



HANDS ON WITH JENKINS COMPONENTS

Devops Tools

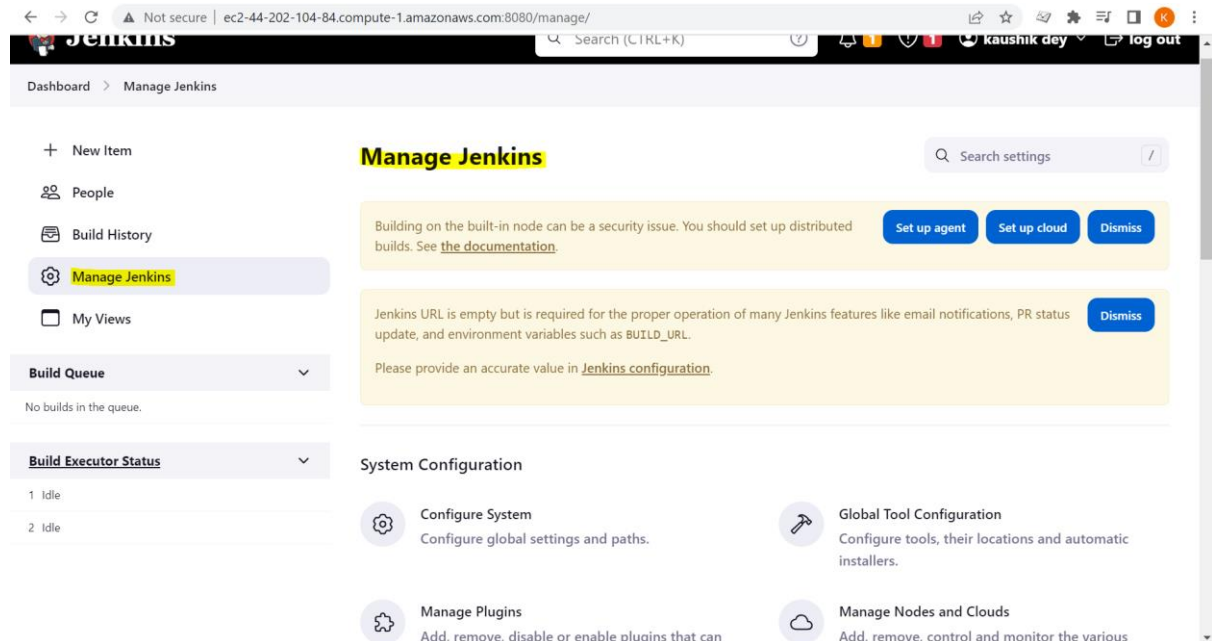
Kaushik Dey

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First, we just copy the Jenkins URL :





<http://ec2-54-166-207-152.compute-1.amazonaws.com:8080/view/all/newJob>

Step 1 : click on Manage Jenkins . its very important place where we can do our administration work over Jenkins , the screenshot is given below.



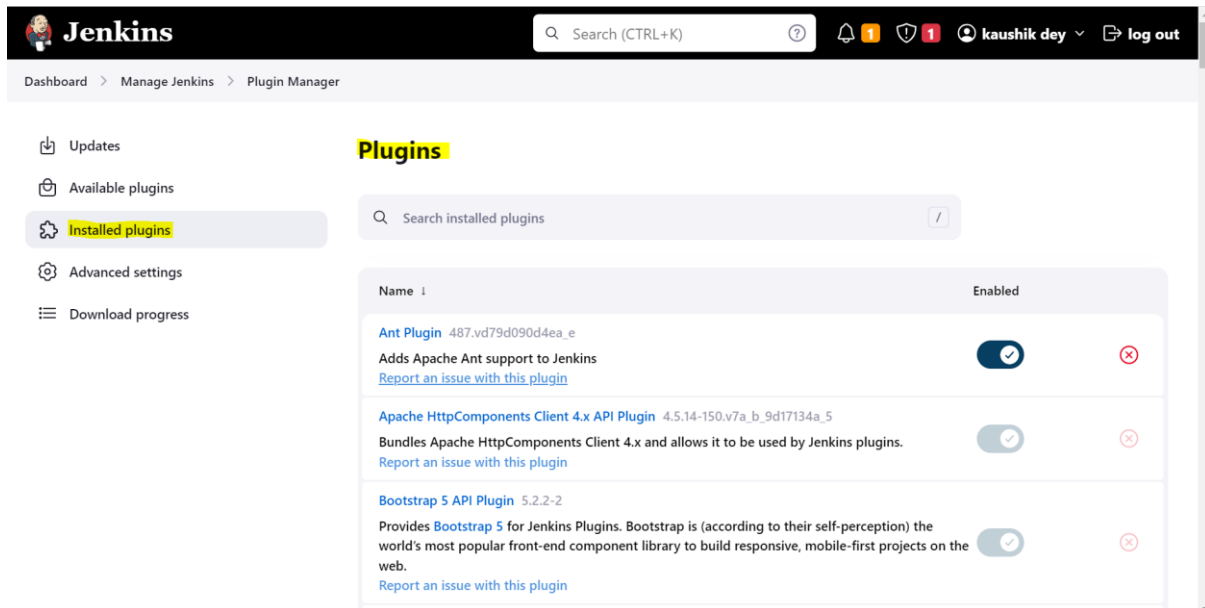
Step 2: very impot under manage Jenkins is **System Configuration**

