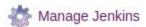
ASSESSMENT - 19

CI/CD



1. Create 2 users: developer1, developer2. The developer1 should be able to build job1 only and can't change the job configuration. The developer2 can configure and build the job2, also he is able to view job1 but can't build/configure it.





Create User

	developer1
Password:	••••••
Confirm password:	•••••
Full name:	developer1
E-mail address:	developer1@gmail.com

Create User

Username:	developer2
Password:	•••••
Confirm password:	•••••
Full name:	developer2
E-mail address:	developer2@gmail.com

Create User

Users

These users can log into Jenkins. This is a sub set of <u>this list</u>, which also contains auto-created use have no direct Jenkins access.



Enter an item name

job1

» Required field



Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, co something other than software build.

Enter an item name

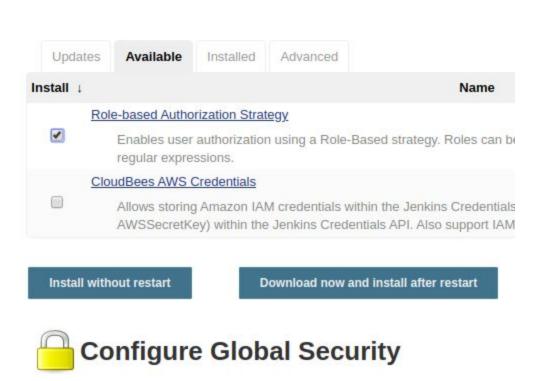
job2

» Required field



Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, something other than software build.



Role-Based Strategy

Save

Enable security

Apply



Manage and Assign Roles







Role Strategy Macros

Provides info about macro usage and available macros



Global roles

Role	Overa	II	Credenti			
Role	Administer	Read	Create	Delete	ManageDo	
admin	•	•	•	•	•	
roles_for_developers		•				

Item roles

Role	Pattern	Credentials			Job									
Role	Role Pattern	Create	Delete	ManageDomains	Update	View	Build	Cancel	Configure	Create	Delete	Discover	Move	Read
developer1	<u>"job1"</u>				0	0	•							•
developer2	<u>"job2"</u>	0		8	0		•	0	•					•
developer2-sec	"job1"	0		В	0		8	0						•

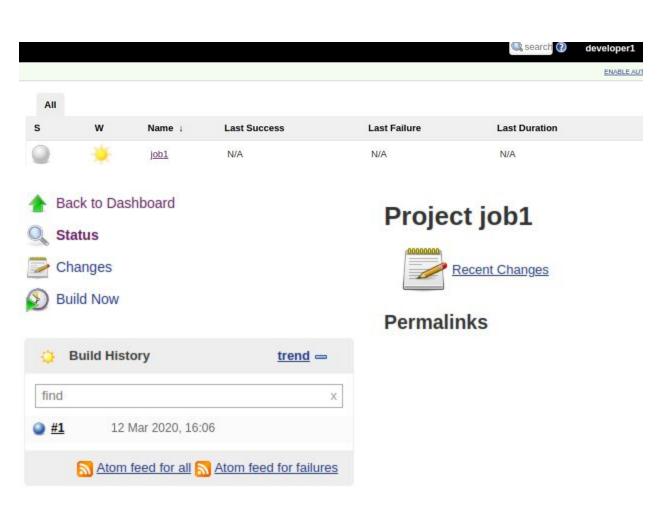


Global roles

	User/group	admin	roles_for_developers	
X	& admin	•		×
X	& developer1		•	×
X	& developer2		•	×

Item roles

	User/group	developer1	developer2	developer2-sec	
X	& developer1	•			×
X	& developer2		•	•	X
×	Anonymous	0	0		×







Project job2



Permalinks







Project job1

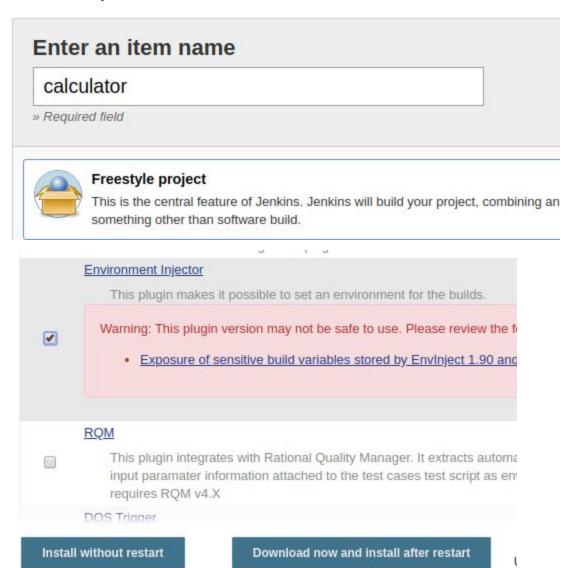


Permalinks

- Last build (#1), 4 min 17 sec ago
- Last stable build (#1), 4 min 17 sec ago
- Last successful build (#1), 4 min 17 sec ago
- Last completed build (#1), 4 min 17 sec ago

2. Create a Jenkins Job to create a calculator. It should give you a dropdown to ask Addition, Subtraction, Multiplication or Division and email the results.

