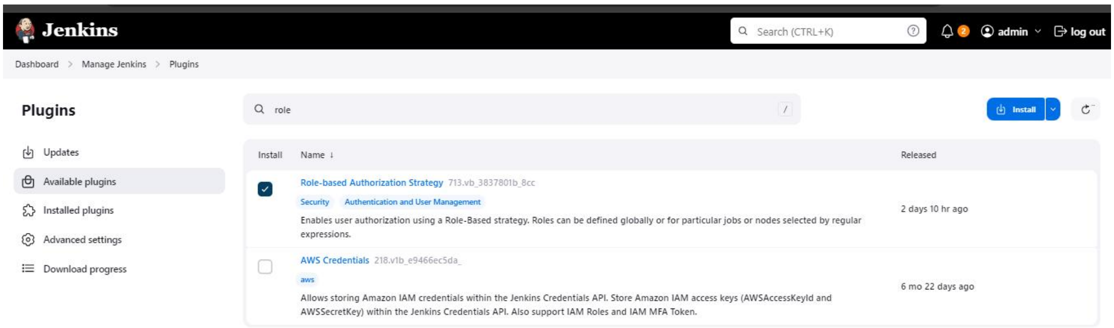
2. Create any 4 local Jenkins users on your Jenkins server. Also create 2 Jenkins roles named developers & delivery.
Once roles are created, assign developers role to 3 users and delivery role to project Manager user.
Please take screenshots and prepare well formatted document of your understanding.



Users

These users can log into Jenkins. This is a sub set of this list, which also contains auto-created users who really just made some commits on some projects and have no direct Jenkins access.

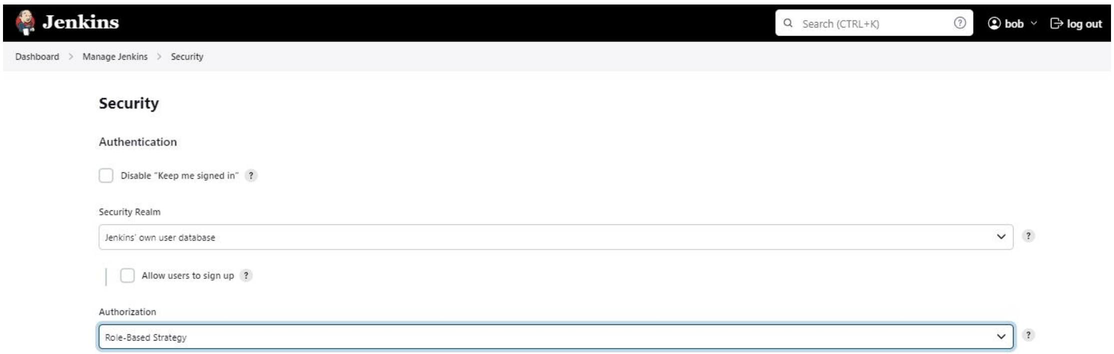
User ID ↓	Name
admin	admin
alice	alice
bob	bob
fred	fred
Nilam	Nilam



Plugins

Install	Name ↓	Released
☑	Role-based Authorization Strategy 713.vb_3837801b_8cc Security Authentication and User Management Enables user authorization using a Role-Based strategy. Roles can be defined globally or for particular jobs or nodes selected by regular expressions.	2 days 10 hr ago
☐	AWS Credentials 218.v1b_e9466ec5da_ aws 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.	6 mo 22 days ago

After that Go to Security and assign Authorization as a Role-based strategy.



Security

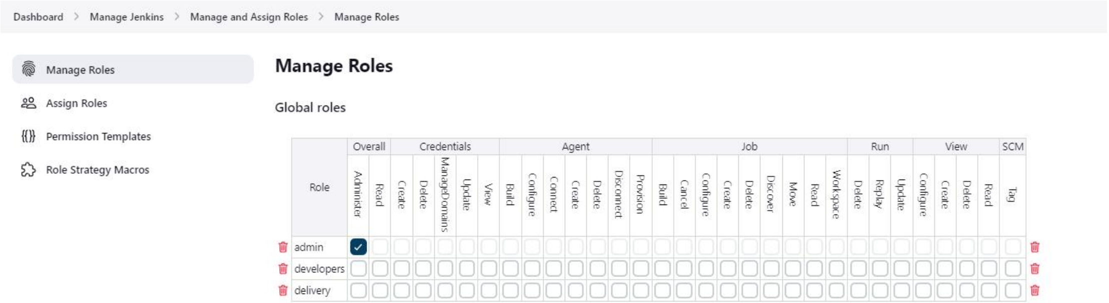
Authentication

☐ Disable "Keep me signed in"