System Configuration

- | | |
|---|---|
|  Configure System
Configure global settings and paths. |  Global Tool Configuration
Configure tools, their locations and automatic installers. |
|  Manage Plugins
Add, remove, disable or enable plugins that can extend the functionality of Jenkins. |  Manage Nodes and Clouds
Add, remove, control and monitor the various nodes that Jenkins runs jobs on. |


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Step 3 : we have installed , available plugins , the screenshot is given below.





Step 4 : now we have to see the **user management** under managed plugins, the screenshot is given below. (this user creation is not recommended , but it is one of the way that we can create our users here)

Security

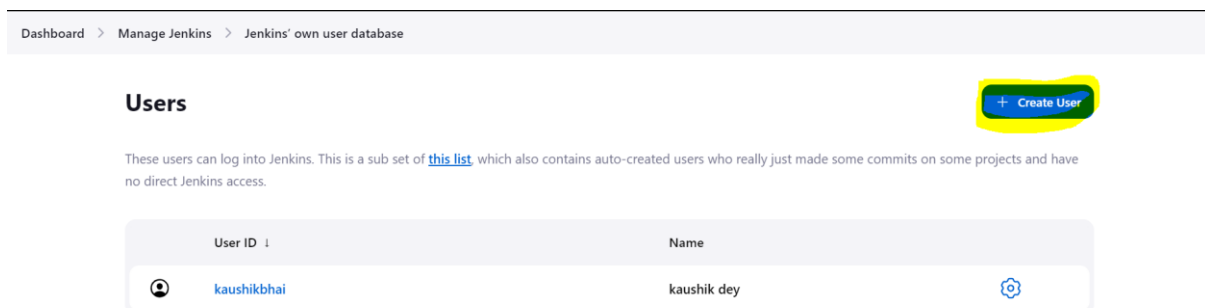
**Configure Global Security**
Secure Jenkins; define who is allowed to access/use the system.

**Manage Credentials**
Configure credentials

**Configure Credential Providers**
Configure the credential providers and types

**Manage Users**
Create/delete/modify users that can log in to this Jenkins.

Now we can create user , the following screenshot is given below.







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Users

[+ Create User](#)

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	
 kaushikbhai	kaushik dey	
 kd1	kaushikbhai3	 

Step 5 : next another important concept is that configure system. The screen shot is given below.

Dashboard > Manage Jenkins > Configure System >

Configure System

Home directory ?
By default, Jenkins stores all of its data in this directory on the file system

System Message
This message will be displayed at the top of the Jenkins main page. This can be useful for posting notifications to your users

[Plain text] [Preview](#)

of executors

Note : Important concept is that number of executors : here we set 5 executors , the screenshot is given below.

Dashboard > Manage Jenkins > Configure System >

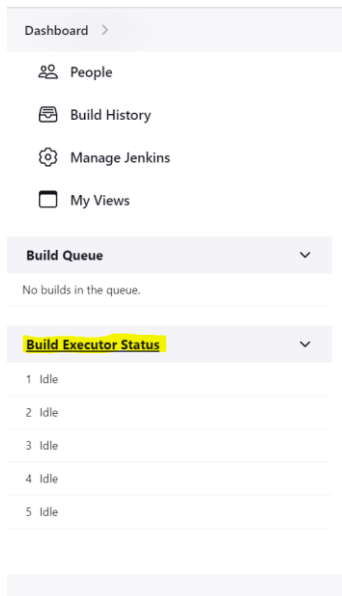
System Message
This message will be displayed at the top of the Jenkins main page. This can be useful for posting notifications to your users

[Plain text] [Preview](#)

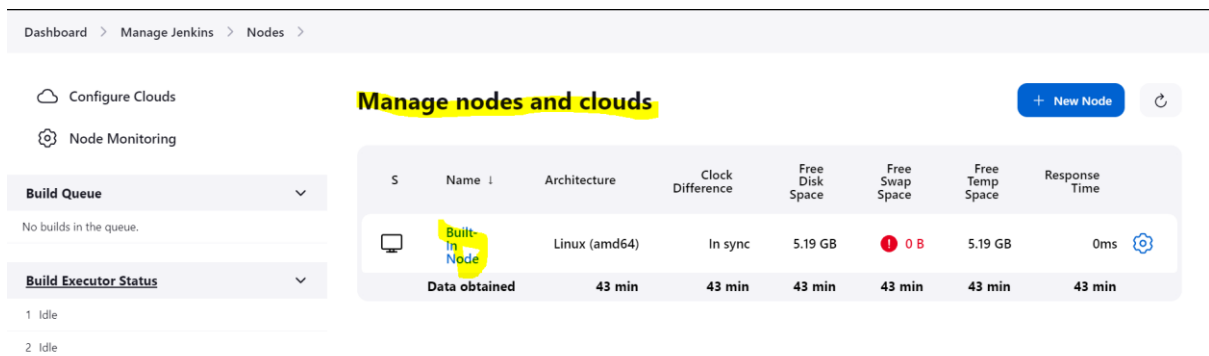
of executors

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So, when we create the job that time also we can see the 5 build executor status. The screenshot is given below.



