# Capstone Project-1 (DevOps)

E-mail : harshalgite888@gmail.com

You have been Hired Sr. DevOps Engineer in Abode Software. They want to implement DevOpsLifecycle in their company. You have been asked to implement this lifecycle as fast as possible. Abode Software is a product-based company, their product is available on this GitHub link. https://github.com/hshar/website.git

Following are the specifications of the lifecycle:

1. Install the necessary software on the machines using a Following are the specifications of the lifecycle:

1. Install the necessary software on the machines using a configuration management tool.

2. Git Workflow has to be implemented

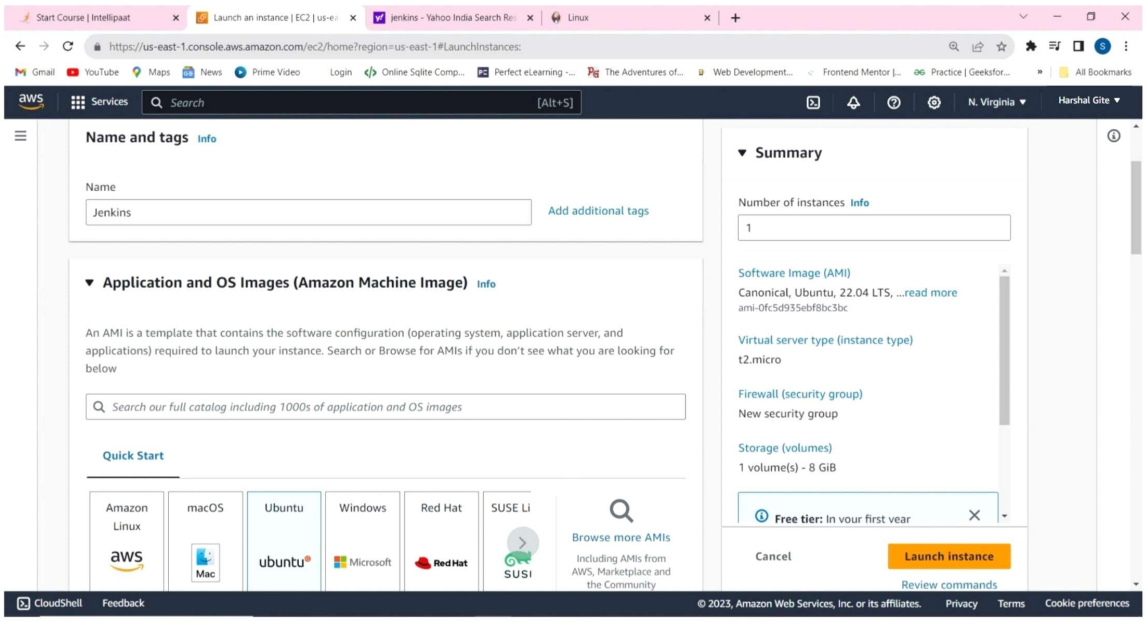
3.Code Build should automatically be triggered once commit is made to master branch or develop branch. If commit is made to master branch, test and push to prod If commit is made to develop branch, just test the product, do not push to prod

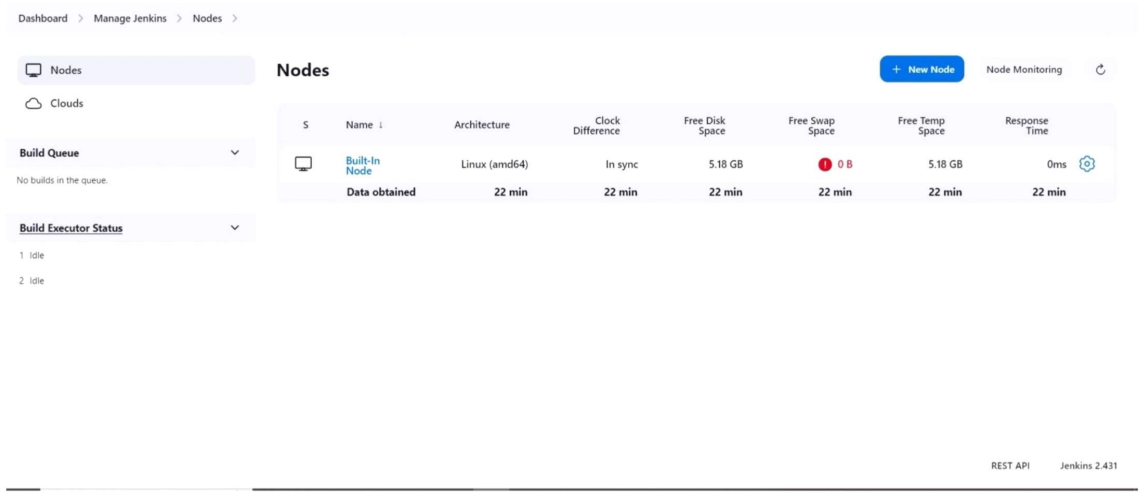
4.The Code should be containerized with the help of a Dockerfile. The Dockerfile should be built every time there is a push to Git-Hub. Use the following pre-built container for your application: hshar/webapp

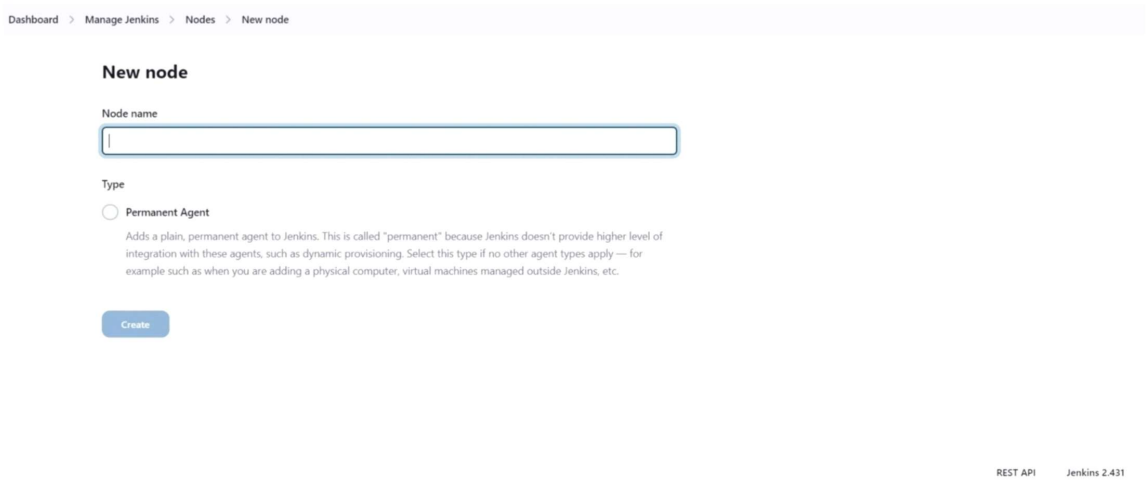
5.The above tasks should be defined in a Jenkins Pipeline.

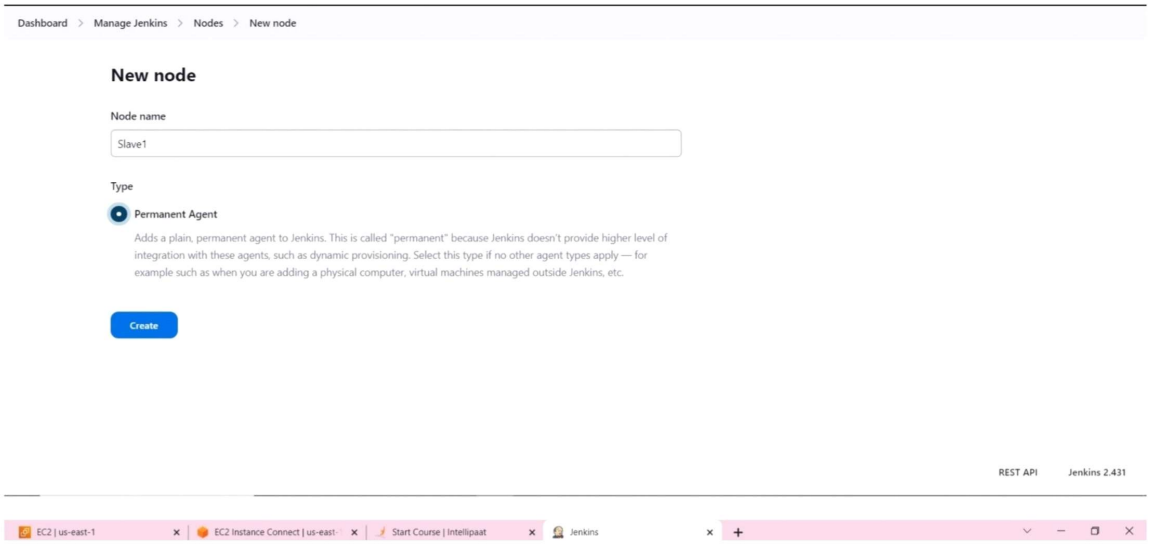
## Solution:

