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Jenkins With AWS

Problem statement

Create an Amazon EC2 Instances with the following parameters,

- Region: N. Virginia (us-east-1)
- Name: Ubuntu-VM-Server
- Add additional tags: Instances, Volumes, Network Interfaces
- AMI: Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
- Architecture: 64-bit (x86)
- Instance Type: t2.micro
- Key pair: Create new key pair
- VPC: Default VPC
- Security Group: Create security group
- Security group name: Ubuntu-VM-Server
- Inbound rule: Allow SSH, HTTP and 8080 Port
- Source: 0.0.0.0/0
- Disk Size: 30 GB
- Volume Type: General Purpose SSD (gp2)
- Number of instances: 1
- Install Jenkins in Ubuntu-VM-Server
- Run Jenkins on 8080 Port
- Visit http://<your-ec2-ip-address>:<port-specified> and ensure that Jenkins is running successful.

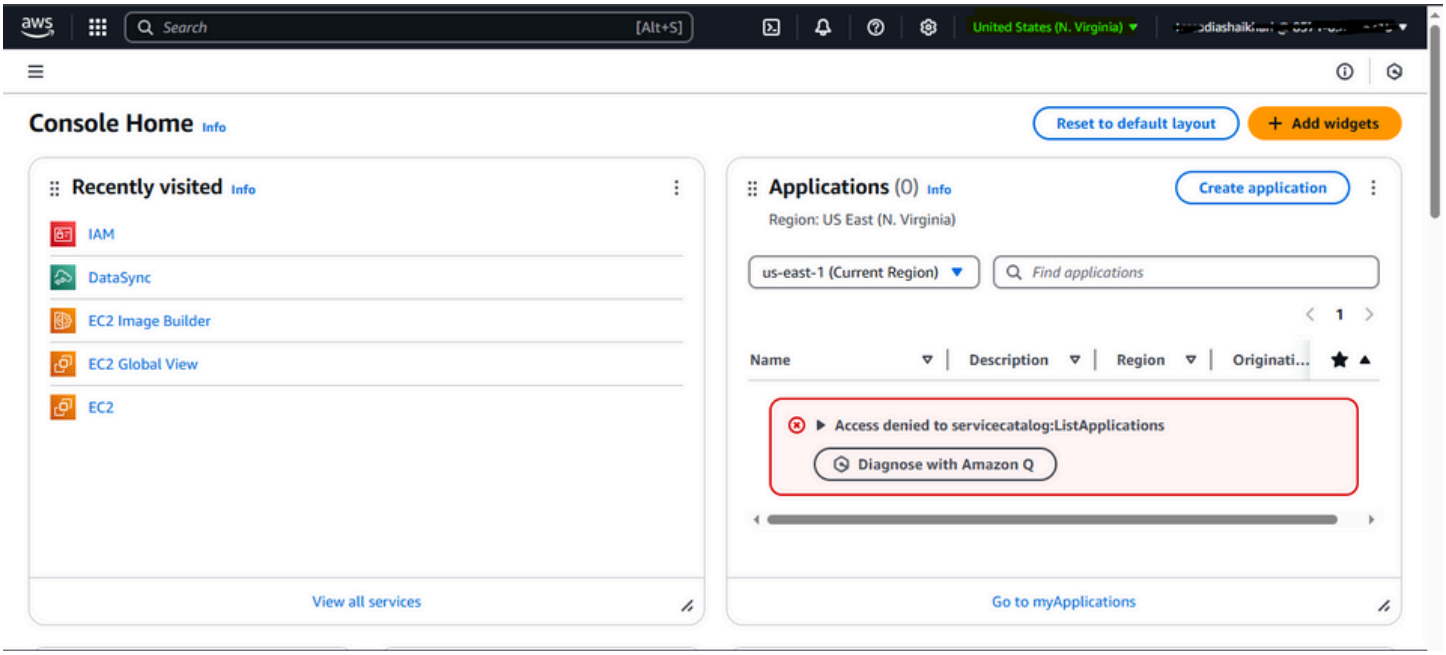
Execute the following job in Jenkins running on the created EC2 instance:

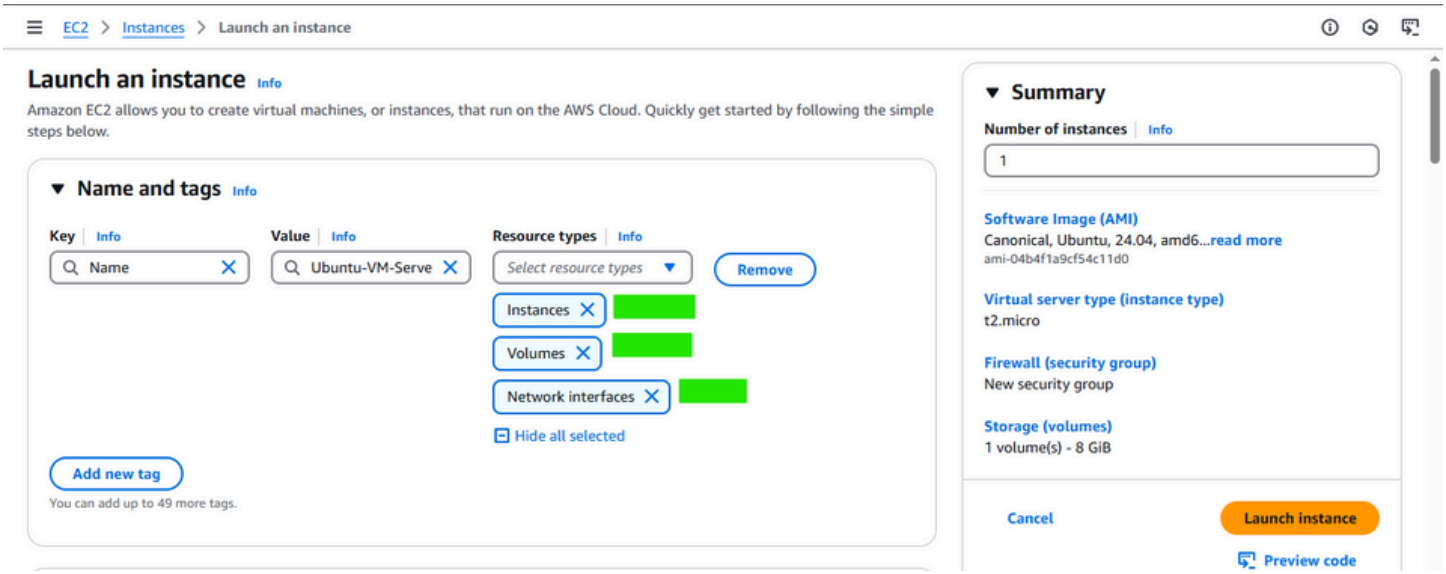
- Login to Jenkins with username as **admin** and fetch password from the path:
- **sudo cat /var/lib/jenkins/secrets/initialAdminPassword**
- Install suggested plugins and Continue as admin user.
- Create a job named **DemoProject** in Jenkins.
- In the Add build step, select Execute shell and write the below code into it.