Step 7 : we have manage nodes and clouds option, the screenshot is given below.



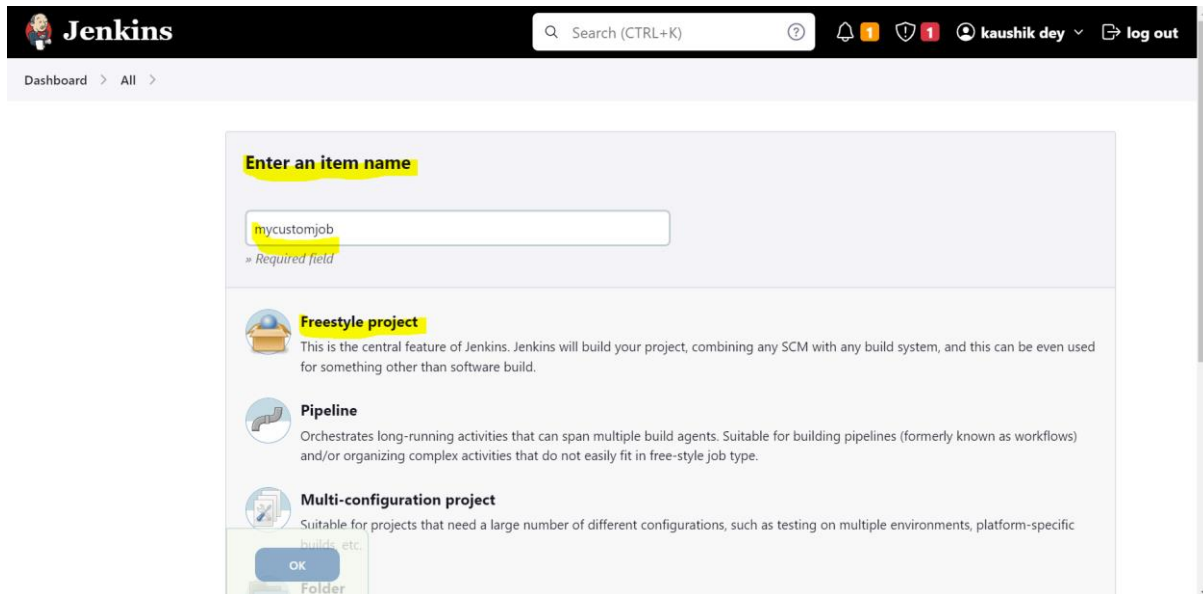
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Step 8: now we have created our own free style project by clicking the new Item. The screenshot is given below. (create jenkins jobs)

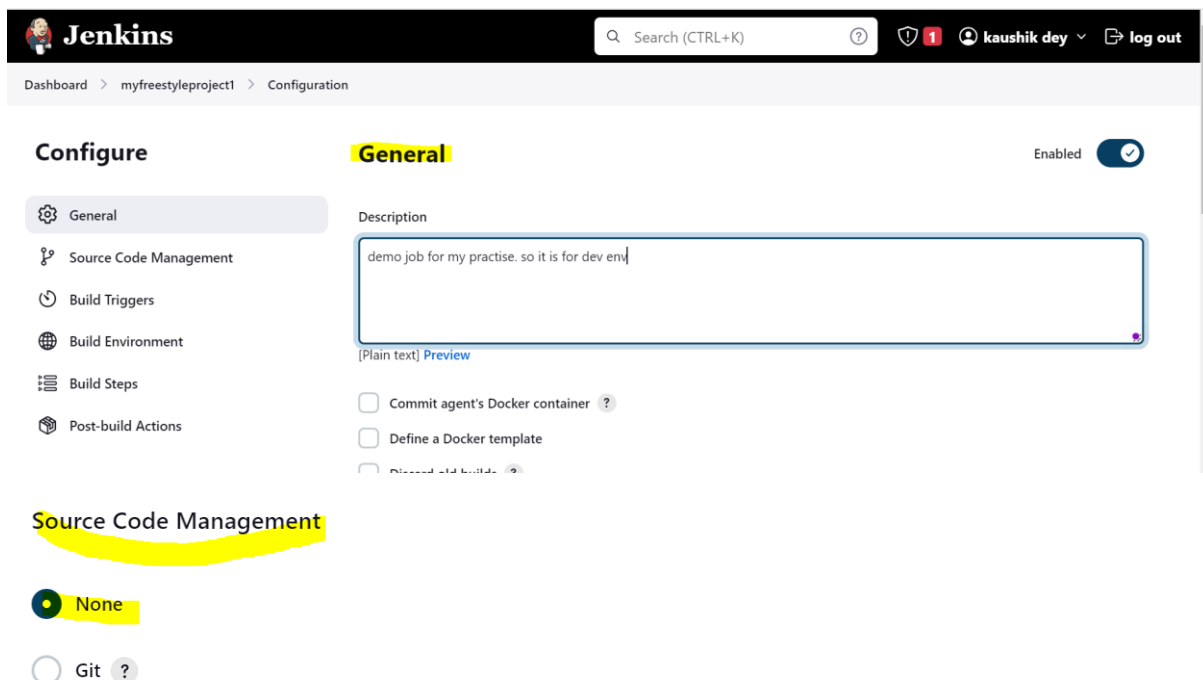
Freestyle project means we have to manually configure the components.