### Steps:

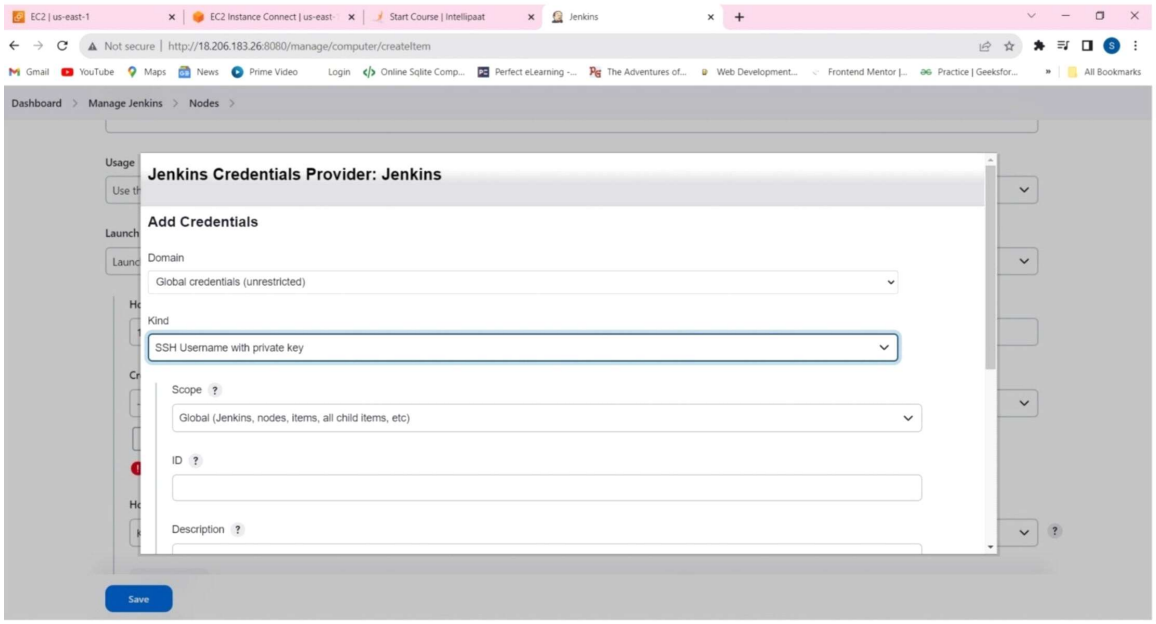

Start Course | Intellipaat
Launch an instance | EC2 | us-ea
jenkins - Yahoo India Search Re
Linux
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Gmail
YouTube
Maps
News
Prime Video
Login
Online Sqlite Comp...
Perfect eLearning -...
The Adventures of...
Web Development...
Frontend Mentor |...
Practice | Geeksfor...
All Bookmarks
aws
Services
Search
[Alt+S]
N. Virginia
Harshal Gite
Name and tags Info
Name
Jenkins
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Li
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ...read more
ami-0fc5d935ebf8bc3bc
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year
Cancel
Launch instance
Review commands
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

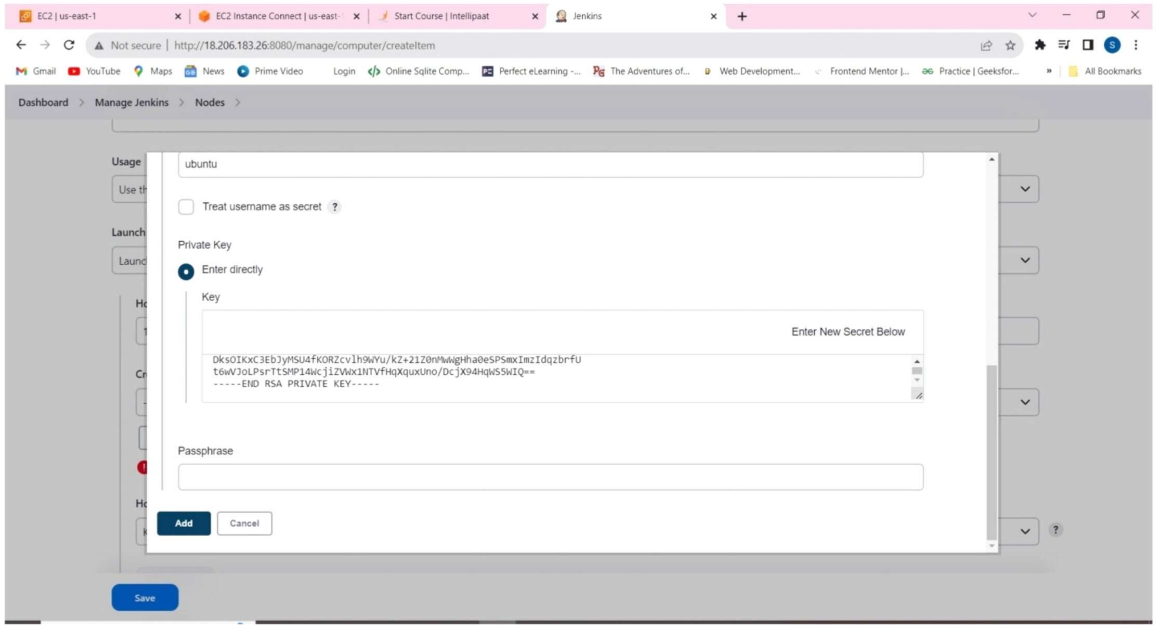

Dashboard
Manage Jenkins
Nodes
Nodes
Clouds
Build Queue
No builds in the queue.
Build Executor Status
1 Idle
2 Idle
Nodes
New Node
Node Monitoring
S
Name
Architecture
Clock Difference
Free Disk Space
Free Swap Space
Free Temp Space
Response Time
Built-In Node
Linux (amd64)
In sync
5.18 GB
0 B
5.18 GB
0ms
Data obtained
22 min
22 min
22 min
22 min
22 min
22 min
REST API
Jenkins 2.431

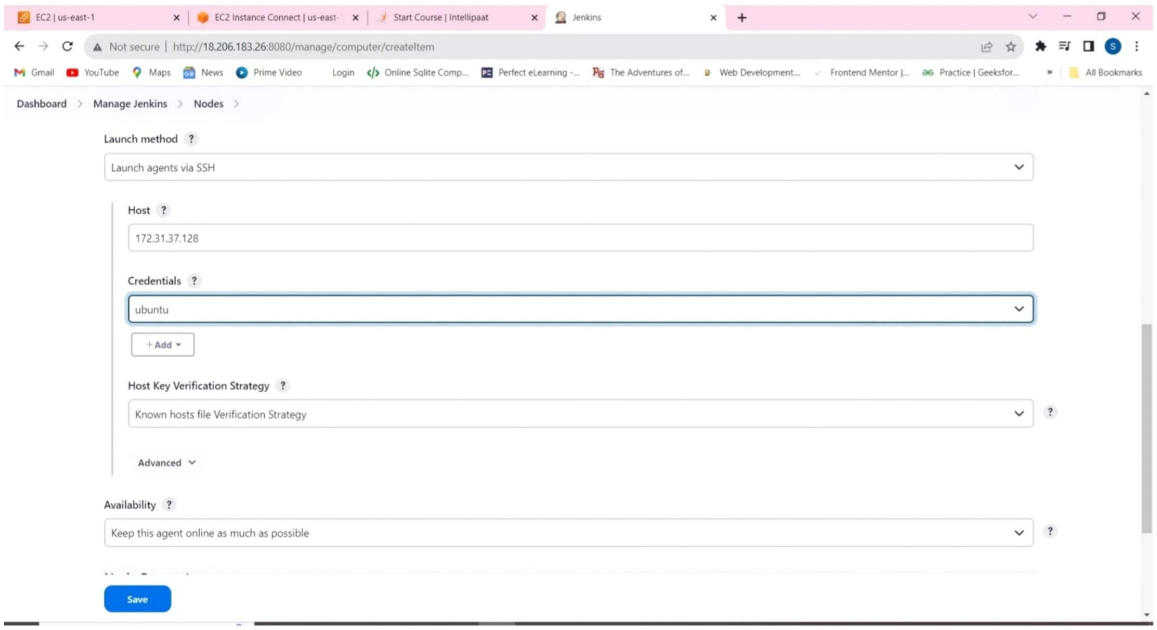

Dashboard > Manage Jenkins > Nodes > New node
New node
Node name
Type
Permanent Agent
Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.
Create
REST API
Jenkins 2.431

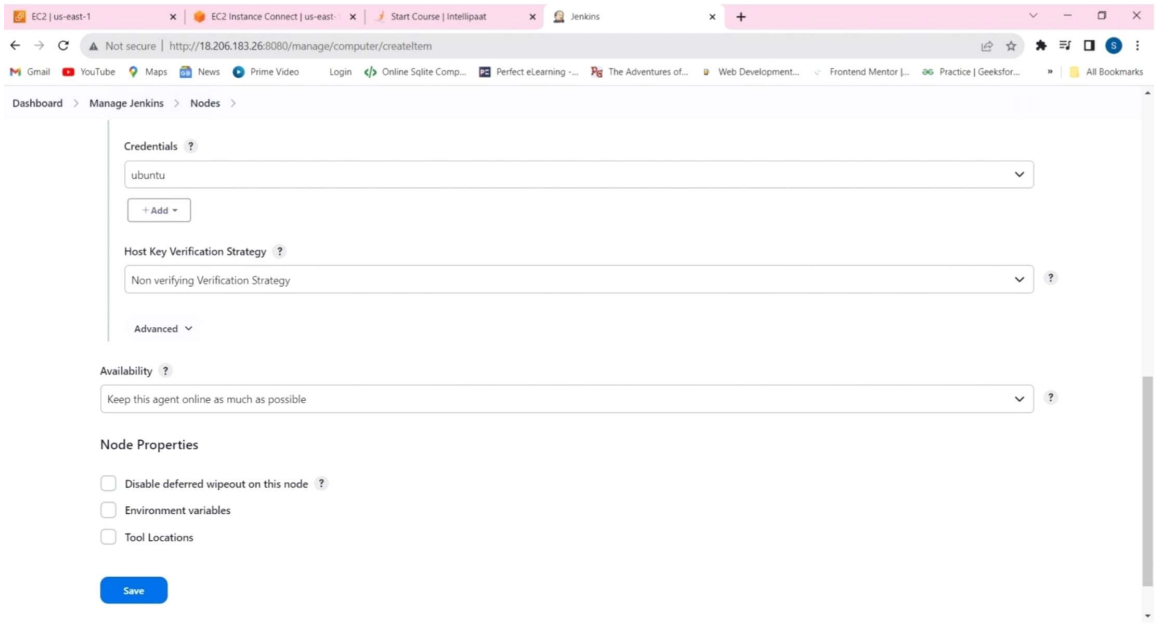

Dashboard > Manage Jenkins > Nodes > New node
New node
Node name
Slave1
Type
Permanent Agent
Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.
Create
REST API
Jenkins 2.431
EC2 | us-east-1
EC2 Instance Connect | us-east-
Start Course | Intellipaat
Jenkins