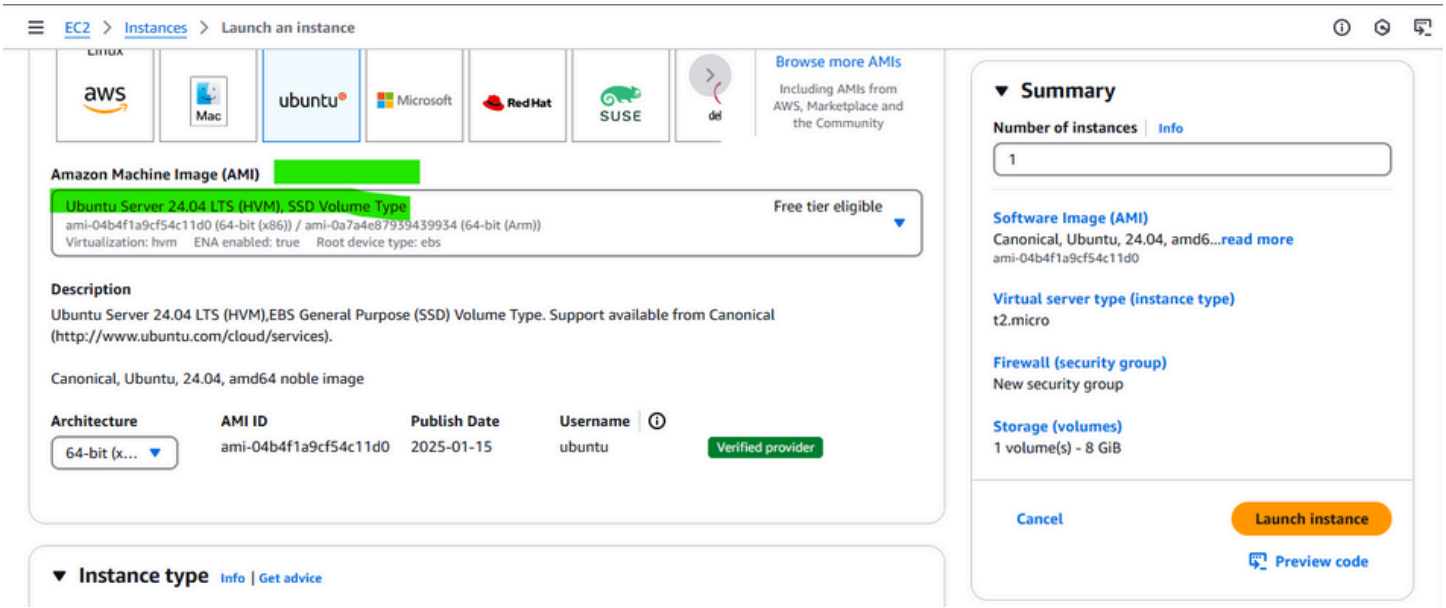
```
#!/bin/sh

echo "The Demo Project was successfully run on Jenkins Environment!"

exit 0
```

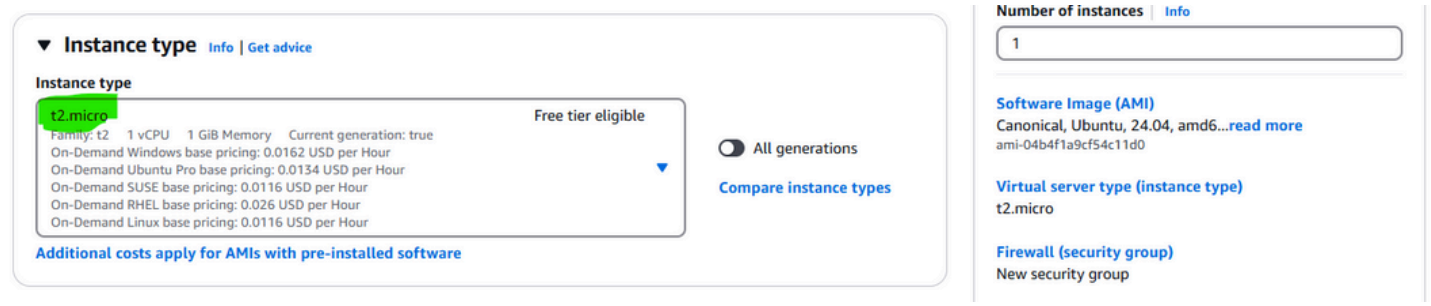
- Apply the changes and build your job. Once done, check your result in the console output of your build.
- Connect to the VM from the local machine through the SSH connection.