Security Realm: Jenkins' own user database

☐ Allow users to sign up

Authorization: Role-Based Strategy

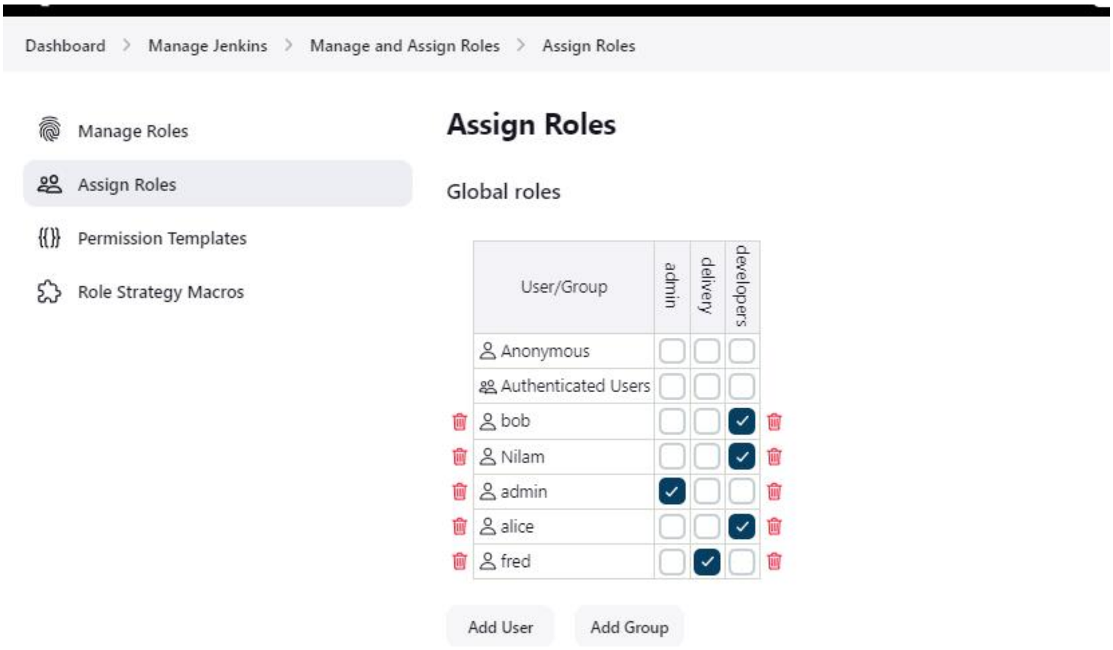


Dashboard > Manage Jenkins > Manage and Assign Roles > Manage Roles
Manage Roles
Assign Roles
Permission Templates
Role Strategy Macros

Manage Roles

Global roles

	Overall		Credentials					Agent							Job									Run			View				SCM
Role	Administer	Read	Create	Delete	ManageDomains	Update	View	Build	Configure	Connect	Create	Delete	Disconnect	Provision	Build	Cancel	Configure	Create	Delete	Discover	Move	Read	Workspace	Delete	Replay	Update	Configure	Create	Delete	Read	Tag
admin	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
developers	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
delivery	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐



Dashboard > Manage Jenkins > Manage and Assign Roles > Assign Roles

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

Assign Roles

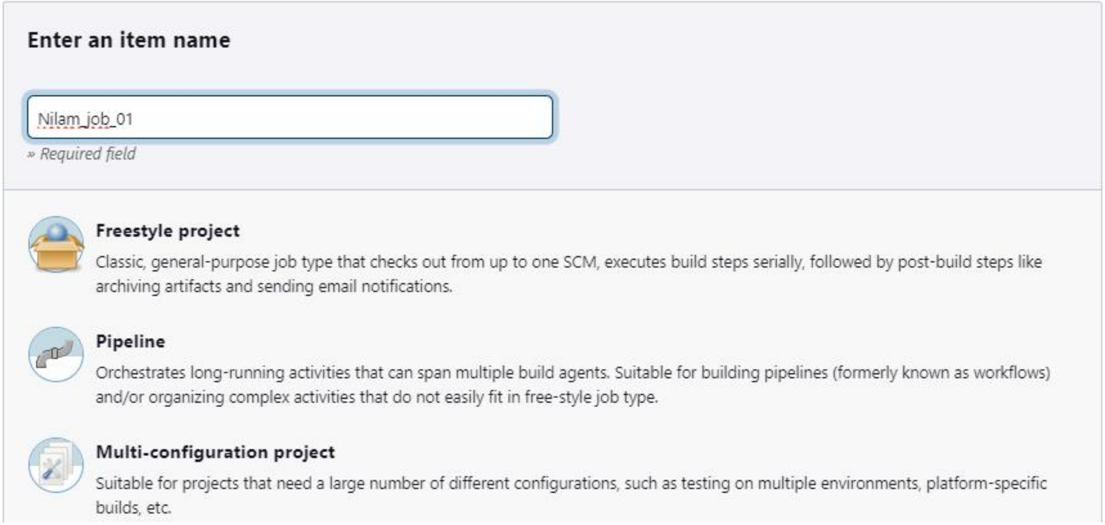
Global roles

User/Group	admin	delivery	developers
Anonymous	□	□	□
Authenticated Users	□	□	□
bob	□	□	☑
Nilam	□	□	☑
admin	☑	□	□
alice	□	□	☑
fred	□	☑	□

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!"
```

Prepare well formatted document with screenshots.



Enter an item name

Nilam_job_01

» *Required field*

Freestyle project

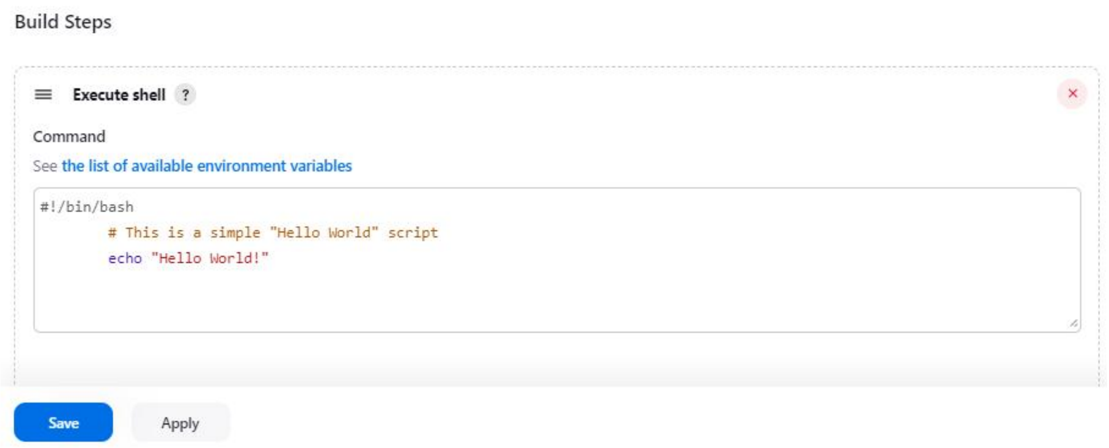
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

Pipeline

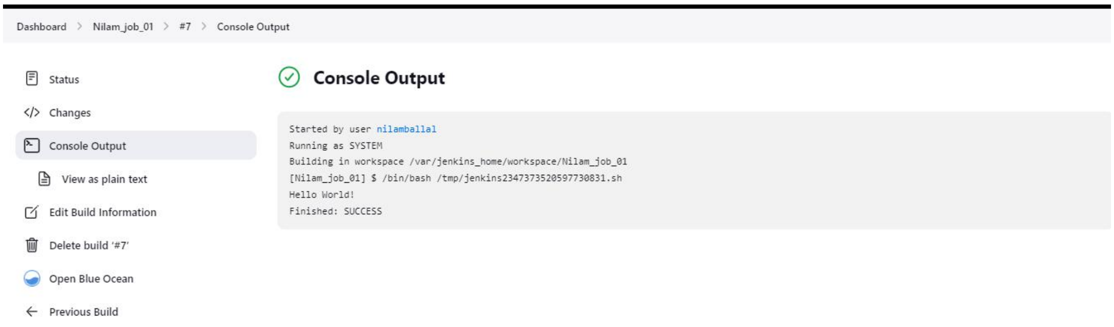
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.