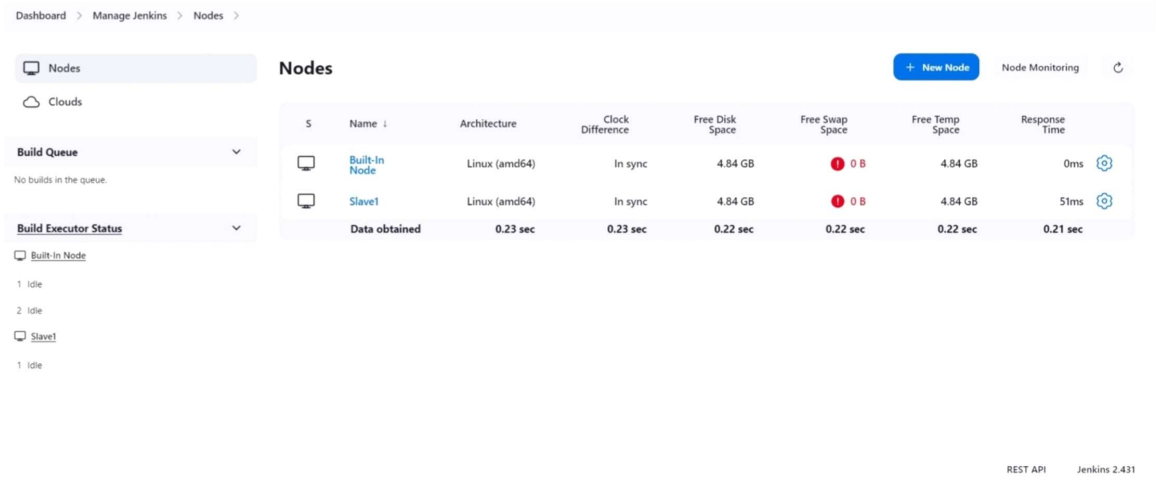
Dashboard > Manage Jenkins > Nodes >
Name
Slave1
Description
Plain text Preview
Number of executors
1
Remote root directory
/home/ubuntu/jenkins
Save

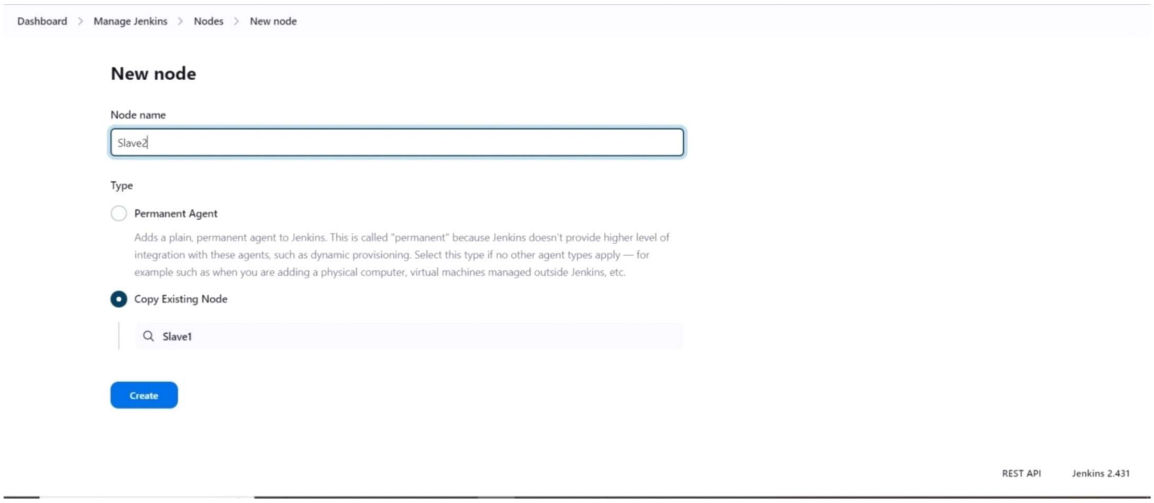

EC2 | us-east-1
EC2 Instance Connect | us-east-
Start Course | Intellipaat
Jenkins
Not secure | http://18.206.183.26:8080/manage/computer/createItem
Dashboard > Manage Jenkins > Nodes >
Jenkins Credentials Provider: Jenkins
Add Credentials
Domain
Global credentials (unrestricted)
Kind
SSH Username with private key
Scope
Global (Jenkins, nodes, items, all child items, etc)
ID
Description
Save

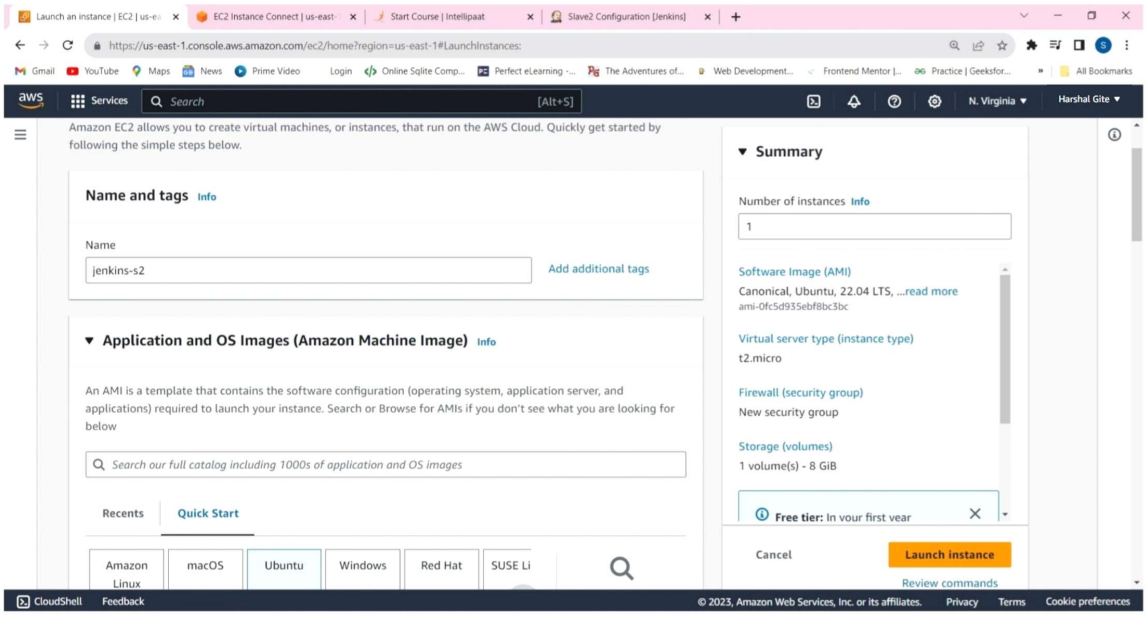

Not secure | http://18.206.183.26:8080/manage/computer/createItem
Dashboard > Manage Jenkins > Nodes >
ubuntu
Treat username as secret
Private Key
Enter directly
Key
Enter New Secret Below
DksOIKxC3EbJyMSU4fKORZcvlh9WYu/kZ+21Z0nMwWgHha0eSPSmxImzIdqzbrfU
t6wVJoLPsrTtSMP14WcjiZVWx1NTVfHqXquxUno/DcjX94HqWS5WIQ==
-----END RSA PRIVATE KEY-----
Passphrase
Add
Cancel
Save

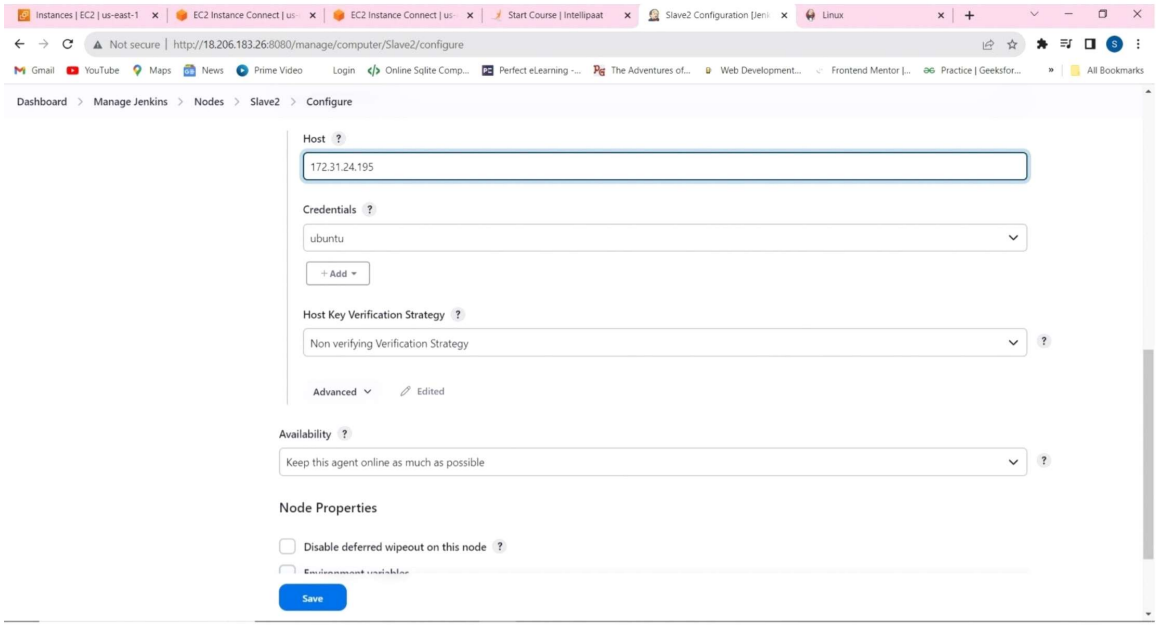

Not secure | http://18.206.183.26:8080/manage/computer/createItem
Dashboard > Manage Jenkins > Nodes >
Launch method
Launch agents via SSH
Host
172.31.37.128
Credentials
ubuntu
+ Add
Host Key Verification Strategy
Known hosts file Verification Strategy
Advanced
Availability
Keep this agent online as much as possible
Save