Pipeline projects .

In real time we can know that pipeline project is recommended.



The screenshot shows the Jenkins 'New Item' dialog box. At the top, there's a search bar and a user profile 'kaushik dey'. Below the search bar, the breadcrumb is 'Dashboard > All >'. The main section is titled 'Enter an item name' and contains a text input field with 'mycustomjob' entered. Below the input field, it says '» Required field'. There are three project type options: 'Freestyle project' (selected), 'Pipeline', and 'Multi-configuration project'. Each option has a brief description. At the bottom, there are 'OK' and 'Folder' buttons.

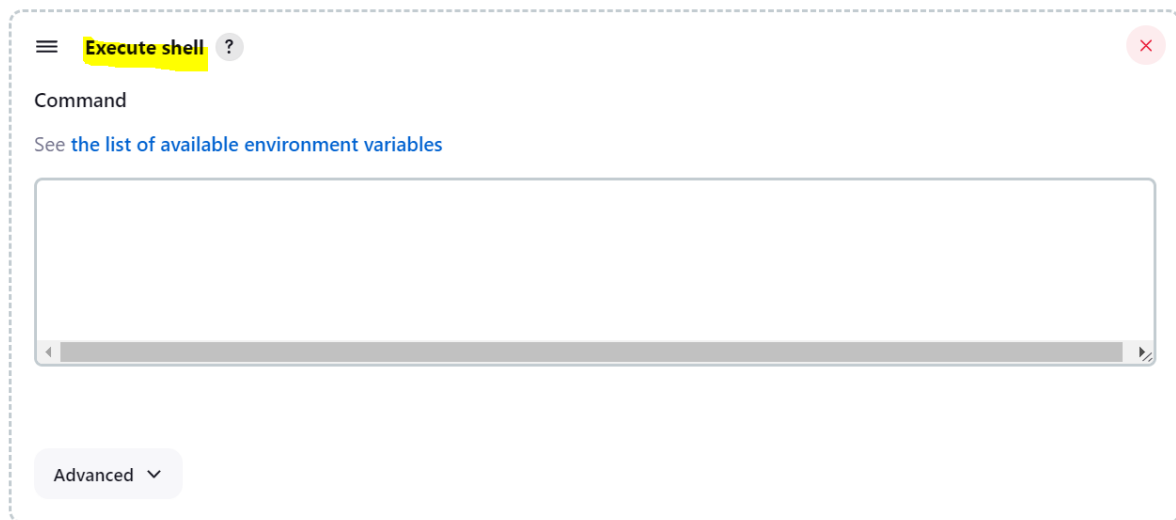


The screenshot shows the Jenkins 'Configure' page for a project named 'myfreestyleproject1'. The breadcrumb is 'Dashboard > myfreestyleproject1 > Configuration'. The page is titled 'Configure' and has a 'General' tab selected. The 'General' tab is highlighted in yellow. The 'Description' field contains the text 'demo job for my practise. so it is for dev env'. Below the description field, there are three checkboxes: 'Commit agent's Docker container', 'Define a Docker template', and 'Discard old builds'. The 'Source Code Management' section is also visible, with 'None' selected as the SCM type. The 'Enabled' toggle is turned on.