```
#!/bin/bash
        # This is a simple "Hello World" script
        echo "Hello World!"
```



```
Started by user nilamballal
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/Nilam_job_01
[Nilam_job_01] $ /bin/bash /tmp/jenkins2347373520597730831.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.

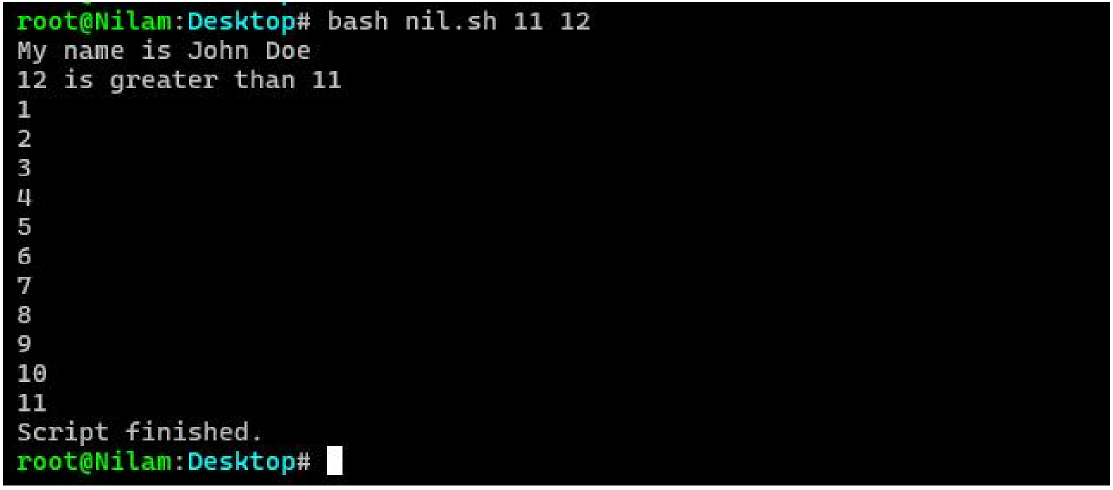
```
        # sh your_script_name.sh 11 12
```

```
#] 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
```

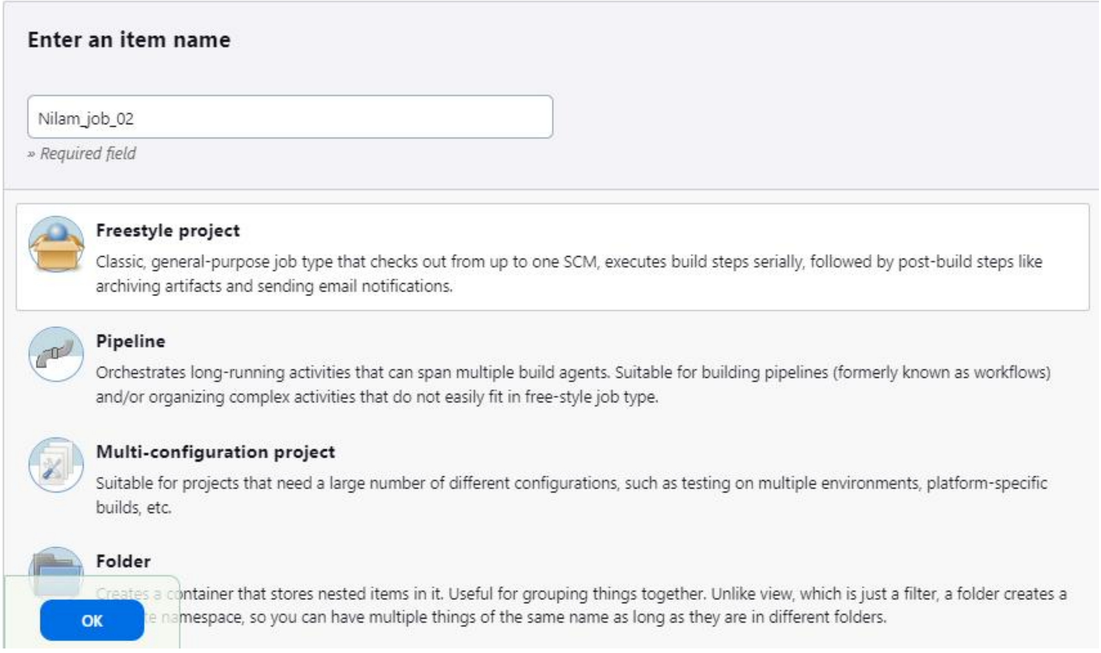
```
#Use a for loop to print the numbers from 1 to the value of the first number
        for i in $(seq 1 $num1); do
                echo $i
        done

#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.