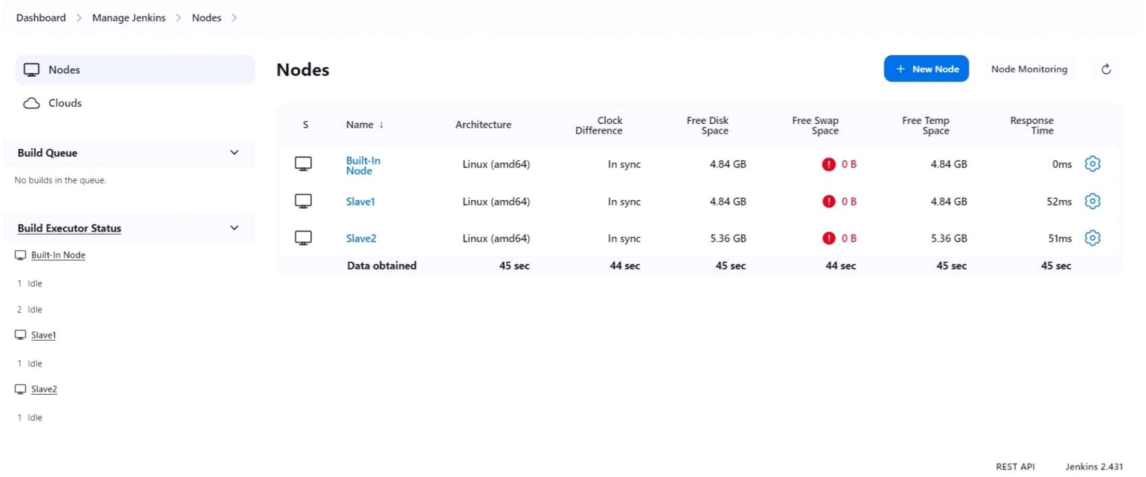

EC2 | us-east-1
EC2 Instance Connect | us-east-
Start Course | Intellipaat
Jenkins
Not secure | http://18.206.183.26:8080/manage/computer/createItem
Gmail
YouTube
Maps
News
Prime Video
Login
Online Sqlite Comp...
Perfect eLearning -...
The Adventures of...
Web Development...
Frontend Mentor |...
Practice | Geeksfor...
All Bookmarks
Dashboard > Manage Jenkins > Nodes >
Credentials
ubuntu
+ Add
Host Key Verification Strategy
Non verifying Verification Strategy
Advanced
Availability
Keep this agent online as much as possible
Node Properties
Disable deferred wipeout on this node
Environment variables
Tool Locations
Save

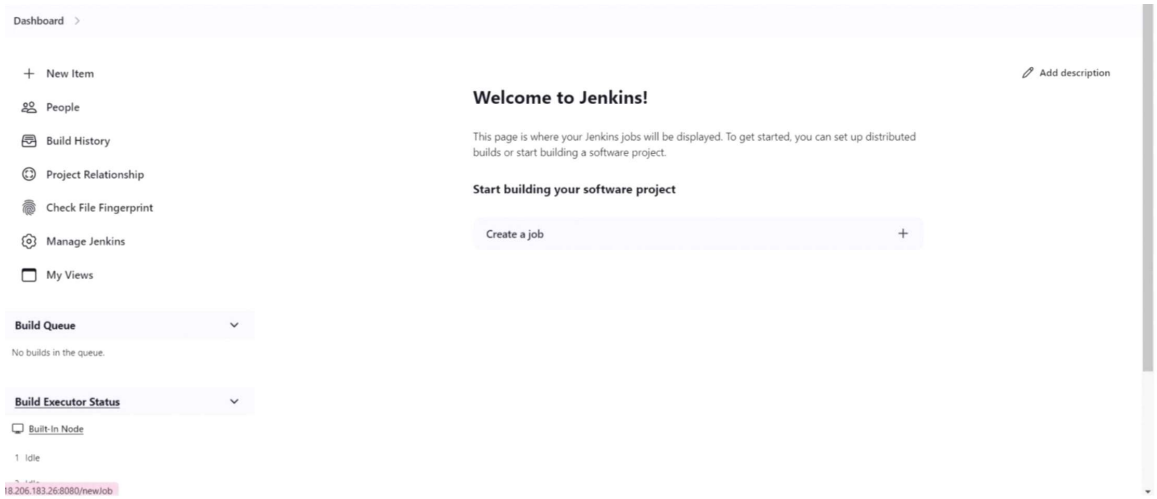

Dashboard > Manage Jenkins > Nodes >
Nodes
Clouds
Build Queue
No builds in the queue.
Build Executor Status
Built-In Node
1 Idle
2 Idle
Slave1
1 Idle
Nodes
+ New Node
Node Monitoring
S
Name
Architecture
Clock Difference
Free Disk Space
Free Swap Space
Free Temp Space
Response Time
Built-In Node
Linux (amd64)
In sync
4.84 GB
0 B
4.84 GB
0ms
Slave1
Linux (amd64)
In sync
4.84 GB
0 B
4.84 GB
51ms
Data obtained
0.23 sec
0.23 sec
0.22 sec
0.22 sec
0.22 sec
0.21 sec
REST API
Jenkins 2.431

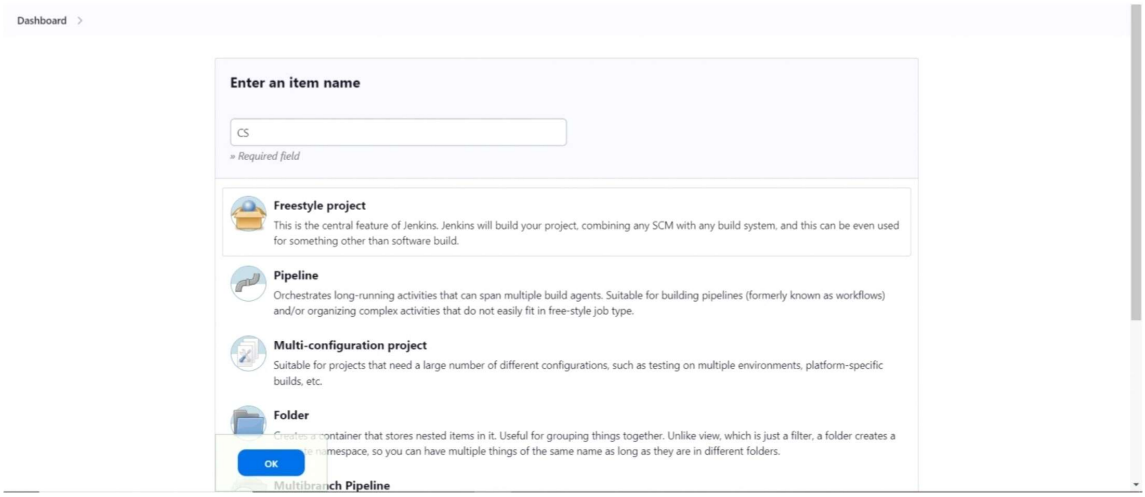

Dashboard > Manage Jenkins > Nodes > New node
New node
Node name
Slave2
Type
Permanent Agent
Adds a plain, permanent agent to Jenkins. This is called "permanent" because Jenkins doesn't provide higher level of integration with these agents, such as dynamic provisioning. Select this type if no other agent types apply — for example such as when you are adding a physical computer, virtual machines managed outside Jenkins, etc.
Copy Existing Node
Slave1
Create
REST API
Jenkins 2.431

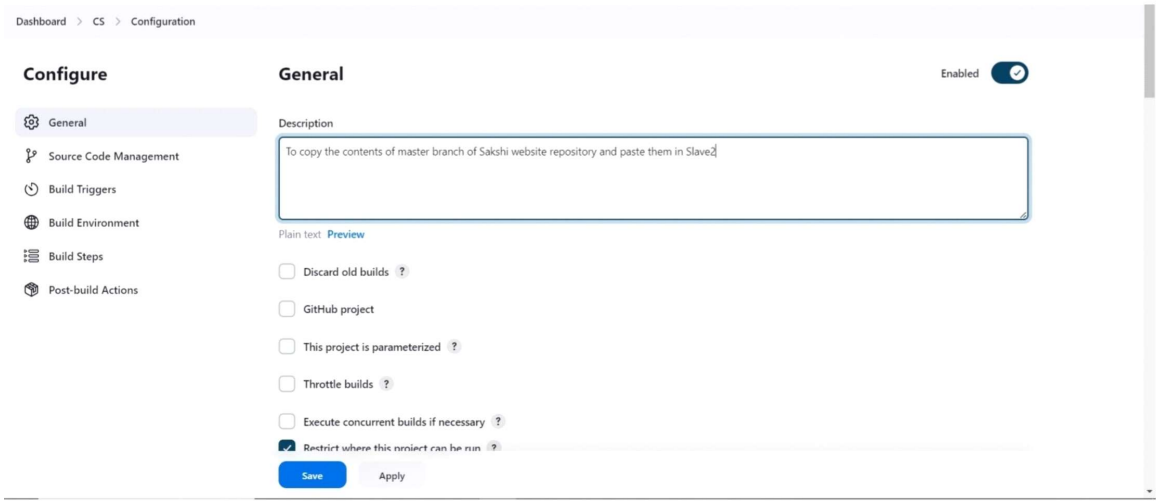

Launch an instance | EC2 | us-ea
EC2 Instance Connect | us-east-
Start Course | Intellipaat
Slave2 Configuration [Jenkins]
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:
Gmail
YouTube
Maps
News
Prime Video
Login
Online Sqlite Comp...
Perfect eLearning -...
The Adventures of...
Web Development...
Frontend Mentor |...
Practice | Geeksfor...
All Bookmarks
aws
Services
Search
[Alt+S]
N. Virginia
Harshal Gite
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Name
jenkins-s2
Add additional tags
Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Recents
Quick Start
Amazon Linux
macOS
Ubuntu
Windows
Red Hat
SUSE Li
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ...read more
ami-0fc5d935ebf8bc3bc
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Free tier: In your first year
Cancel
Launch instance
Review commands
CloudShell
Feedback
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

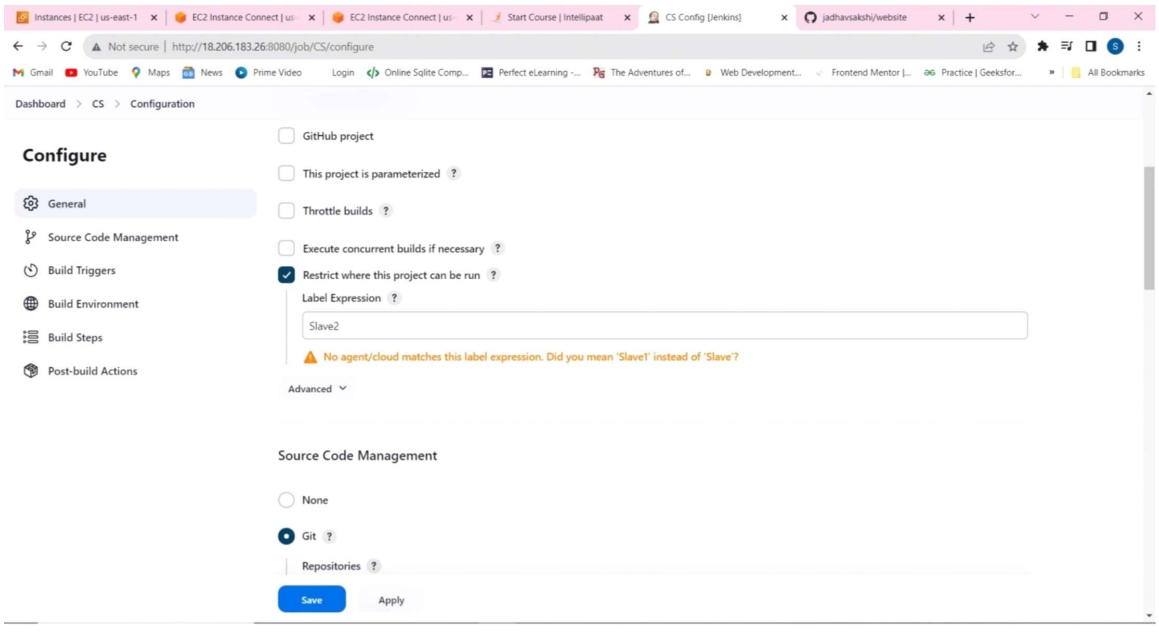

Dashboard > Manage Jenkins > Nodes > Slave2 > Configure
Host
172.31.24.195
Credentials
ubuntu
+ Add
Host Key Verification Strategy
Non verifying Verification Strategy
Advanced
Edited
Availability
Keep this agent online as much as possible
Node Properties
Disable deferred wipeout on this node
Save