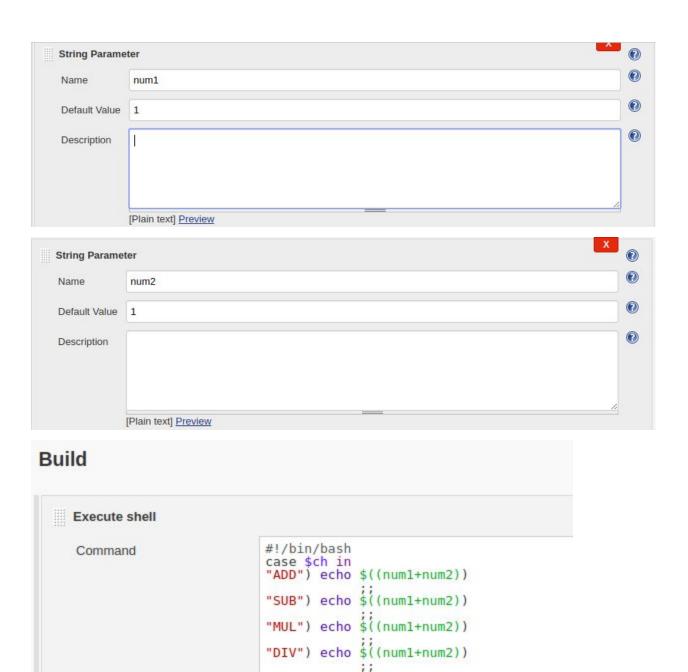
Hint: Plugin Used (Environment Injector, Extended Email Notification)

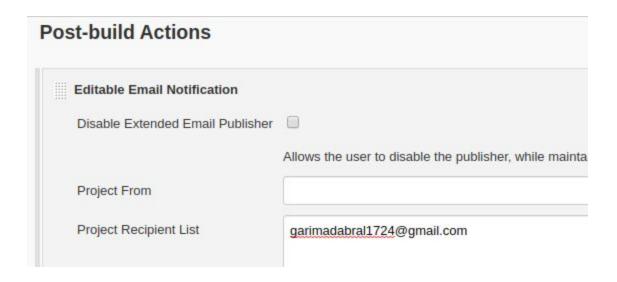


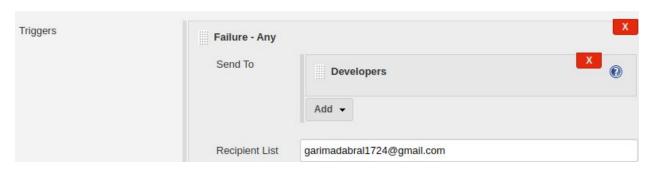
Extended E-mail Notification

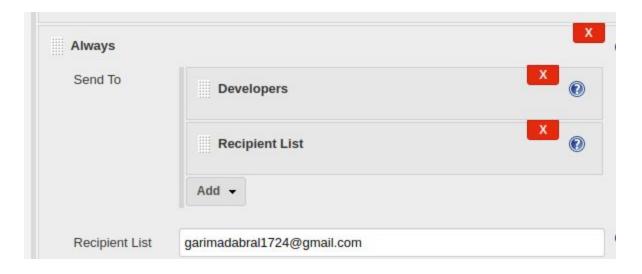
SMTP server	smtp.gmail.com
Default user E-mail suffix	
✓ Use SMTP Authentication	
User Name	garimadabral1724@gmail.com
Password	•••••
Use SSL	€
SMTP port	465
Charset	UTF-8
Additional accounts	Add
Default Content Type	Plain Text (text/plain)
Use List-ID E-mail Header	
Add 'Precedence: bulk' E-mail Header	
Default Recipients	garimadabral1724@gmail.com











Home

Personal info

Data & personalisation

A Security

People & sharing

Payments & subscriptions

Less secure app access

Your account is vulnerable because you allow apps use less secure sign-in technology to access your your account secure, Google will automatically turn it's not being used. Find out more



Turn off access (recommended)



Started by user admin Running as SYSTEM

[EnvInject] - Loading node environment variables.

Building in workspace /var/lib/jenkins/workspace/calculator No emails were triggered.

[calculator] \$ /bin/bash /tmp/jenkins9855001273763297179.sh 16

Email was triggered for: Always Sending email for trigger: Always

Sending email to: garimadabral1724@gmail.com

Finished: SUCCESS

calculator - Build # 3 - Successful! Inbox x

address not configured yet <garimadabral1724@gmail.com>

to me *

calculator - Build # 3 - Successful:

Check console output at http://localhost:8080/job/calculator/3/ to view the results.