```
root@Nilam:Desktop# bash nil.sh 11 12
My name is John Doe
12 is greater than 11
1
2
3
4
5
6
7
8
9
10
11
Script finished.
root@Nilam:Desktop# 
```



Enter an item name

Nilam_job_02

» Required field

Freestyle project

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

Pipeline

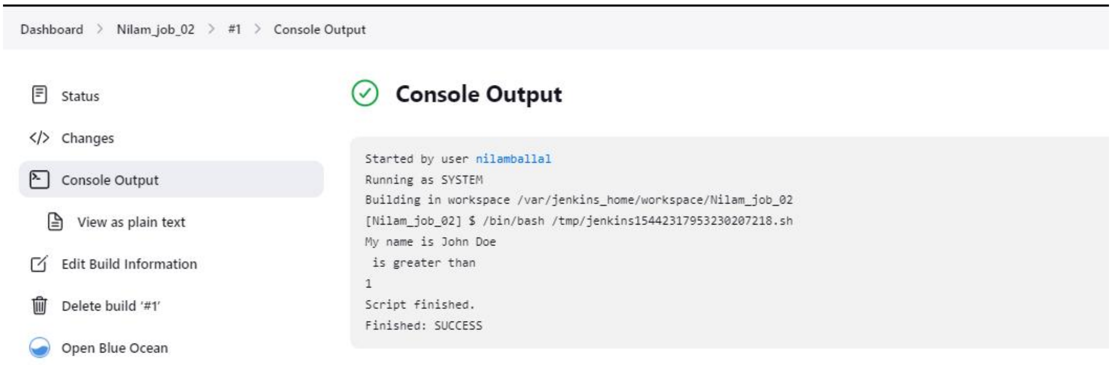
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Folder

Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.



Console Output

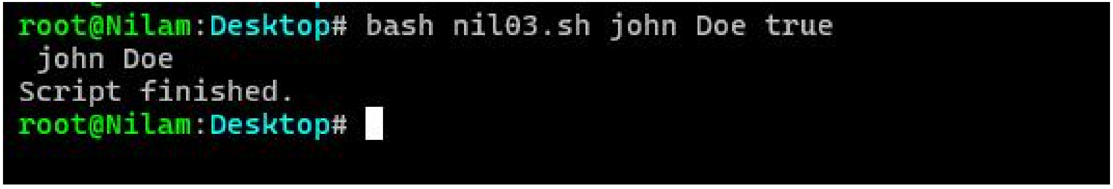
```
Started by user nilamballal
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/Nilam_job_02
[Nilam_job_02] $ /bin/bash /tmp/jenkins15442317953230207218.sh
My name is John Doe
 is greater than
1
Script finished.
Finished: SUCCESS
```

5. Create a Jenkins job named YOURNAME_Job_03 that runs a shell script on a local server using Jenkins parameters.

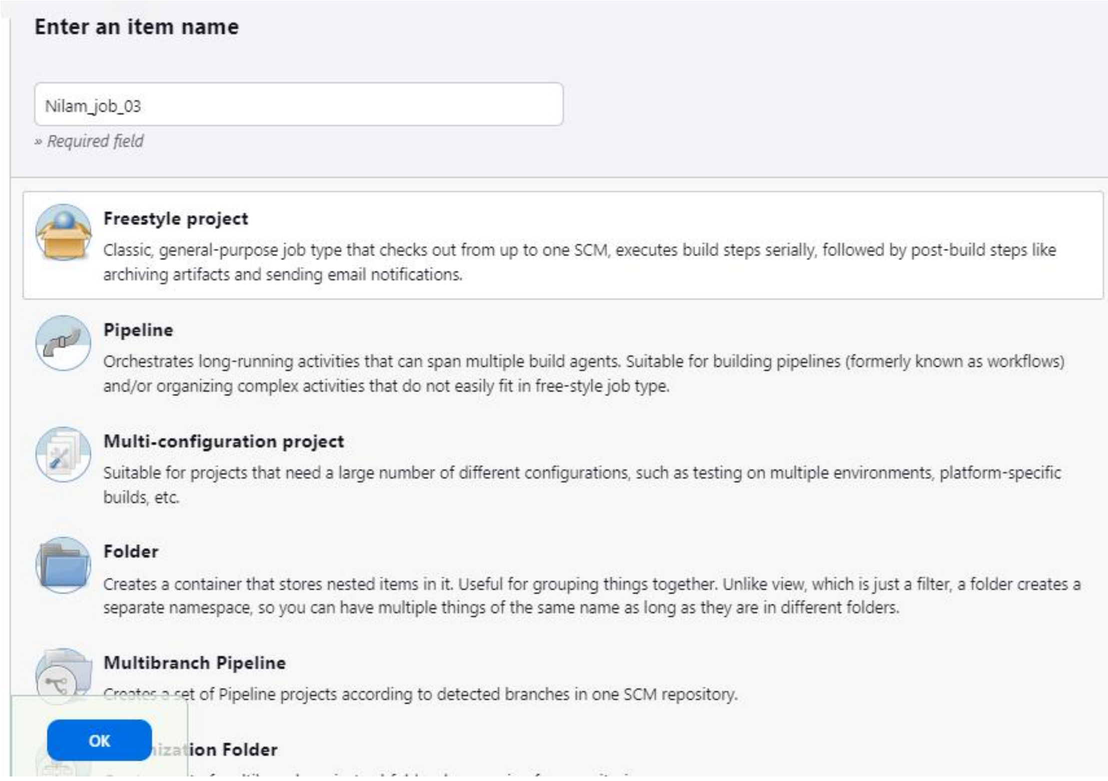
The script should take in three parameters, liKE NAME, LAST_NAME, SHOW.

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."
```



```
root@Nilam:Desktop# bash nil03.sh john Doe true
 john Doe
Script finished.
root@Nilam:Desktop#
```