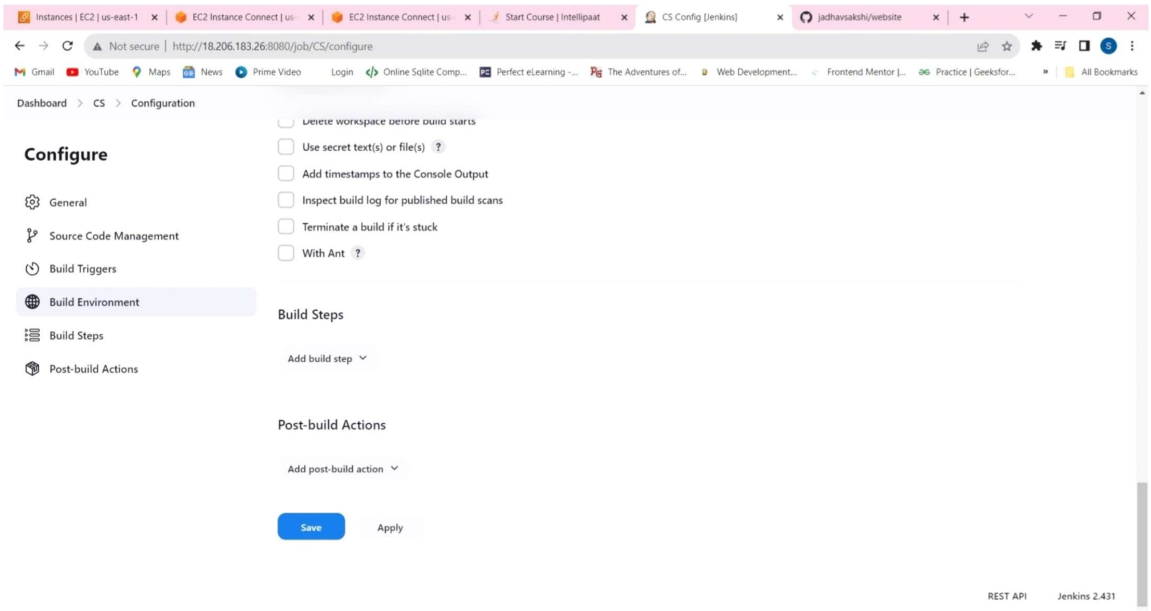

Dashboard > Manage Jenkins > Nodes >
Nodes
Clouds
Build Queue
No builds in the queue.
Build Executor Status
Built-In Node
1 Idle
2 Idle
Slave1
1 Idle
Slave2
1 Idle
Nodes
+ New Node
Node Monitoring
S
Name
Architecture
Clock Difference
Free Disk Space
Free Swap Space
Free Temp Space
Response Time
Built-In Node
Linux (amd64)
In sync
4.84 GB
0 B
4.84 GB
0ms
Slave1
Linux (amd64)
In sync
4.84 GB
0 B
4.84 GB
52ms
Slave2
Linux (amd64)
In sync
5.36 GB
0 B
5.36 GB
51ms
Data obtained
45 sec
44 sec
45 sec
44 sec
45 sec
45 sec
REST API
Jenkins 2.431

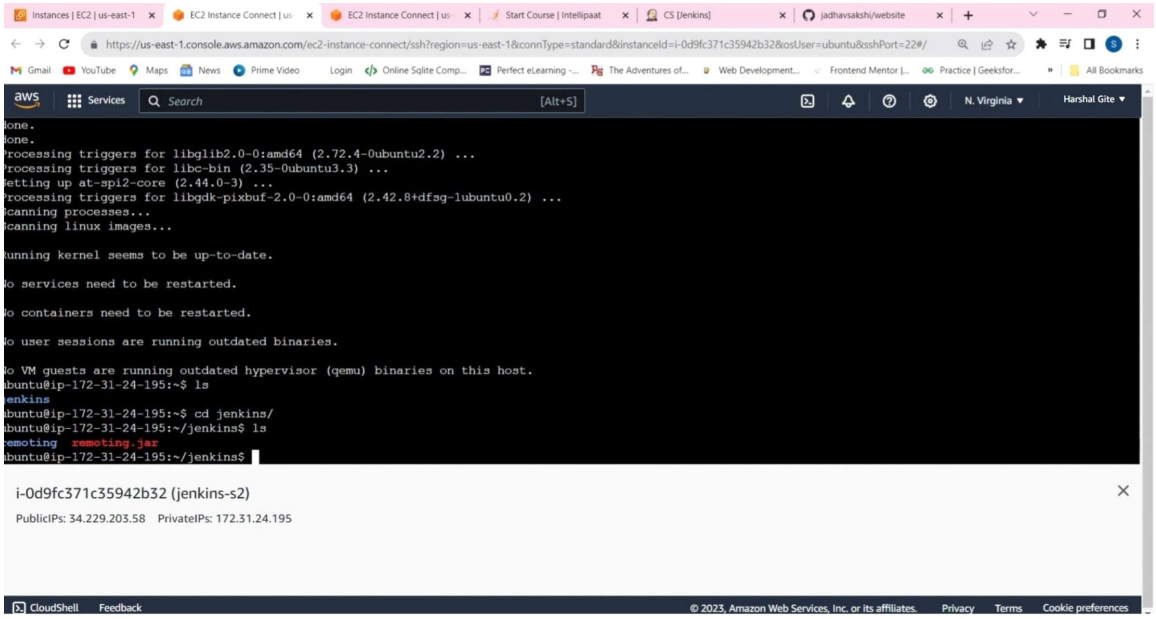

Dashboard
New Item
People
Build History
Project Relationship
Check File Fingerprint
Manage Jenkins
My Views
Build Queue
No builds in the queue.
Build Executor Status
Built-In Node
1 Idle
18.206.183.26:8080/newJob
Add description
Welcome to Jenkins!
This page is where your Jenkins jobs will be displayed. To get started, you can set up distributed builds or start building a software project.
Start building your software project
Create a job


Dashboard
Enter an item name
CS
» Required field
Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.
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
OK


Dashboard > CS > Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
General
Enabled
Description
To copy the contents of master branch of Sakshi website repository and paste them in Slave2
Plain text Preview
Discard old builds
GitHub project
This project is parameterized
Throttle builds
Execute concurrent builds if necessary
Save
Apply


Not secure | http://18.206.183.26:8080/job/CS/configure
Dashboard > CS > Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
GitHub project
This project is parameterized
Throttle builds
Execute concurrent builds if necessary
Restrict where this project can be run
Label Expression
Slave2
No agent/cloud matches this label expression. Did you mean 'Slave1' instead of 'Slave'?
Advanced
Source Code Management
None
Git
Repositories
Save
Apply


Dashboard > CS > Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
Use secret text(s) or file(s)
Add timestamps to the Console Output
Inspect build log for published build scans
Terminate a build if it's stuck
With Ant
Build Steps
Add build step
Post-build Actions
Add post-build action
Save
Apply
REST API
Jenkins 2.431