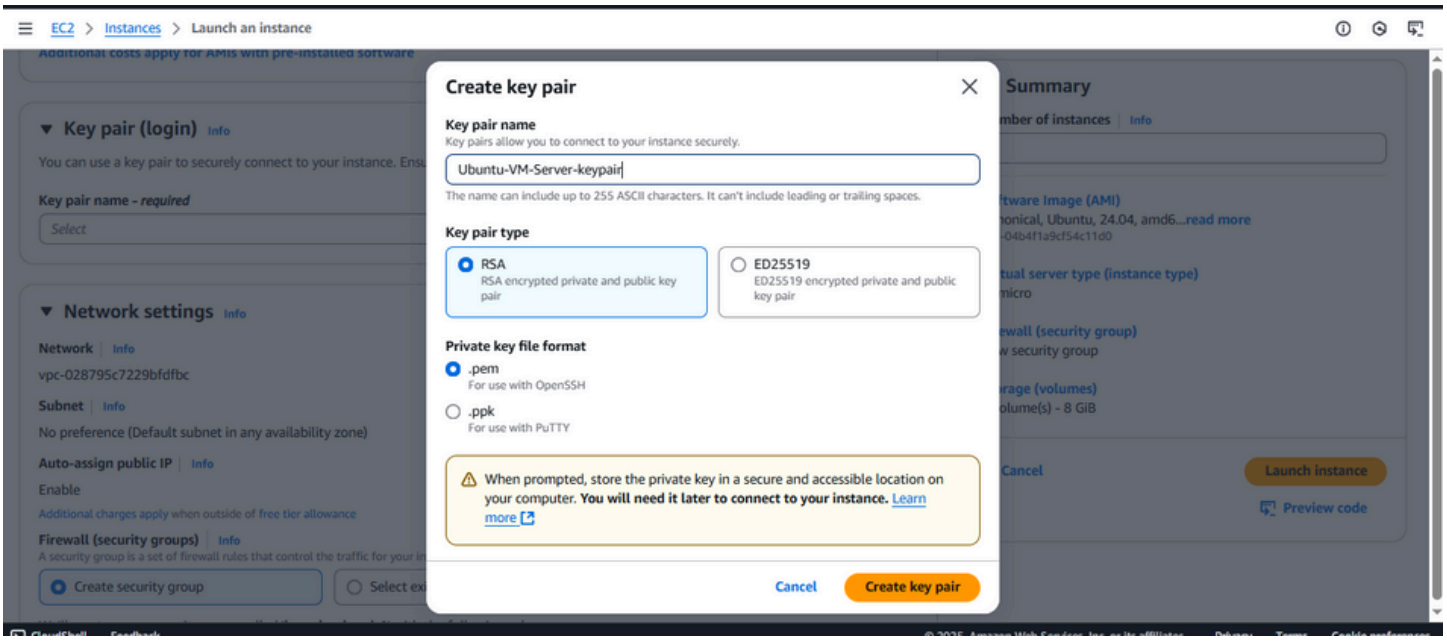
All Steps are given Below:

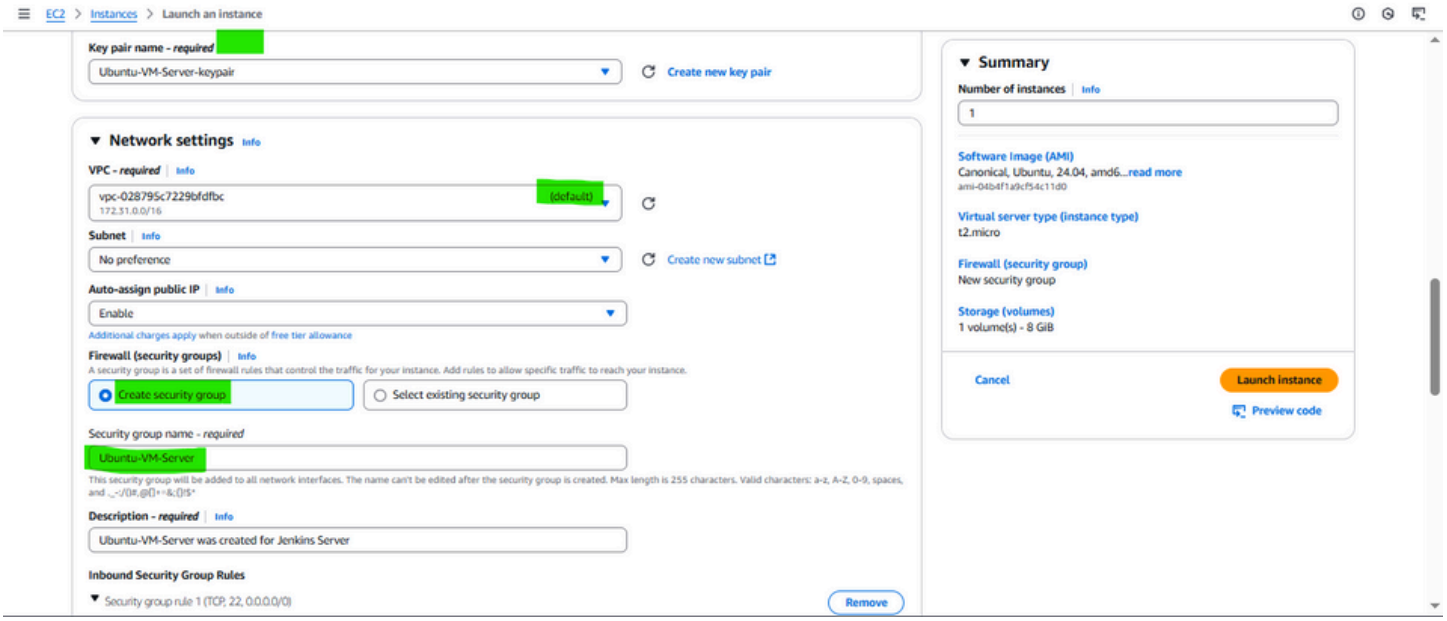

Search [Alt+S]
United States (N. Virginia)
Console Home Info
Reset to default layout
+ Add widgets
Recently visited Info
IAM
DataSync
EC2 Image Builder
EC2 Global View
EC2
View all services
Applications (0) Info
Create application
Region: US East (N. Virginia)
us-east-1 (Current Region)
Find applications
Name
Description
Region
Originati...
Access denied to servicecatalog:ListApplications
Diagnose with Amazon Q
Go to myApplications

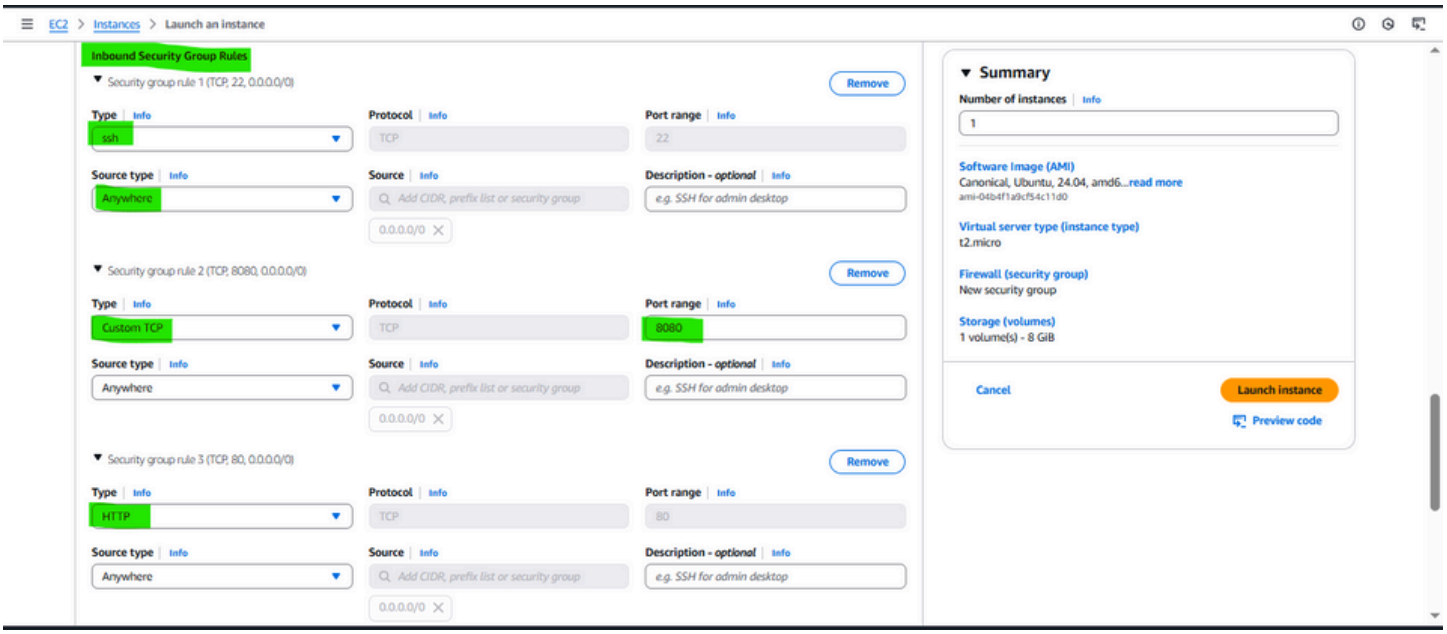

EC2 > Instances > Launch an instance
Launch an instance Info
Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.
Name and tags Info
Key Info
Value Info
Resource types Info
Name
Ubuntu-VM-Serve
Select resource types
Remove
Instances
Volumes
Network interfaces
Hide all selected
Add new tag
You can add up to 49 more tags.
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-04b4f1a9cf54c11d0
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code