3. Create jenkins parameterized job which on selecting the different Env. will display different web pages by nginx.

```
garima@garima:~$ mkdir jenkins_dir
garima@garima:~$ cd jenkins_dir/
garima@garima:~/jenkins_dir$ vim env1.html
garima@garima:~/jenkins_dir$ cat env1.html
hello env1
garima@garima:~/jenkins_dir$ vim env2.html
garima@garima:~/jenkins_dir$ cat env2.html
hello env2
garima@garima:~/jenkins_dir$ vim env3.html
garima@garima:~/jenkins_dir$ cat env3.html
hello env3
garima@garima:~/jenkins_dir$
```

```
garima@garima:~$ ls -ld jenkins dir/
drwxr-xr-x 2 garima garima 4096 Mar 12 17:55 jenkins_dir/
garima@garima:~$ chmod 777 jenkins_dir/
garima@garima:~$ ls -ld jenkins dir/
drwxrwxrwx 2 garima garima 4096 Mar 12 17:55 🚾 🖼 🗀
garima@garima:~$ cd jenkins dir/
garima@garima:~/jenkins_dir$ ll
total 20
drwxrwxrwx 2 garima garima 4096 Mar 12 17:55 🛚 /
drwxr-xr-x 40 garima garima 4096 Mar 12 17:55 ../
-rw-r--r-- 1 garima garima 11 Mar 12 17:54 env1.html
-rw-r--r-- 1 garima garima 11 Mar 12 17:55 env2.html
-rw-r--r-- 1 garima garima 11 Mar 12 17:55 env3.html
garima@garima:~/jenkins_dir$ chmod 777 env1.html env2.html env3.html
garima@garima:~/jenkins_dir$ ll
total 20
drwxrwxrwx 2 garima garima 4096 Mar 12 17:55 📕
drwxr-xr-x 40 garima garima 4096 Mar 12 17:55 ../
-rwxrwxrwx 1 garima garima 11 Mar 12 17:54 env1.html*
-rwxrwxrwx 1 garima garima 11 Mar 12 17:55 env2.html*
rwxrwxrwx 1 garima garima 11 Mar 12 17:55 env3.html*
```

```
garima@garima:~$ cd jenkins dir/
garima@garima:~/jenkins_dir$ ls
env1.html env2.html env3.html
garima@garima:~/jenkins dir$ mkdir html
garima@garima:~/jenkins_dir$ ls
env1.html env2.html env3.html html
garima@garima:~/jenkins_dir$ ll
total 24
drwxrwxrwx 3 garima garima 4096 Mar 13 10:27 /
drwxr-xr-x 40 garima garima 4096 Mar 12 18:10 ../
-rwxrwxrwx 1 garima garima 11 Mar 12 17:54 env1.html*
-rwxrwxrwx 1 garima garima 11 Mar 12 17:55 env2.html*
-rwxrwxrwx 1 garima garima 11 Mar 12 17:55 env3.html*
drwxr-xr-x 2 garima garima 4096 Mar 13 10:27 html/
garima@garima:~/jenkins dir$ chmod 777 html/
garima@garima:~/jenkins_dir$ ll
total 24
drwxrwxrwx 3 garima garima 4096 Mar 13 10:27 /
drwxr-xr-x 40 garima garima 4096 Mar 12 18:10 ../
-rwxrwxrwx 1 garima garima 11 Mar 12 17:54 env1.html*
-rwxrwxrwx 1 garima garima 11 Mar 12 17:55 env2.html*
-rwxrwxrwx 1 garima garima 11 Mar 12 17:55 env3.html*
drwxrwxrwx 2 garima garima 4096 Mar 13 10:27
garima@garima:~/jenkins dir$
```

```
garima@garima:/etc/nginx/sites-enabled$ sudo ln -s /etc/nginx/sites-available/ne
wfile .
garima@garima:/etc/nginx/sites-enabled$
```

```
127.0.0.1 localhost abc.com www.abc.com xyz.com loadbalancing.com www.boot camp.com garima.com
```

Enter an item name

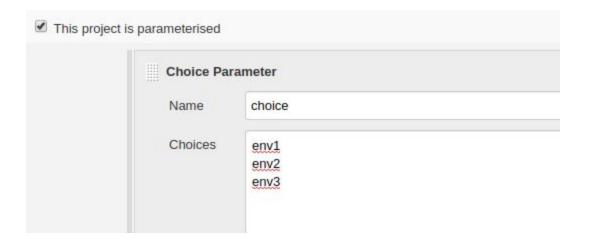
ques3

» Required field



Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, con something other than software build.



Build

```
Execute shell

Command #!/bin/bash rm -f /home/garima/jenkins_dir/html/* case $choice in "env1") cp /home/garima/jenkins_dir/env1.html /home/garima/jenkins_dir/html/ "env2|") cp /home/garima/jenkins_dir/env2.html /home/garima/jenkins_dir/html/ ;; "env3") cp /home/garima/jenkins_dir/env3.html /home/garima/jenkins_dir/html/ ;; esac curl garima.com
```



Started by user admin Running as SYSTEM [EnvInject] - Loading node environment variables. Building in workspace /var/lib/jenkins/workspace/ques3 [ques3] \$ /bin/bash /tmp/jenkins1642996643382158472.sh % Total % Received % Xferd Average Speed Time Time Current Dload Upload Total Spent Left Speed 0 0 --:--:--0 0 100 11 100 11 0 0 2750 0 --:--:- 2750 hello env1 Finished: SUCCESS



Started by user admin Running as SYSTEM [EnvInject] - Loading node environment variables. Building in workspace /var/lib/jenkins/workspace/ques3 [ques3] \$ /bin/bash /tmp/jenkins3442516356751823496.sh % Received % Xferd Average Speed Time Time Current Dload Upload Total Spent Left Speed 0 0 --:--:--100 11 100 2750 0 --:--:- 2750 11 hello env2

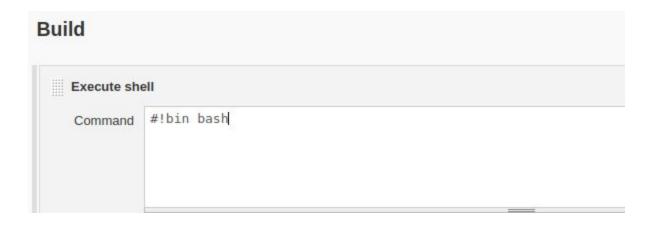
Finished: SUCCESS



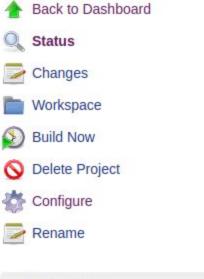
Started by user admin Running as SYSTEM [EnvInject] - Loading node environment variables. Building in workspace /var/lib/jenkins/workspace/ques3 [ques3] \$ /bin/bash /tmp/jenkins14490471627670190815.sh % Total % Received % Xferd Average Speed Time Time Current Dload Upload Left Speed Total Spent 0 0 0 --:--:--0 0 2200 100 11 100 11 0 --:--:- 2200 hello env3 Finished: SUCCESS

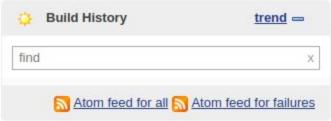
4. Create a job which on its failure will trigger another job.