Processing triggers for libglib2.0-0:amd64 (2.72.4-0ubuntu2.2) ...
Processing triggers for libc-bin (2.35-0ubuntu3.3) ...
Setting up at-spi2-core (2.44.0-3) ...
Processing triggers for libgdk-pixbuf-2.0-0:amd64 (2.42.8+dfsg-1ubuntu0.2) ...
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-24-195:~$ ls
jenkins
ubuntu@ip-172-31-24-195:~$ cd jenkins/
ubuntu@ip-172-31-24-195:~/jenkins$ ls
remoting remoting.jar
ubuntu@ip-172-31-24-195:~/jenkins$
i-0d9fc371c35942b32 (jenkins-s2)
PublicIPs: 34.229.203.58 PrivateIPs: 172.31.24.195
CloudShell Feedback
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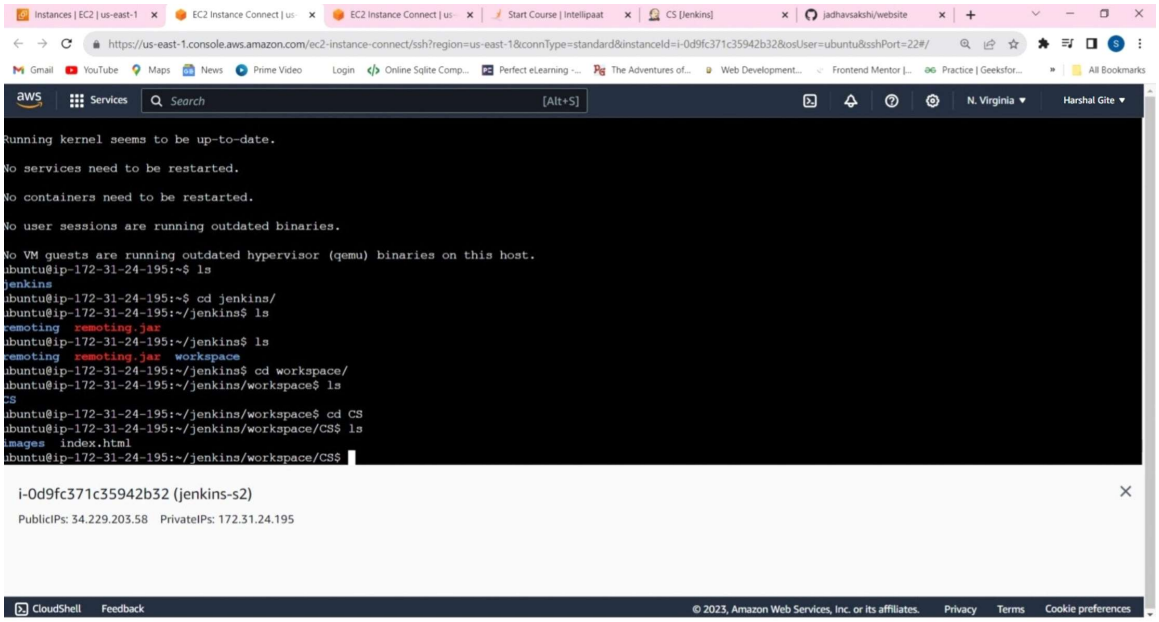
Running kernel seems to be up-to-date.
No services need to be restarted.
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No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-24-195:~$ ls
jenkins
ubuntu@ip-172-31-24-195:~$ cd jenkins/
ubuntu@ip-172-31-24-195:~/jenkins$ ls
remoting remoting.jar
ubuntu@ip-172-31-24-195:~/jenkins$ ls
remoting remoting.jar workspace
ubuntu@ip-172-31-24-195:~/jenkins$ cd workspace/
ubuntu@ip-172-31-24-195:~/jenkins/workspace$ ls
CS
ubuntu@ip-172-31-24-195:~/jenkins/workspace$ cd CS
ubuntu@ip-172-31-24-195:~/jenkins/workspace/CS$ ls
images index.html
ubuntu@ip-172-31-24-195:~/jenkins/workspace/CS$
i-0d9fc371c35942b32 (jenkins-s2)
PublicIPs: 34.229.203.58 PrivateIPs: 172.31.24.195
CloudShell Feedback
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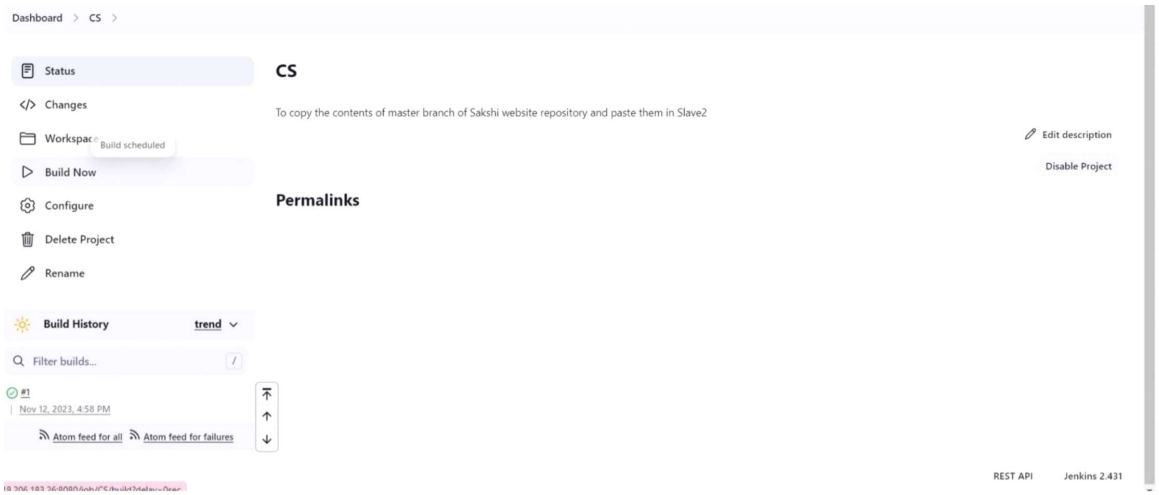
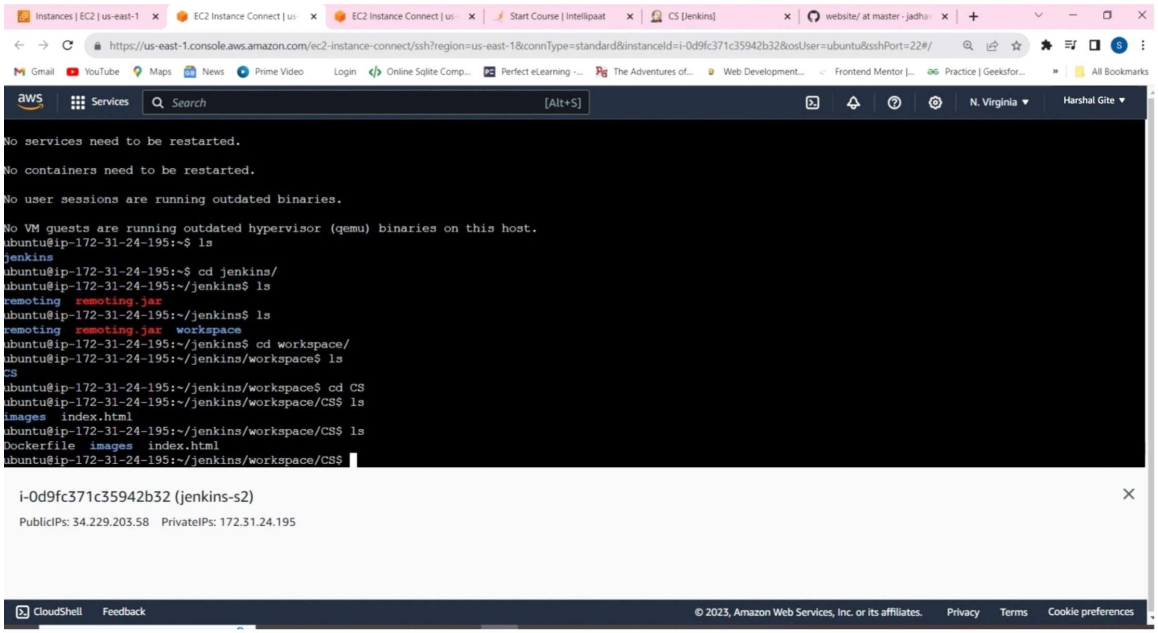

Dashboard > CS >
Status
Changes
Workspace
Build scheduled
Build Now
Configure
Delete Project
Rename
Build History trend
Filter builds...
#1
Nov 12, 2023, 4:58 PM
Atom feed for all
Atom feed for failures
CS
To copy the contents of master branch of Sakshi website repository and paste them in Slave2
Edit description
Disable Project
Permalinks
REST API
Jenkins 2.431