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Now we must configure the build steps. (Important steps)

Build Steps

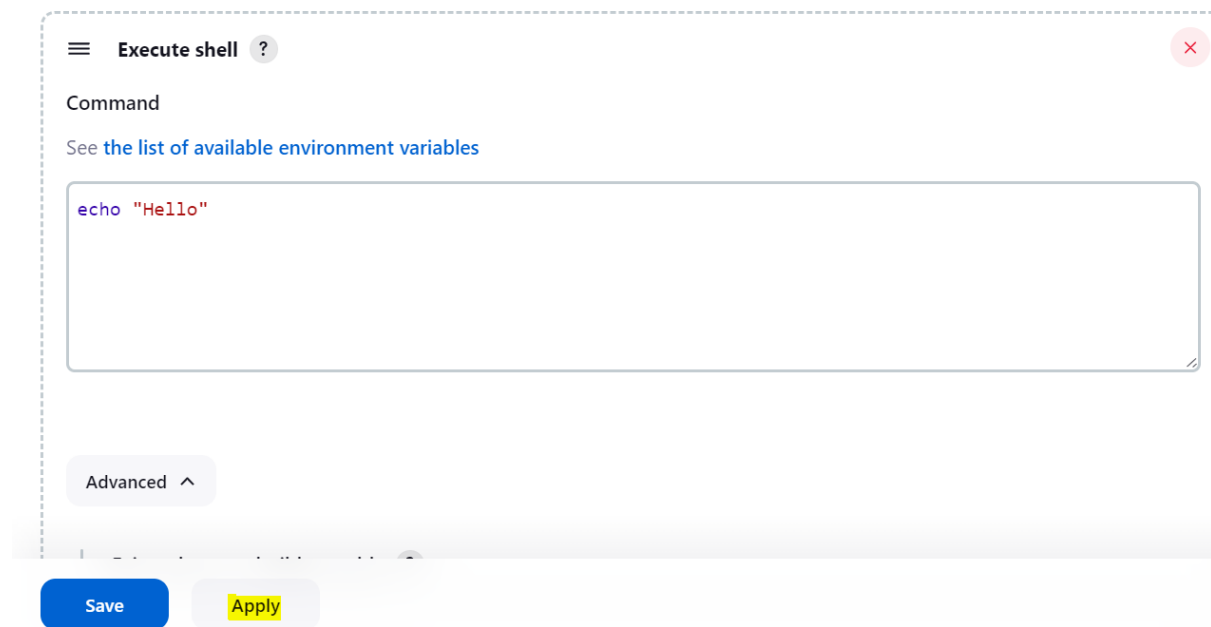


The screenshot shows the 'Execute shell' configuration dialog in Jenkins. It has a title bar with a hamburger menu, the text 'Execute shell', a question mark icon, and a close button. Below the title bar, the word 'Command' is displayed. A link 'See the list of available environment variables' is present. A large text area for the command is empty. At the bottom, there is an 'Advanced' dropdown menu.

The execute Shell command with code is given below.

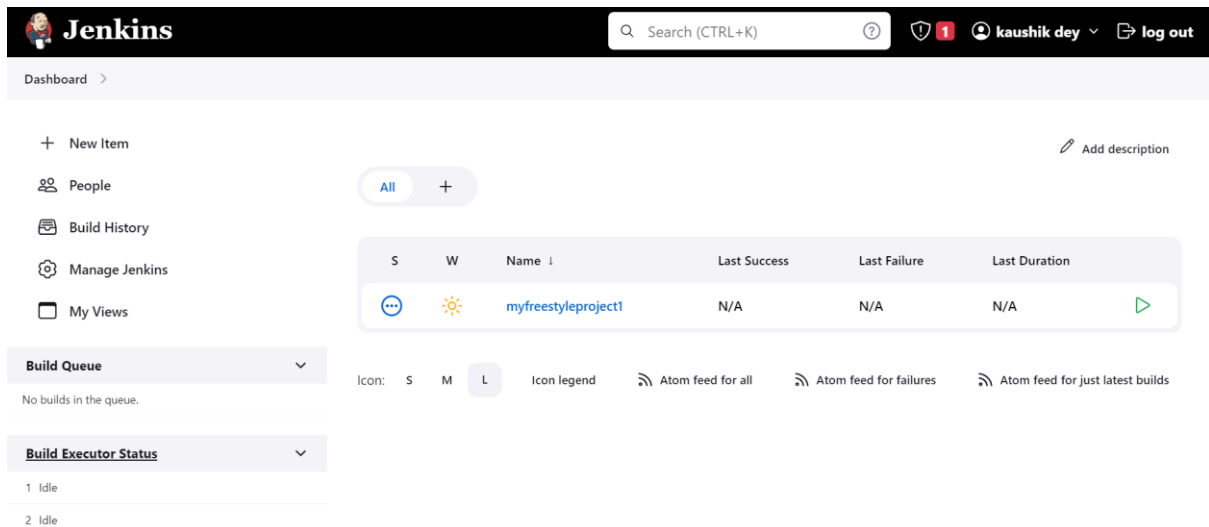
- Open execute shell command and write simple echo command and click on Apply button.
- Now go to the job board and see the effects.
- Now we can see the console output and the jenkins workspace details.

Build Steps



This screenshot shows the same 'Execute shell' configuration dialog, but now the command text area contains the text 'echo "Hello"'. The 'Advanced' dropdown menu is expanded, showing an upward arrow. At the bottom of the dialog, there are two buttons: 'Save' and 'Apply'.