Project ques4



Downstream Projects

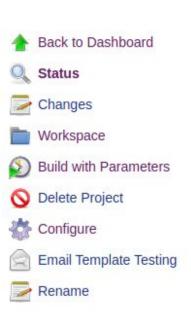


Permalinks



Finished: FAILURE

Started by user admin Running as SYSTEM [EnvInject] - Loading node environment variables. Building in workspace /var/lib/jenkins/workspace/ques4 [ques4] \$ bin bash /tmp/jenkins5140476536883826814.sh FATAL: command execution failed java.io.IOException: error=2, No such file or directory at java.base/java.lang.ProcessImpl.forkAndExec(Native | at java.base/java.lang.ProcessImpl.<init>(ProcessImpl. at java.base/java.lang.ProcessImpl.start(ProcessImpl.j at java.base/java.lang.ProcessBuilder.start(ProcessBui Caused: java.io.IOException: Cannot run program "bin" (in dire-No such file or directory at hudson.model.AbstractBuild\$AbstractBuildExecu at hudson.model.Run.execute(Run.java:1853) at hudson.model.FreeStyleBuild.run(FreeStyleBuild at hudson.model.ResourceController.execute(Resour at hudson.model.Executor.run(Executor.java:427) Build step 'Execute shell' marked build as failure Triggering a new build of calculator





Project calculator



Upstream Projects



Permalinks

- Last build (#4), 37 sec ago
- Last stable build (#4), 37 sec ago
- <u>Last successful build (#4), 37 sec ago</u>

Console Output

Finished: SUCCESS

Started by upstream project "ques4" build number 1
originally caused by:
Started by user admin
Running as SYSTEM
[EnvInject] - Loading node environment variables.
Building in workspace /var/lib/jenkins/workspace/calculator
No emails were triggered.
[calculator] \$ /bin/bash /tmp/jenkins2270695509533536709.sh
2
Email was triggered for: Always
Sending email for trigger: Always
Sending email to: garimadabral1724@gmail.com

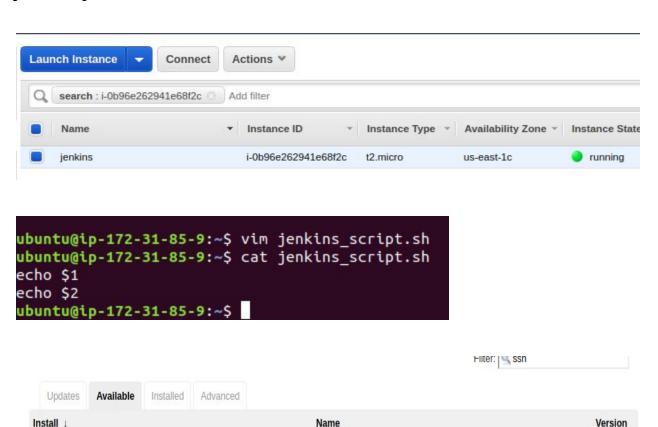
calculator - Build # 4 - Successful! Inbox x

This plugin executes shell commands remotely using SSH protocol.

1



5. Create a job which can set a cron job on another server. This server contains a script on its home directory and the script will print the two string parameters which will be given by the jenkins job.



2.6.1

Manage Jenkins

Warnings have been published for the following currently installed components.

Environment Injector Plugin 2.3.0:

Exposure of sensitive build variables stored by EnvInject 1.90

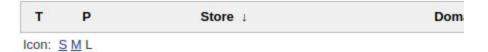


Configure System

Configure global settings and paths.







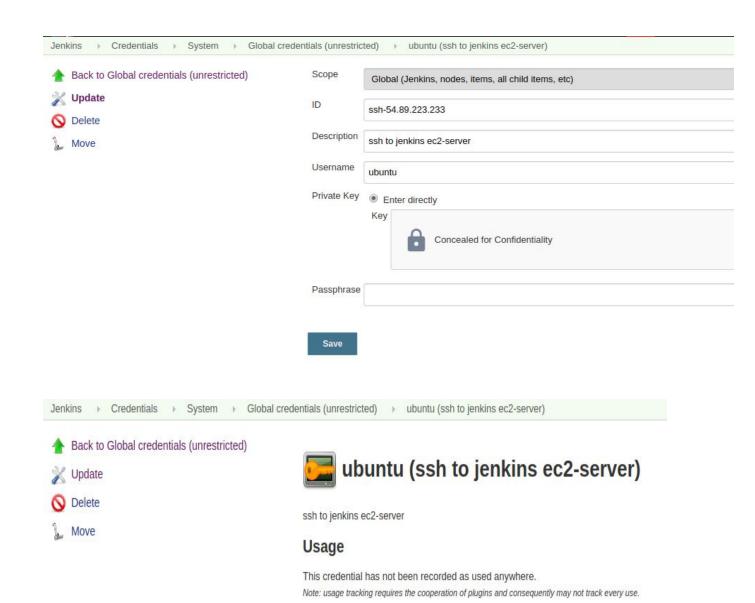
Stores scoped to Jenkins







Icon: SML



Manage Jenkins

Warnings have been published for the following currently installed components.