No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-24-195:~$ ls
jenkins
ubuntu@ip-172-31-24-195:~$ cd jenkins/
ubuntu@ip-172-31-24-195:~/jenkins$ ls
remoting remoting.jar
ubuntu@ip-172-31-24-195:~/jenkins$ ls
remoting remoting.jar workspace
ubuntu@ip-172-31-24-195:~/jenkins$ cd workspace/
ubuntu@ip-172-31-24-195:~/jenkins/workspace$ ls
CS
ubuntu@ip-172-31-24-195:~/jenkins/workspace$ cd CS
ubuntu@ip-172-31-24-195:~/jenkins/workspace/CS$ ls
images index.html
ubuntu@ip-172-31-24-195:~/jenkins/workspace/CS$ ls
Dockerfile images index.html
ubuntu@ip-172-31-24-195:~/jenkins/workspace/CS$
i-0d9fc371c35942b32 (jenkins-s2)
PublicIPs: 34.229.203.58 PrivateIPs: 172.31.24.195
CloudShell Feedback
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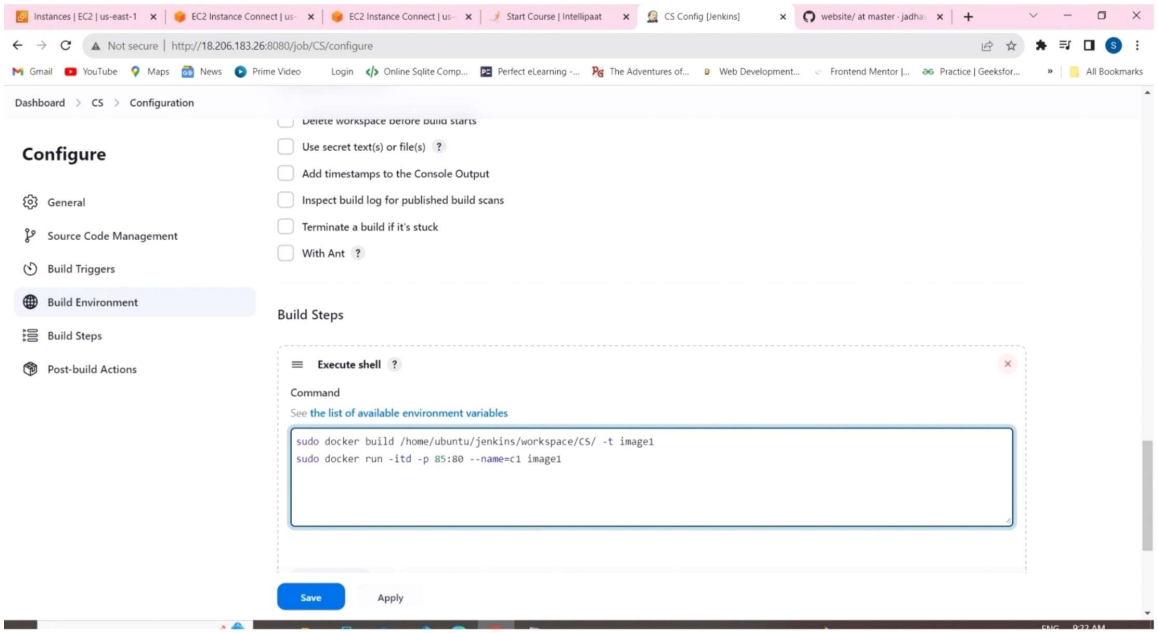
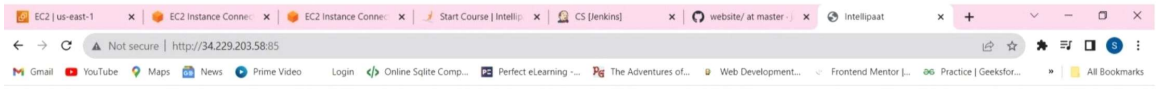
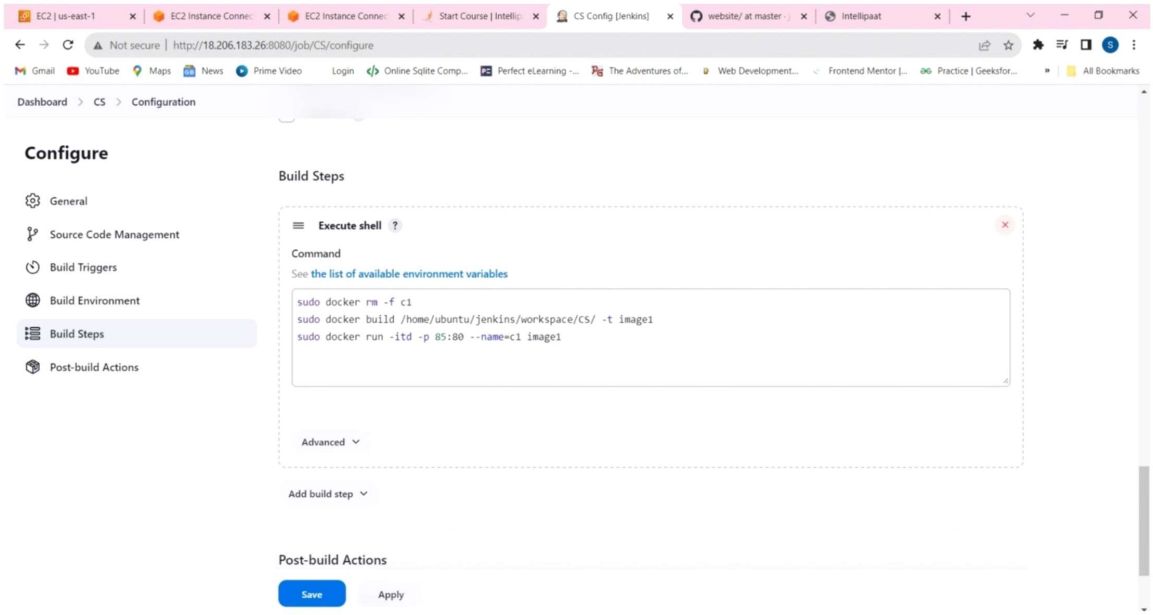
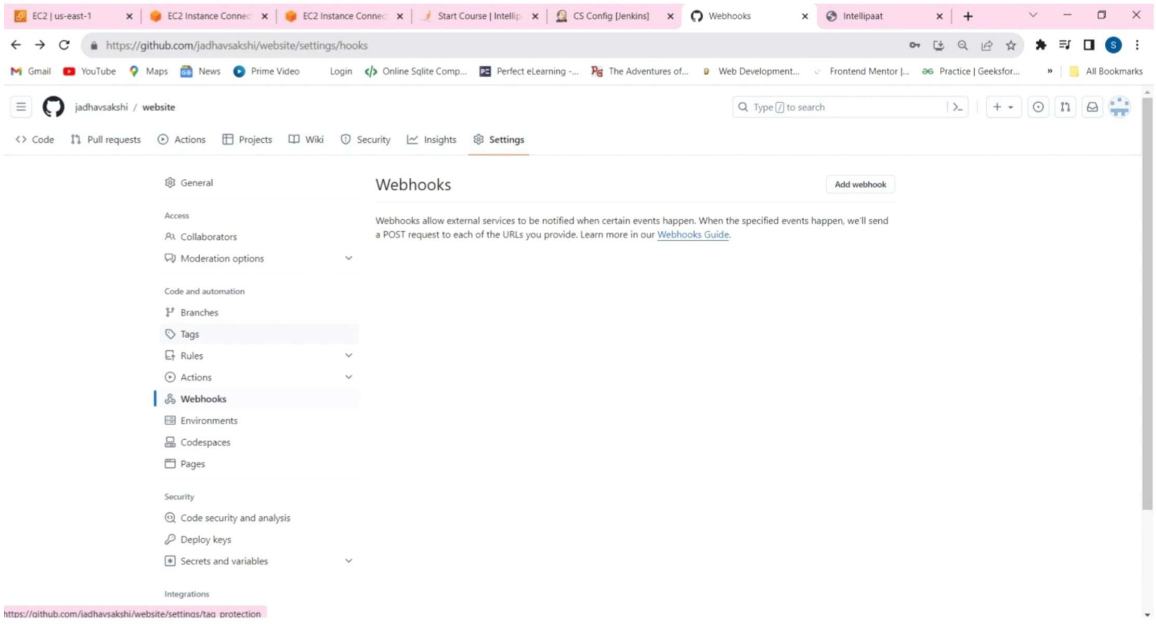
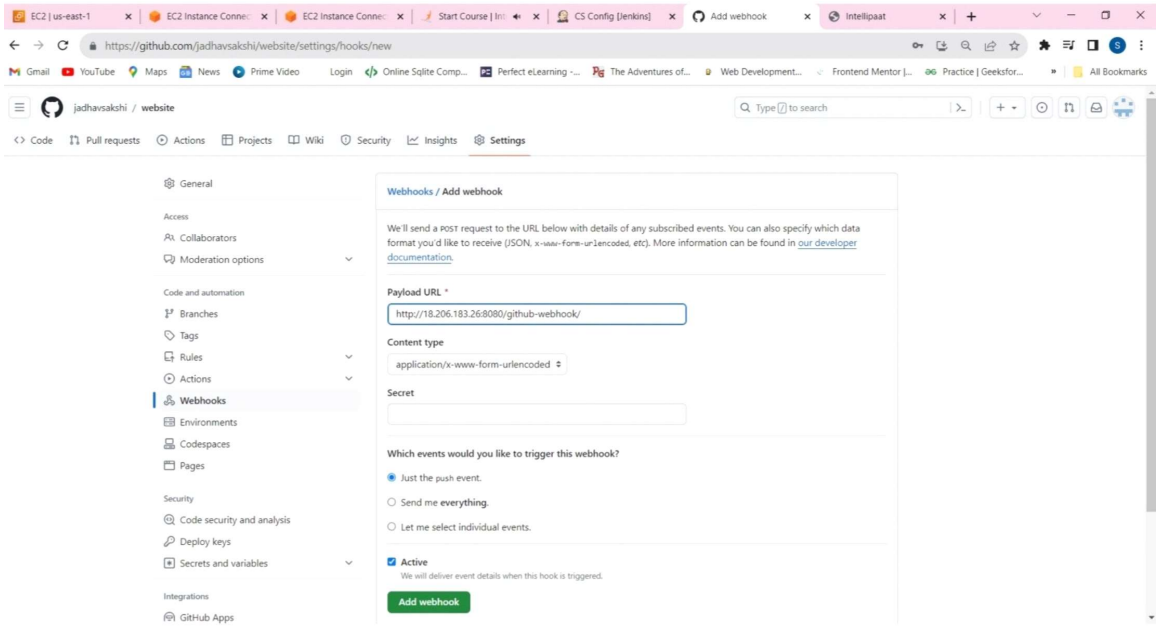

Dashboard > CS > Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
Use secret text(s) or file(s)
Add timestamps to the Console Output
Inspect build log for published build scans
Terminate a build if it's stuck
With Ant
Build Steps
Execute shell
Command
See the list of available environment variables
sudo docker build /home/ubuntu/jenkins/workspace/CS/ -t image1
sudo docker run -itd -p 85:80 --name=c1 image1
Save
Apply

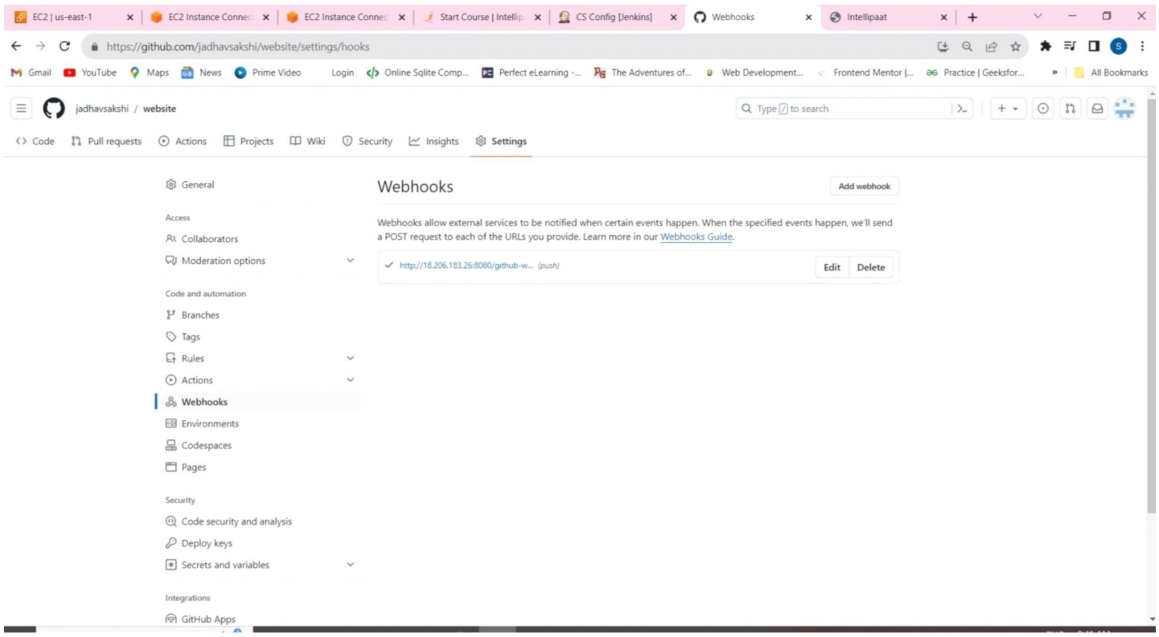

Not secure | http://34.229.203.58:85
Hello world!