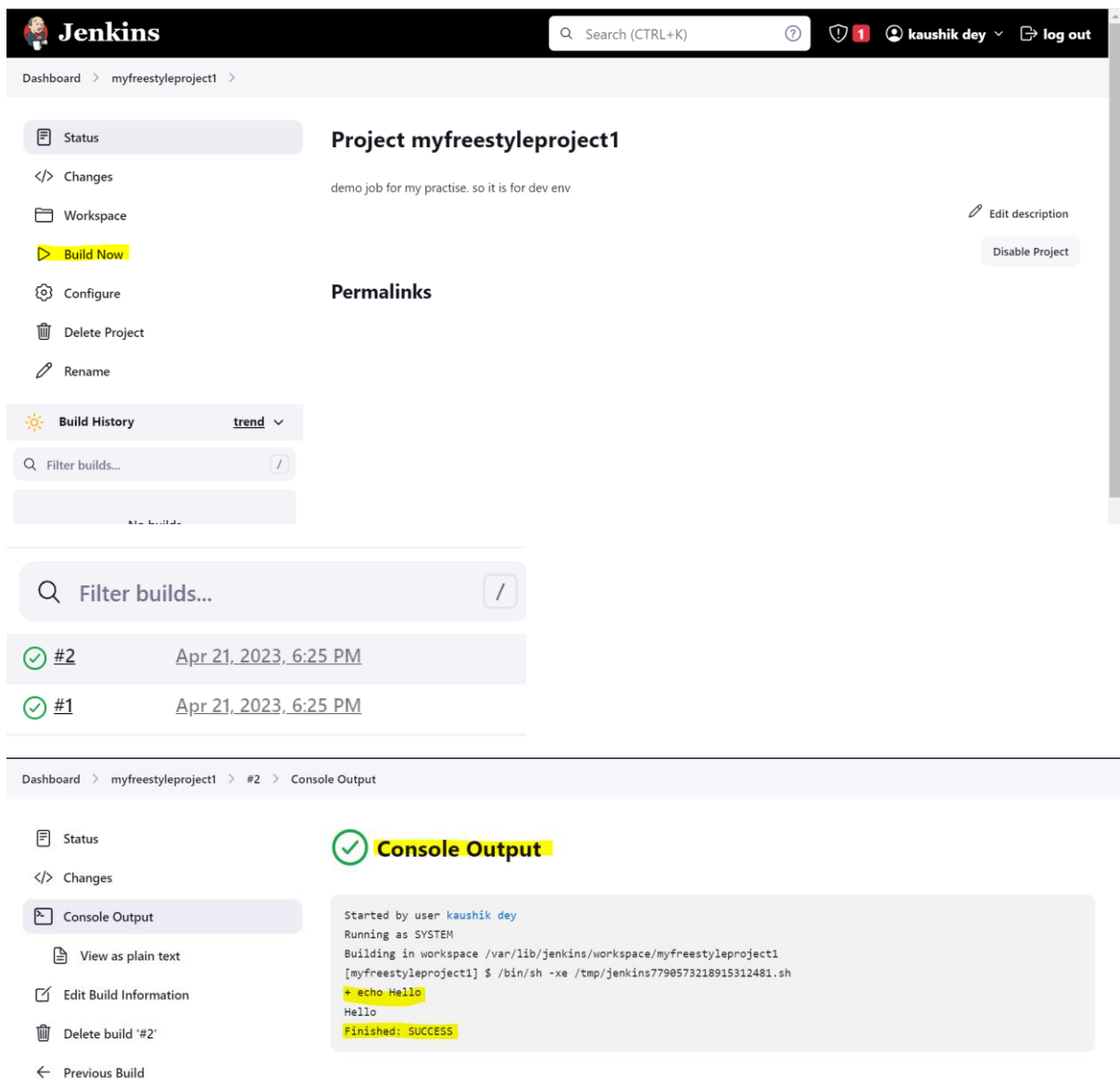
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The screenshot shows the Jenkins Dashboard. At the top, there's a header with the Jenkins logo, a search bar, and user information (kaushik dey). Below the header, the 'Dashboard' link is active. On the left, there's a sidebar with links: New Item, People, Build History, Manage Jenkins, and My Views. The main area displays a table of jobs. The first job is 'myfreestyleproject1', which is in a 'Waiting for resources' state (indicated by a sun icon). Below the table, there's a 'Build Queue' section showing 'No builds in the queue.' and a 'Build Executor Status' section showing two idle executors.

S	W	Name	Last Success	Last Failure	Last Duration
...	☀	myfreestyleproject1	N/A	N/A	N/A

Now we can run this jobs, the screenshot is given below. Click in the Build Now option.