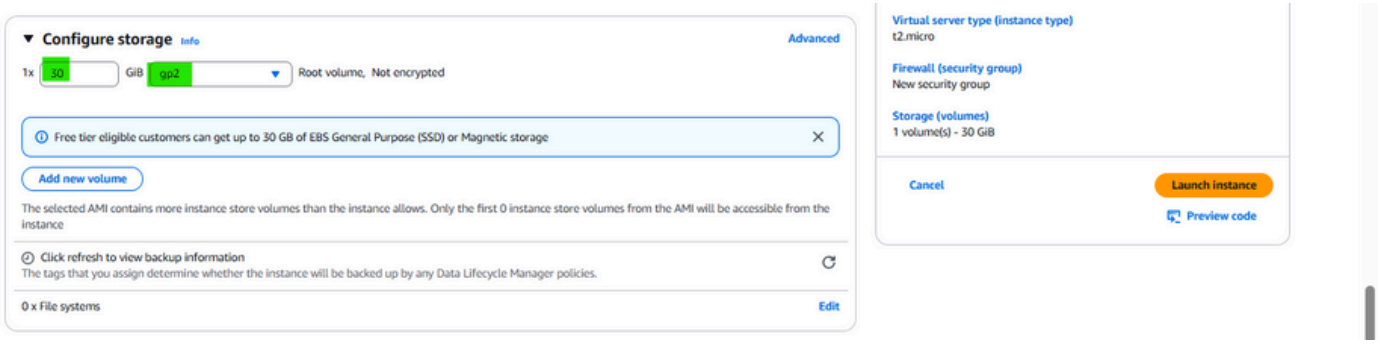

EC2 > Instances > Launch an instance
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-04b4f1a9cf54c11d0 (64-bit (x86)) / ami-0a7a4e87939439934 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs
Free tier eligible
Description
Ubuntu Server 24.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Canonical, Ubuntu, 24.04, amd64 noble image
Architecture
AMI ID
Publish Date
Username
64-bit (x...
ami-04b4f1a9cf54c11d0
2025-01-15
ubuntu
Verified provider
Instance type Info | Get advice
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-04b4f1a9cf54c11d0
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code

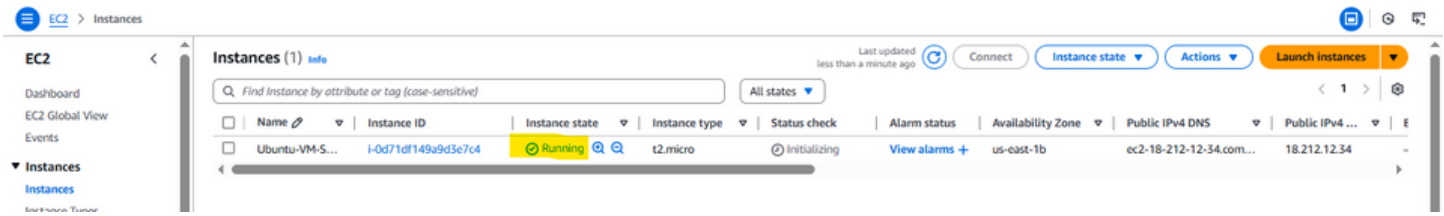

Instance type Info | Get advice
Instance type
t2.micro
Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0134 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.026 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-04b4f1a9cf54c11d0
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group


EC2 > Instances > Launch an instance
Create key pair
Key pair name
Key pairs allow you to connect to your instance securely.
Ubuntu-VM-Server-keypair
The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.
Key pair type
RSA
RSA encrypted private and public key pair
ED25519
ED25519 encrypted private and public key pair
Private key file format
.pem
For use with OpenSSH
.ppk
For use with PuTTY
When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. Learn more
Cancel
Create key pair
Key pair (login) Info
Key pair name - required
Select
Network settings Info
Network Info
vpc-028795c7229bfdfbc
Subnet Info
No preference (Default subnet in any availability zone)
Auto-assign public IP Info
Enable
Additional charges apply when outside of free tier allowance
Firewall (security groups) Info
Create security group
Summary
Number of instances Info
Cancel
Launch instance
Preview code