Go to plugin manager

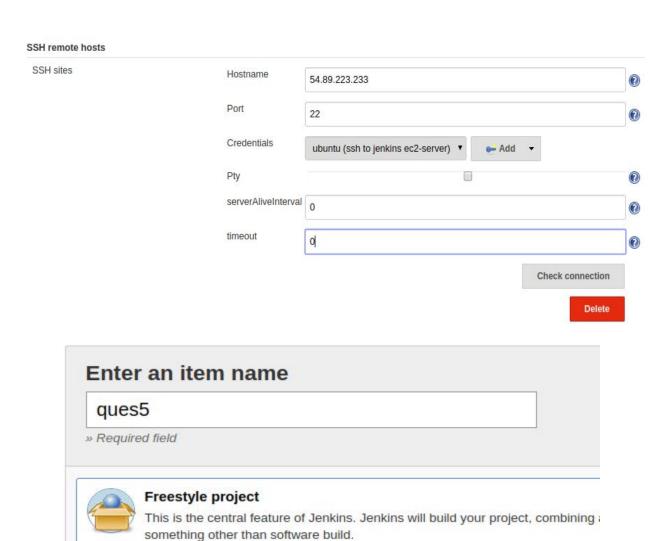
Environment Injector Plugin 2.3.0:

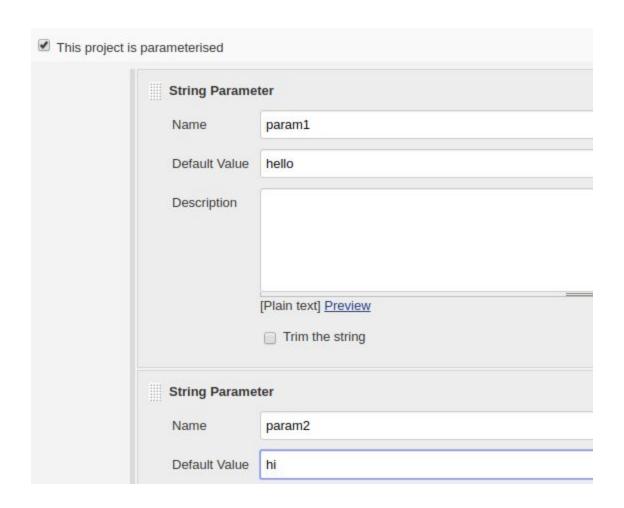
Exposure of sensitive build variables stored by EnvInject 1.90 and earlier

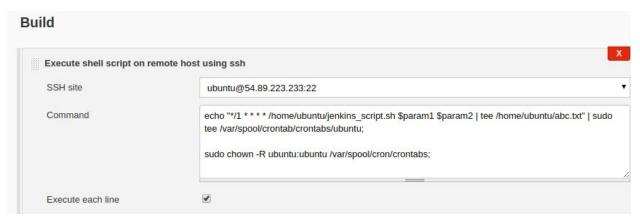


Configure System

Configure global settings and paths.







```
SSH site

ubuntu@54.89.223.233:22

Command

./jenkins_script.sh $param1 $param2 > abc.txt
echo "*/1 * * * * /home/ubuntu/jenkins_script.sh $param1 $param2" | sudo tee
//var/spool/cron/crontabs/ubuntu;
sudo chown -R ubuntu:ubuntu /var/spool/cron/crontabs/
```

```
ubuntu@ip-172-31-85-9:~$ crontab -l
*/1 * * * * /home/ubuntu/jenkins_script.sh
ubuntu@ip-172-31-85-9:~$ chmod +x jenkins_script.sh
ubuntu@ip-172-31-85-9:~$ ls
abc.txt jenkins_script.sh
ubuntu@ip-172-31-85-9:~$ cat abc.txt

ubuntu@ip-172-31-85-9:~$ cat jenkins_script.sh
echo $1
echo $2
ubuntu@ip-172-31-85-9:~$
```

Console Output

```
Started by user admin
Running as SYSTEM
[EnvInject] - Loading node environment variables.
Building in workspace /var/lib/jenkins/workspace/ques5
[SSH] commands:
param1="3"
param2="9"

./jenkins_script.sh $param1 $param2 > abc.txt
echo "*/1 * * * * /home/ubuntu/jenkins_script.sh $param1 $param2" | sudo tee /var/spool/cron/crontabs/ubuntu;
sudo chown -R ubuntu:ubuntu /var/spool/cron/crontabs/
[SSH] executing...
*/1 * * * * /home/ubuntu/jenkins_script.sh

[SSH] completed
[SSH] completed
[SSH] exit-status: 0

Finished: SUCCESS
```

```
Started by user admin
Running as SYSTEM
[EnvInject] - Loading node environment variables.
Building in workspace /var/lib/jenkins/workspace/ques5
[SSH] commands:
paraml="hello"
param2="hi"

echo "*/1 * * * * /home/ubuntu/jenkins_script.sh $param1 $param2 | tee /home/ubuntu/abc.txt" | sudo tee /var/spool/cron/crontabs/ubuntu;

sudo chown -R ubuntu:ubuntu /var/spool/cron/crontabs;

[SSH] executing...
*/1 * * * * /home/ubuntu/jenkins_script.sh | tee /home/ubuntu/abc.txt

[SSH] completed
[SSH] completed
[SSH] exit-status: 0
```