Enter an item name

Nilam_job_03

» *Required field*

Freestyle project

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

Pipeline

Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project

Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

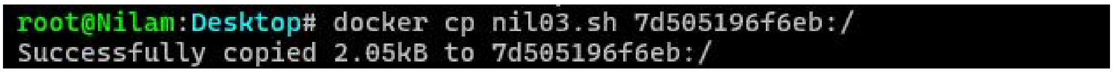
Folder

Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

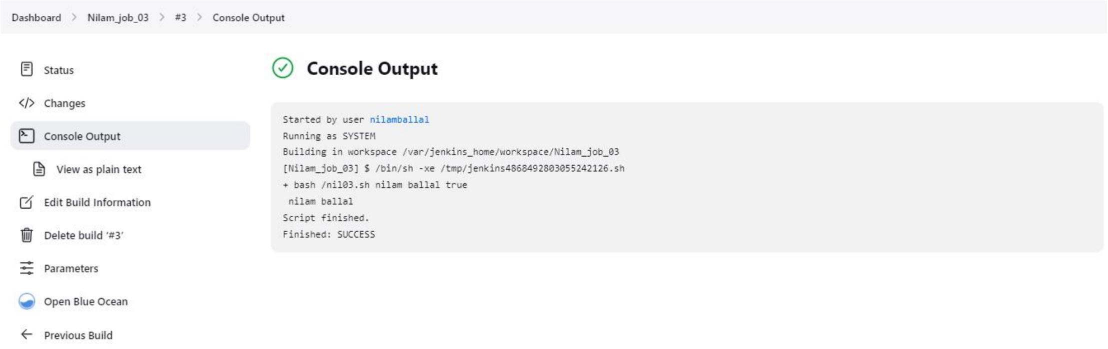
Multibranch Pipeline

Creates a set of Pipeline projects according to detected branches in one SCM repository.

nization Folder



```
root@Nilam:Desktop# docker cp nil03.sh 7d505196f6eb:/
Successfully copied 2.05kB to 7d505196f6eb:/
```



Console Output

```
Started by user nilamballal
Running as SYSTEM
Building in workspace /var/jenkins_home/workspace/Nilam_job_03
[Nilam_job_03] $ /bin/sh -xe /tmp/jenkins4868492803055242126.sh
+ bash /nil03.sh nilam ballal true
 nilam ballal
Script finished.
Finished: SUCCESS
```

==