The screenshot shows the Jenkins Project page for 'myfreestyleproject1'. The left sidebar contains links: Status, Changes, Workspace, Build Now (highlighted in yellow), Configure, Delete Project, and Rename. The main area shows the project name, a description, and a 'Build Now' button. Below this, there's a 'Permalinks' section. The 'Build History' section shows two builds, both successful (green checkmarks). The bottom section shows the 'Console Output' for build #2, which was successful. The output text is as follows:

```
Started by user kaushik dey
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/myfreestyleproject1
[myfreestyleproject1] $ /bin/sh -xe /tmp/jenkins7790573218915312481.sh
+ echo Hello
Hello
Finished: SUCCESS
```


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Now we can see from the workspace details where jenkins are installed.

Written the normal script. (build script for shell)

```
echo "Hello"
```

```
echo "hello team" >> file1.txt
```

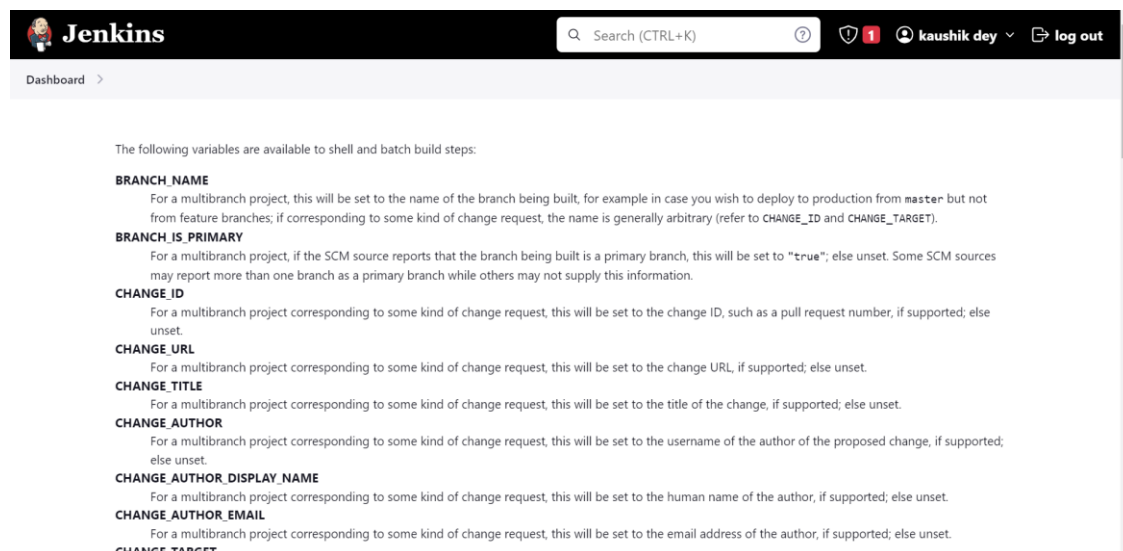
```
echo "jenkins-${JOB_NAME}-${BUILD_NUMBER}"
```

```
echo "user defined var- ${envi}"
```

```
root@ip-172-31-21-182: /var/lib/jenkins/workspace/myfreestyleproject1
root@ip-172-31-21-182:/var/lib/jenkins/workspace# ls -ltr
total 4
drwxr-xr-x 2 jenkins jenkins 4096 Apr 21 18:25 myfreestyleproject1
root@ip-172-31-21-182:/var/lib/jenkins/workspace# cd myfreestyleproject1
root@ip-172-31-21-182:/var/lib/jenkins/workspace/myfreestyleproject1# ls
root@ip-172-31-21-182:/var/lib/jenkins/workspace/myfreestyleproject1# ls
root@ip-172-31-21-182:/var/lib/jenkins/workspace/myfreestyleproject1# ls
file1.txt
root@ip-172-31-21-182:/var/lib/jenkins/workspace/myfreestyleproject1# |
```

Step 9 : Now we have concentrated on variables, (**Environment variable and user defined variable**)

The link is : <http://ec2-54-166-207-152.compute-1.amazonaws.com:8080/env-vars.html/>



Step 10 : now we can again modify our existing job again. The screenshot is given below.



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Step 11 : Now we can go with user defined variable.

Please check on This project is parameterized.

Description

demo job for my practise. so it is for dev env

[Plain text] [Preview](#)

- ☐ Commit agent's Docker container ?
- ☐ Define a Docker template
- ☐ Discard old builds ?
- ☐ GitHub project
- ☐ This project is parameterized ?
- ☐ Throttle builds ?
- ☐ Execute concurrent builds if necessary ?

Advanced ▾

[Plain text] Filter

- ☐ Boolean Parameter
- ☐ Choice Parameter
- ☐ Credentials Parameter
- ☐ File Parameter
- ☐ Multi-line String Parameter
- ☐ Password Parameter
- ☐ Run Parameter
- ☒ String Parameter

Add Parameter ▲

- ☐ Throttle builds ?
- ☐ Execute concurrent builds if necessary ?