6. Create a job in which: Pull Dockerfile from GitHub, build it and push to Dockerhub. The docker image should have the tag: git commit id.

```
garima@garima:~/jenkins_Dockerfile_repo$ cat Dockerfile
FROM ubuntu
MAINTAINER garima

RUN apt-get update -y
RUN apt-get install nginx -y
CMD ["echo","Image Created"]
CMD ["nginx","-g", "daemon off;"]
```

```
garima@garima:~$ git clone https://github.com/ga-sudo/jenkins_Dockerfile_repo.gi
t
Cloning into 'jenkins_Dockerfile_repo'...
warning: You appear to have cloned an empty repository.
garima@garima:~$ cd jenkins_Dockerfile_repo/
garima@garima:~/jenkins_Dockerfile_repo$ ls
garima@garima:~/jenkins_Dockerfile_repo$ cp /home/garima/Dockerfile .
garima@garima:~/jenkins_Dockerfile_repo$ ls
Dockerfile
```

```
garima@garima:~/jenkins_Dockerfile_repo$ git add .
garima@garima:~/jenkins_Dockerfile_repo$ git commit -m "commit for dockerfile"
[master (root-commit) ee2fb05] commit for dockerfile
 1 file changed, 7 insertions(+)
 create mode 100755 Dockerfile
garima@garima:~/jenkins_Dockerfile_repo$ git push origin master
Username for 'https://github.com': ga-sudo
Password for 'https://ga-sudo@github.com':
Counting objects: 3, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 319 bytes | 319.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/ga-sudo/jenkins Dockerfile repo.git
 * [new branch]
                   master -> master
```

```
garima@garima:~/jenkins_Dockerfile_repo$ git log
commit d986989def681d215011495e9bc3f0945055f10a (HEAD -> master, origin/master)
Author: ga-sudo <garima.dabral@tothenew.com>
Date: Mon Mar 16 11:56:00 2020 +0530
new commit for Dockerfile
```

```
File Edit View Search Terminal Help

garima@garima:~$ sudo usermod -aG docker jenkins

[sudo] password for garima:
garima@garima:~$ id jenkins

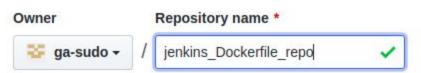
uid=125(jenkins) gid=129(jenkins) groups=129(jenkins),998(docker)

garima@garima:~$
```

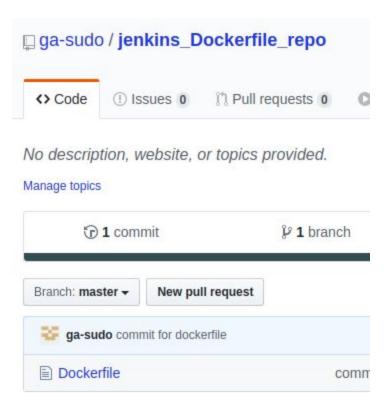
garima@garima:/var/lib/jenkins/workspace/ques6\$ sudo service jenkins restart
garima@garima:/var/lib/jenkins/workspace/ques6\$

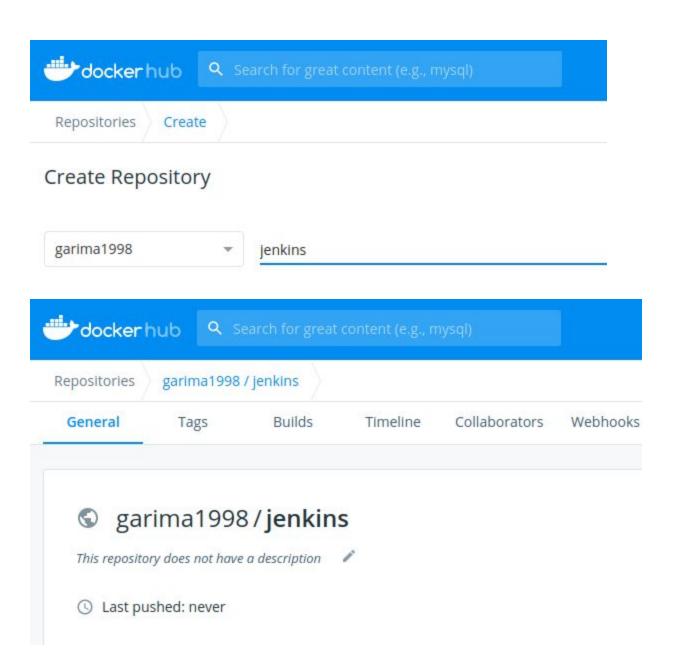
Create a new repository

A repository contains all project files, including the revision history. Already have a pro Import a repository.



Great repository names are short and memorable. Need inspiration? How about solid





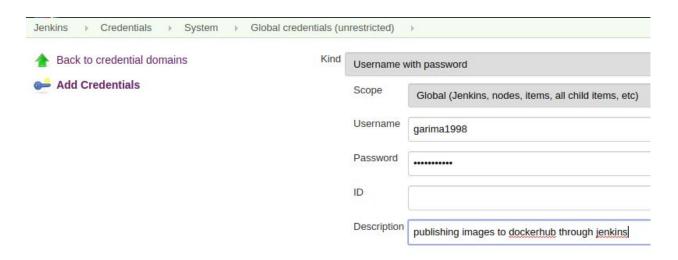
Manage Jenkins

Warnings have been published for the following currently installed components.

Environment Injector Plugin 2.3.0:

Exposure of sensitive build variables stored by EnvInject 1.90 and earlier





Global credentials (unrestricted)

Credentials that should be available irrespective of domain specification to requirements matching.