GitHub


Not secure | http://18.206.183.26:8080/job/CS/configure
Dashboard > CS > Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
Build Steps
Execute shell
Command
See the list of available environment variables
sudo docker rm -f c1
sudo docker build /home/ubuntu/jenkins/workspace/CS/ -t image1
sudo docker run -itd -p 85:80 --name=c1 image1
Advanced
Add build step
Post-build Actions
Save
Apply


https://github.com/jadhavsakshi/website/settings/hooks
jadhavsakshi / website
Code
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
General
Access
Collaborators
Moderation options
Code and automation
Branches
Tags
Rules
Actions
Webhooks
Environments
Codespaces
Pages
Security
Code security and analysis
Deploy keys
Secrets and variables
Integrations
Webhooks
Add webhook
Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.


https://github.com/jadhavsakshi/website/settings/hooks/new
jadhavsakshi / website
Webhooks / Add webhook
We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in our developer documentation.
Payload URL *
http://18.206.183.26:8080/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.
Add webhook
GitHub Apps


https://github.com/jadhavsakshi/website/settings/hooks
jadhavsakshi / website
Code
Pull requests
Actions
Projects
Wiki
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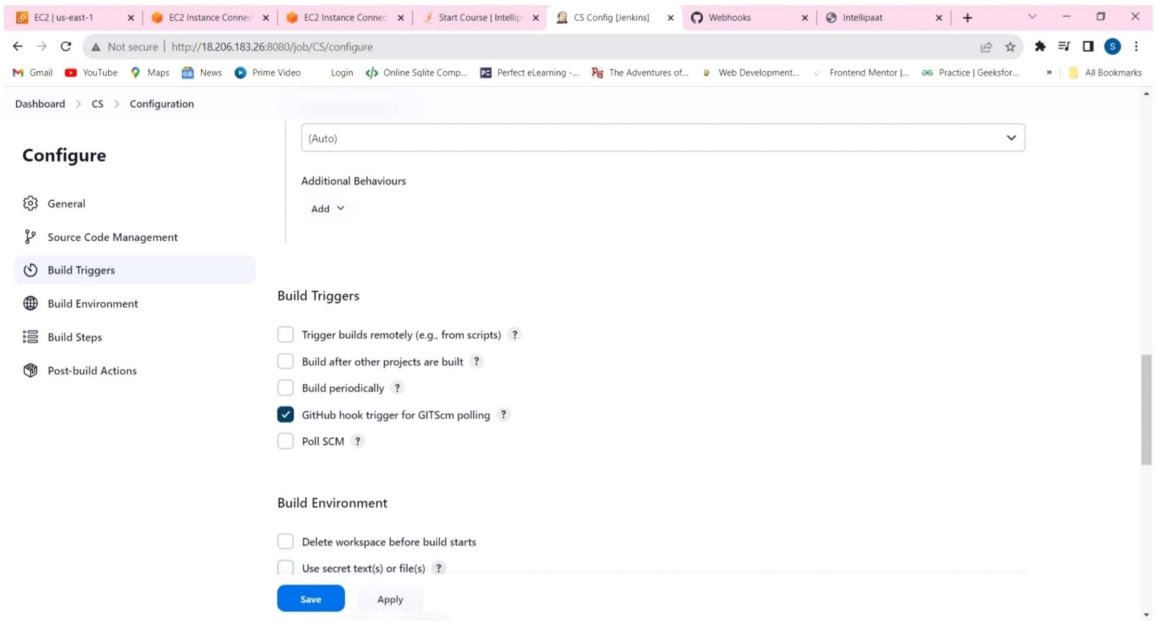
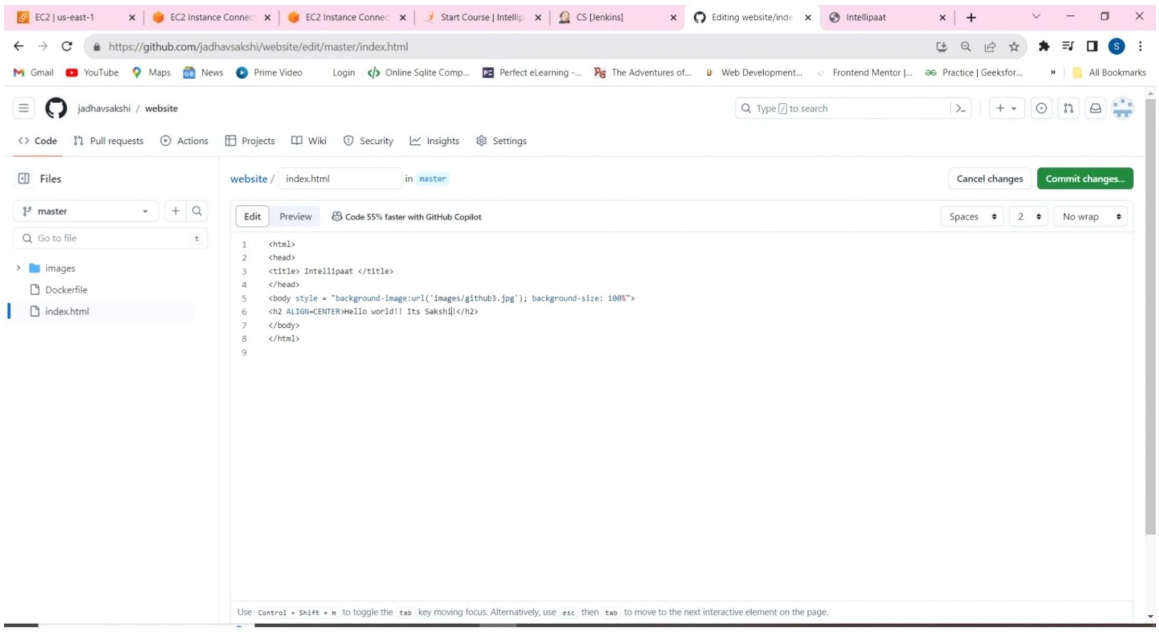
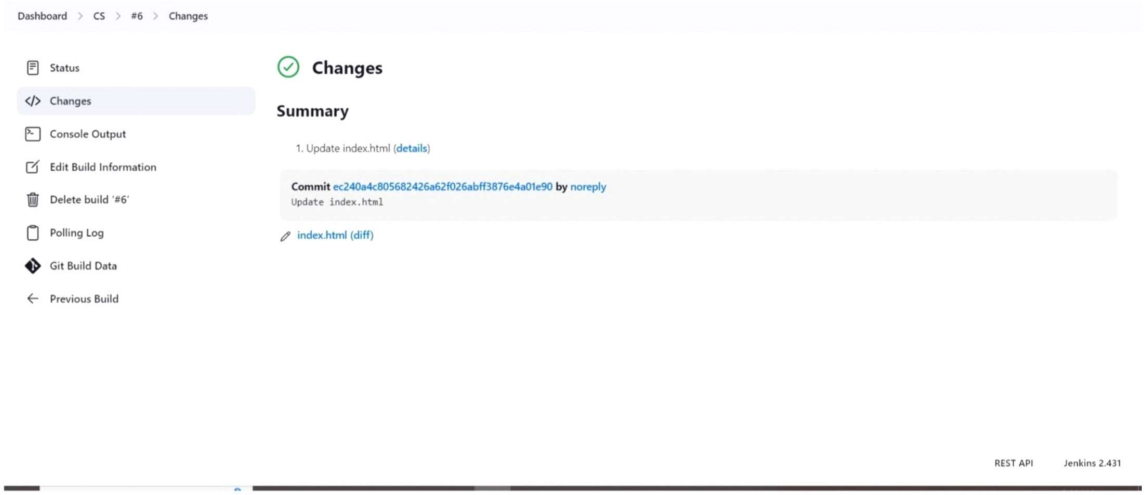
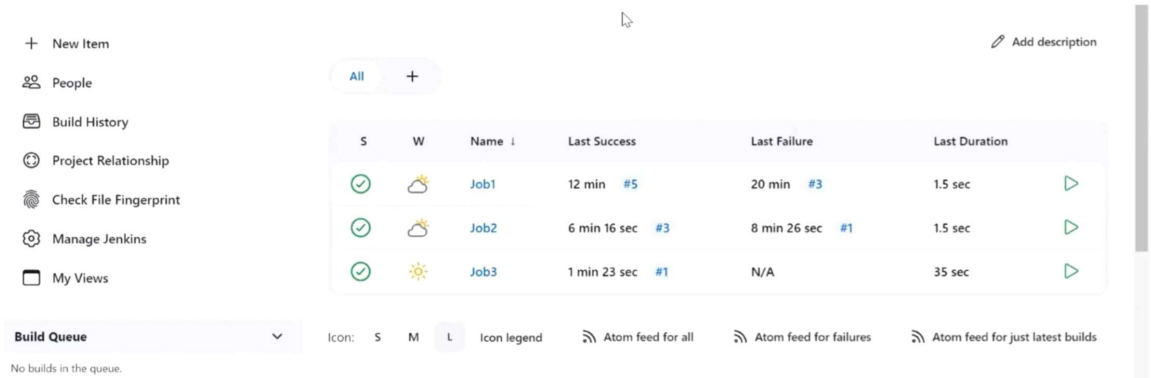
Code security and analysis
Deploy keys
Secrets and variables
Integrations
GitHub Apps
Webhooks
Add webhook
Webhooks allow external services to be notified when certain events happen. When the specified events happen, we'll send a POST request to each of the URLs you provide. Learn more in our Webhooks Guide.
Edit
Delete


Not secure | http://18.206.183.26:8080/job/CS/configure
Dashboard > CS > Configuration
Configure
General
Source Code Management
Build Triggers
Build Environment
Build Steps
Post-build Actions
(Auto)
Additional Behaviours
Add
Build Triggers
Trigger builds remotely (e.g., from scripts)
Build after other projects are built
Build periodically
GitHub hook trigger for GITScm polling
Poll SCM
Build Environment
Delete workspace before build starts
Use secret text(s) or file(s)
Save
Apply


https://github.com/jadhavsakshi/website/edit/master/index.html
jadhavsakshi / website
Code
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
Files
website / index.html in master
Cancel changes
Commit changes...
Edit
Preview
Code 55% faster with GitHub Copilot
Spaces
No wrap
master
Go to file
images
Dockerfile
index.html
<html>
<head>
<title> Intellipaat </title>
</head>
<body style = "background-image:url('images/github3.jpg'); background-size: 100%">
<h2 ALIGN=CENTER>Hello world!! Its Saksh</h2>
</body>
</html>


Dashboard > CS > #6 > Changes
Status
Changes
Console Output
Edit Build Information
Delete build '#6'
Polling Log
Git Build Data
Previous Build
Changes
Summary
1. Update index.html (details)
Commit ec240a4c805682426a62f026abff3876e4a01e90 by noreply
Update index.html
index.html (diff)
REST API
Jenkins 2.431


New Item
People
Build History
Project Relationship
Check File Fingerprint
Manage Jenkins
My Views
Add description
All
S
W
Name
Last Success
Last Failure
Last Duration
Job1
12 min #5
20 min #3
1.5 sec
Job2
6 min 16 sec #3
8 min 26 sec #1
1.5 sec
Job3
1 min 23 sec #1
N/A
35 sec
Build Queue
No builds in the queue.
Icon: S M L
Icon legend
Atom feed for all
Atom feed for failures
Atom feed for just latest builds