Advanced ▾

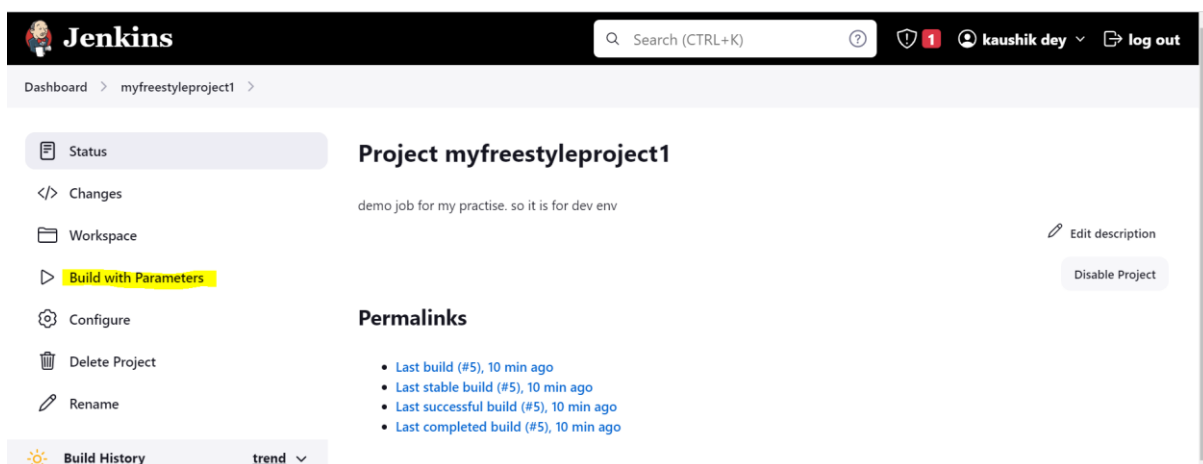
In this case we are taking three parameter (Name, Default Value and Description).

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The screenshot shows the 'String Parameter' configuration dialog in Jenkins. It has three fields: 'Name' with the value 'envi', 'Default Value' with the value 'QA', and 'Description' with the value 'enter the valid env name'. At the bottom, there is a '[Plain text] Preview' link.

Please note : After saving this job (with parameterized build) we can see that build option now change to build with parameter, the screenshot is given below.



The screenshot shows the Jenkins interface for 'Project myfreestyleproject1'. The left sidebar contains links: Status, Changes, Workspace, Build with Parameters (highlighted), Configure, Delete Project, and Rename. The main area shows the project description 'demo job for my practise. so it is for dev env', a 'Permalinks' section with four links, and a 'Build History' section. On the right, there are links for 'Edit description' and 'Disable Project'.

Project myfreestyleproject1

This build requires parameters:

envi

enter the valid env name

QA



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In my case I have changed the value , QA to UAT (in the runtime) , the screenshot is given below.

The screenshot shows the Jenkins web interface for a project named 'myfreestyleproject1'. At the top, it indicates that the build requires parameters, specifically 'envi', and prompts the user to enter a valid environment name. A text box contains the value 'UAT'. Below this is a 'Build' button. The main section of the screenshot shows the 'Console Output' for build #6. The output text is as follows:

```
Started by user kaushik dey
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/myfreestyleproject1
[myfreestyleproject1] $ /bin/sh -xe /tmp/jenkins2591438532927087664.sh
+ echo Hello
Hello
+ echo hello team
+ echo jenkins-myfreestyleproject1-6
jenkins-myfreestyleproject1-6
+ echo user defined var- UAT
user defined var- UAT
Finished: SUCCESS
```

For this demo the following commands line are provided, the list is given below.

```
1 sudo apt-get update -y
2 sudo apt install openjdk-11-jre -y
3 curl -fsSL https://pkg.jenkins.io/debian-stable/jenkins.io-
2023.key | sudo tee /usr/share/keyrings/jenkins-keyring.asc >
/dev/null
4 echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]
https://pkg.jenkins.io/debian-stable binary/ | sudo tee
/etc/apt/sources.list.d/jenkins.list > /dev/null
5 apt-get update
6 java --version
7 apt-get install jenkins
8 jenkins --version
9 cd /var/lib/jenkins
10 ls
11 cd secrets
12 ls
13 cat initialAdminPassword
14 cd
15 cd /var/lib/jenkins/
16 ls
17 cd plugins
18 ls
19 history
20 ls
21 cd ..
22 ls
23 cd users
```

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```
24  ls
25  cd kaushikbhai_12703125140721037793
26  ls
27  ls -ltr
28  cat config.xml
29  clear
30  cd
31  cd /var/lib/jenkins/
32  ls
33  ls -ltr
34  cd workspace
35  clear
36  ls -ltr
37  cd myfreestyleproject1
38  ls
39  cat file1.txt
40  ls
41  cd ..
42  ls
43  cd ..
44  ls -ltr
45  cd jobs
46  ls
47  cd myfreestyleproject1
48  ls
49  cd builds
50  ls -ltr
51  history
```