	ID	Name	Kind	Description	
	ssh-54.89.223.233	ubuntu (ssh to jenkins ec2-server)	SSH Username with private key	ssh to jenkins ec2-server	X
****	1b5771eb-b953-4ff1-9f51- 291b79fd87b1	garima1998/****** (publishing images to dockerhub through jenkins)	Username with password	publishing images to dockerhub through jenkins	X

Enter an item name ques6 » Required field

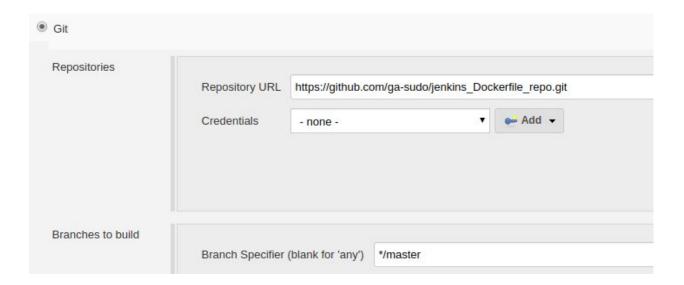


Build

Registry credentials

Freestyle project

This is the central feature of Jenkins. Jenkins will build your project, combining a something other than software build.



Docker Build and Publish Repository Name garima1998/jenkins Tag \${GIT_COMMIT} Docker Host URI Server credentials - none - ▼ Add ▼ Docker registry URL

garima1998/****** (publishing images to dockerhub through jenkins) ▼

Add -



Started by user <u>admin</u>
Running as SYSTEM
[EnvInject] - Loading node environment variables.
Building in workspace /var/lib/jenkins/workspace/ques6
No credentials specified

> git rev-parse --is-inside-work-tree # timeout=10
Fetching changes from the remote Git repository

- > git config remote.origin.url https://github.com/ga-sudo/jenkins_Dockerfile_repo # timeout=10 Fetching upstream changes from https://github.com/ga-sudo/jenkins_Dockerfile_repo # timeout=10
- > git --version # timeout=10
- > git fetch --tags --progress -- https://github.com/ga-sudo/jenkins_Dockerfile_repo

150a3ca92d85: Layer already exists 1852b2300972: Layer already exists 8c98131d2d1d: Layer already exists 03c9b9f537a4: Layer already exists 2bf15f5b33f3: Layer already exists cc4590d6a718: Layer already exists

latest: digest: sha256:c15dcc71266fd76ac27abe5laf1001d87f907b3d11405bb2bc69ec99067781d7 size: 1576

Finished: SUCCESS

garima1998/jenkins

This repository does not have a description



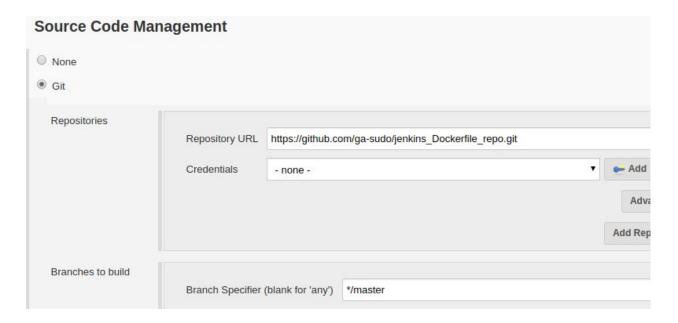
Last pushed: a few seconds ago

Tags

This repository contains 3 tag(s).

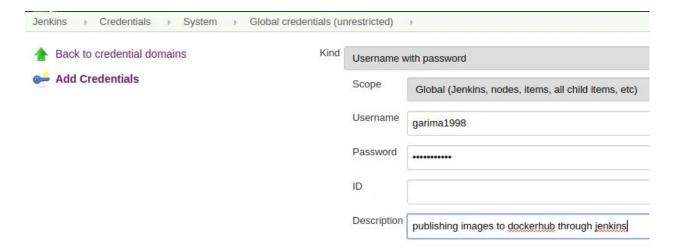
2nd way:





Build





Global credentials (unrestricted)

Credentials that should be available irrespective of domain specification to requirements matching.

	ID	Name	Kind	Description	
<u></u>	ssh-54.89.223.233	ubuntu (ssh to jenkins ec2-server)	SSH Username with private key	ssh to jenkins ec2-server	X
****	1b5771eb-b953-4ff1-9f51- 291b79fd87b1	garima1998/****** (publishing images to dockerhub through jenkins)	Username with password	publishing images to dockerhub through jenkins	X

File Edit View Search Terminal Help
garima@garima:/var/lib/jenkins/workspace/ques6\$ sudo su jenkins
[sudo] password for garima:
jenkins@garima:~/workspace/ques6\$ cd
jenkins@garima:~\$ docker login
Authenticating with existing credentials...
WARNING! Your password will be stored unencrypted in /var/lib/jenkins/.docker/co
nfig.json.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store
Login Succeeded
jenkins@garima:~\$





garima1998/jenkins:9d56ffce0a6274997304647b6857e120364fb237

DIGEST: sha256:c15dcc71266fd76ac27abe51af1001d87f907b3d11405bb2bc69ec99067781d7

OS/ARCH SIZE LAST PUSHED

linux/amd64 69.84 MB a minute ago by garima1998

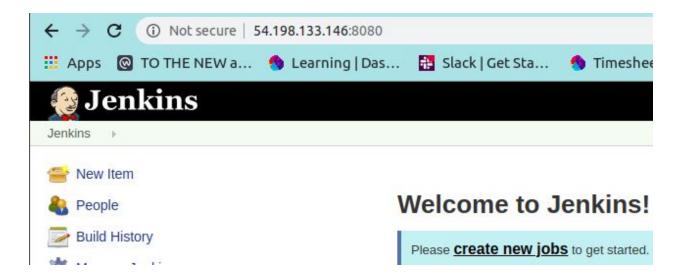
7. Host a static website on s3.
Its static content should be in git repo. When a person commits any change in the repo, the job should automatically reflect the

Install jenkins on ec2 server.

changes in the s3 website.

```
ubuntu@ip-172-31-47-29:~$ sudo apt install jenkins
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
    daemon
The following NEW packages will be installed:
    daemon jenkins
0 upgraded, 2 newly installed, 0 to remove and 3 not upgraded.
Need to get 63.3 MB of archives.
After this operation, 63.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

```
ubuntu@ip-172-31-47-29:~$ sudo systemctl start jenkins
ubuntu@ip-172-31-47-29:~$ sudo systemctl status jenkins
● jenkins.service - LSB: Start Jenkins at boot time
    Loaded: loaded (/etc/init.d/jenkins; generated)
    Active: active (exited) since Sun 2020-03-22 05:45:44 UT
    Docs: man:systemd-sysv-generator(8)
    Tasks: 0 (limit: 1152)
    CGroup: /system.slice/jenkins.service
```

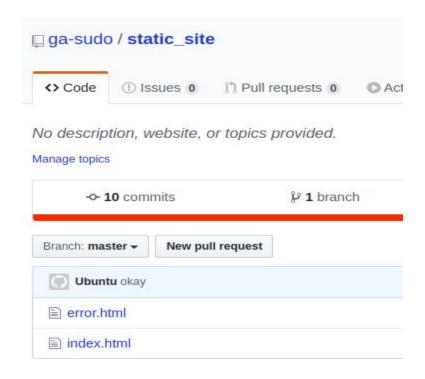


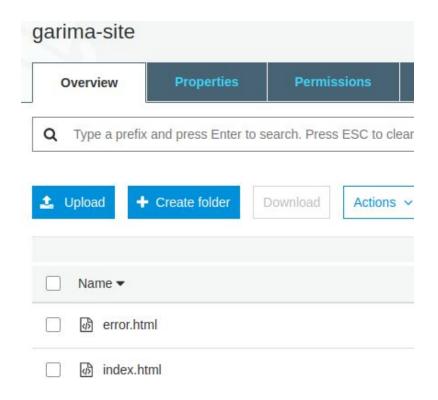
Create a new repository

A repository contains all project files, including the revision history. Already have a project repository Import a repository.



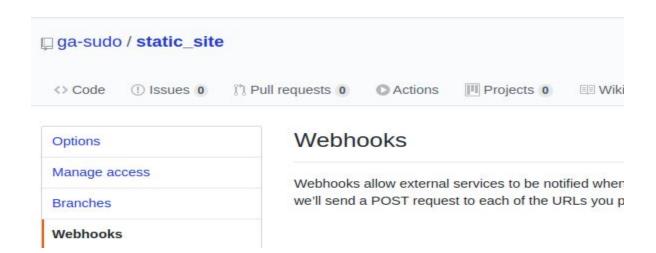
Great repository names are short and memorable. Need inspiration? How about sturdy-fortnight?





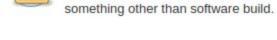


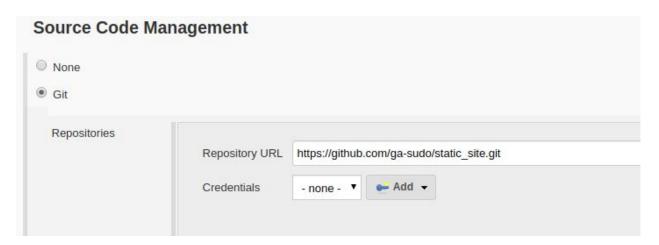
index page



Webhooks / Manage webhook We'll send a POST request to the URL below with details of data format you'd like to receive (JSON, x-www-form-urler developer documentation. Payload URL * http://54.198.133.146:8080/github-webhook/ Content type application/x-www-form-urlencoded \$ Secret Which events would you like to trigger this webhook? • Just the push event. Send me everything. Let me select individual events. Active We will deliver event details when this hook is triggered. Update webhook Delete webhook

Enter an item name ques7 » Required field Freestyle project This is the central feature of Jenkins. Jenkins will build your project, combining



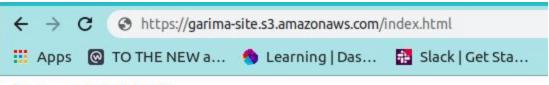








```
ubuntu@ip-172-31-47-29:~/static_site$ echo "changes made to index file" > index.html
ubuntu@ip-172-31-47-29:~/static_site$ git add .
ubuntu@ip-172-31-47-29:~/static_site$ git commit -m "newly made commits"
[master a526740] newly made commits
Committer: Ubuntu <ubuntu@ip-172-31-47-29.ec2.internal>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:
    git config --global --edit
After doing this, you may fix the identity used for this commit with:
    git commit --amend --reset-author
1 file changed, 1 insertion(+), 1 deletion(-)
ubuntu@ip-172-31-47-29:~/static_site$ git push origin master
Username for 'https://github.com': ga-sudo
Password for 'https://ga-sudo@github.com':
Counting objects: 3, done.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 316 bytes | 316.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/ga-sudo/static_site.git
  64359c7..a526740 master -> master
```



changes made to index file