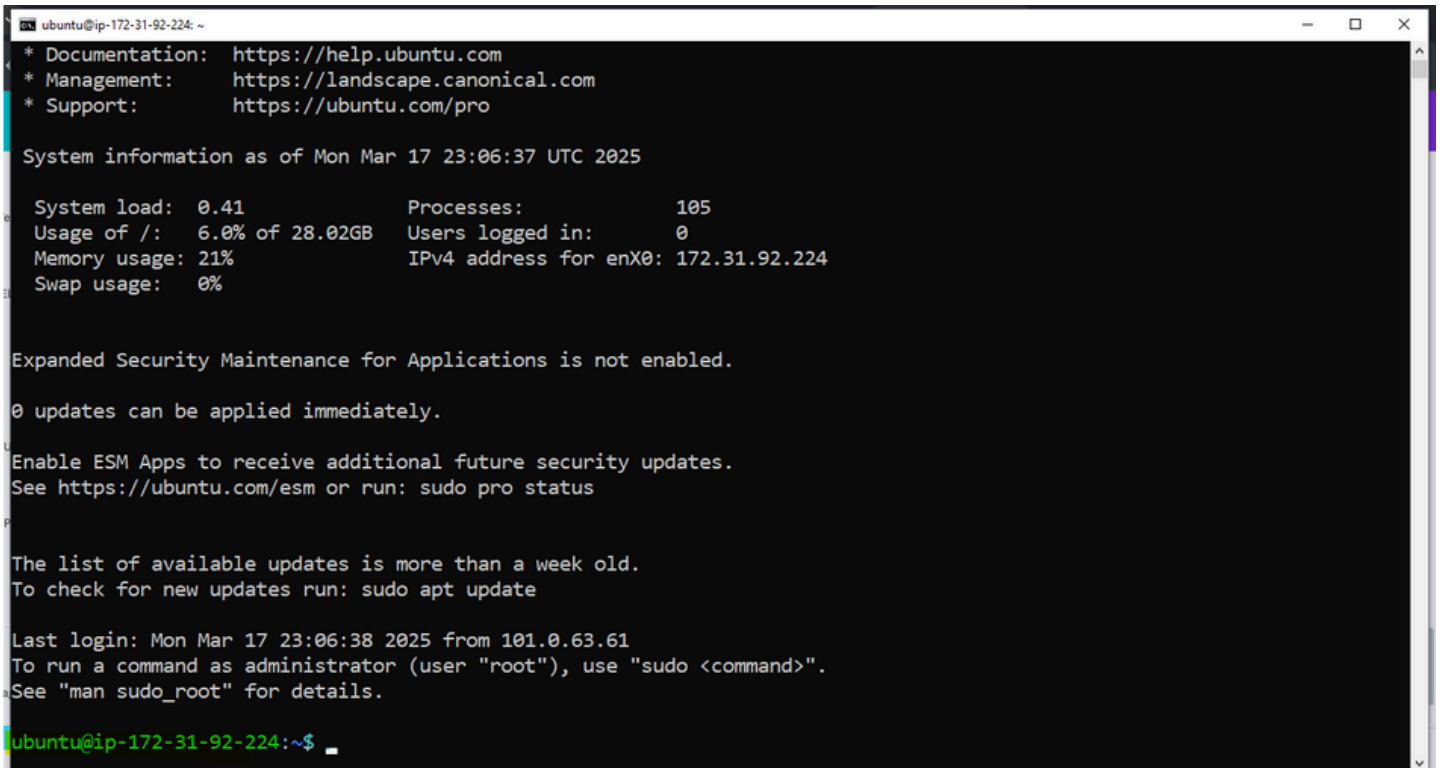

EC2 > Instances > Launch an instance
Key pair name - required
Ubuntu-VM-Server-keypair
Create new key pair
Network settings Info
VPC - required Info
vpc-028795c7229bfdfbc
172.31.0.0/16
(default)
Subnet Info
No preference
Create new subnet
Auto-assign public IP Info
Enable
Additional charges apply when outside of free tier allowance
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Create security group
Select existing security group
Security group name - required
Ubuntu-VM-Server
This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and ._-:/()#,@[]+=&;{}!$*
Description - required Info
Ubuntu-VM-Server was created for Jenkins Server
Inbound Security Group Rules
Security group rule 1 (TCP, 22, 0.0.0.0/0)
Remove
Summary
Number of instances Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-04b4f1a9cf54c11d0
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code

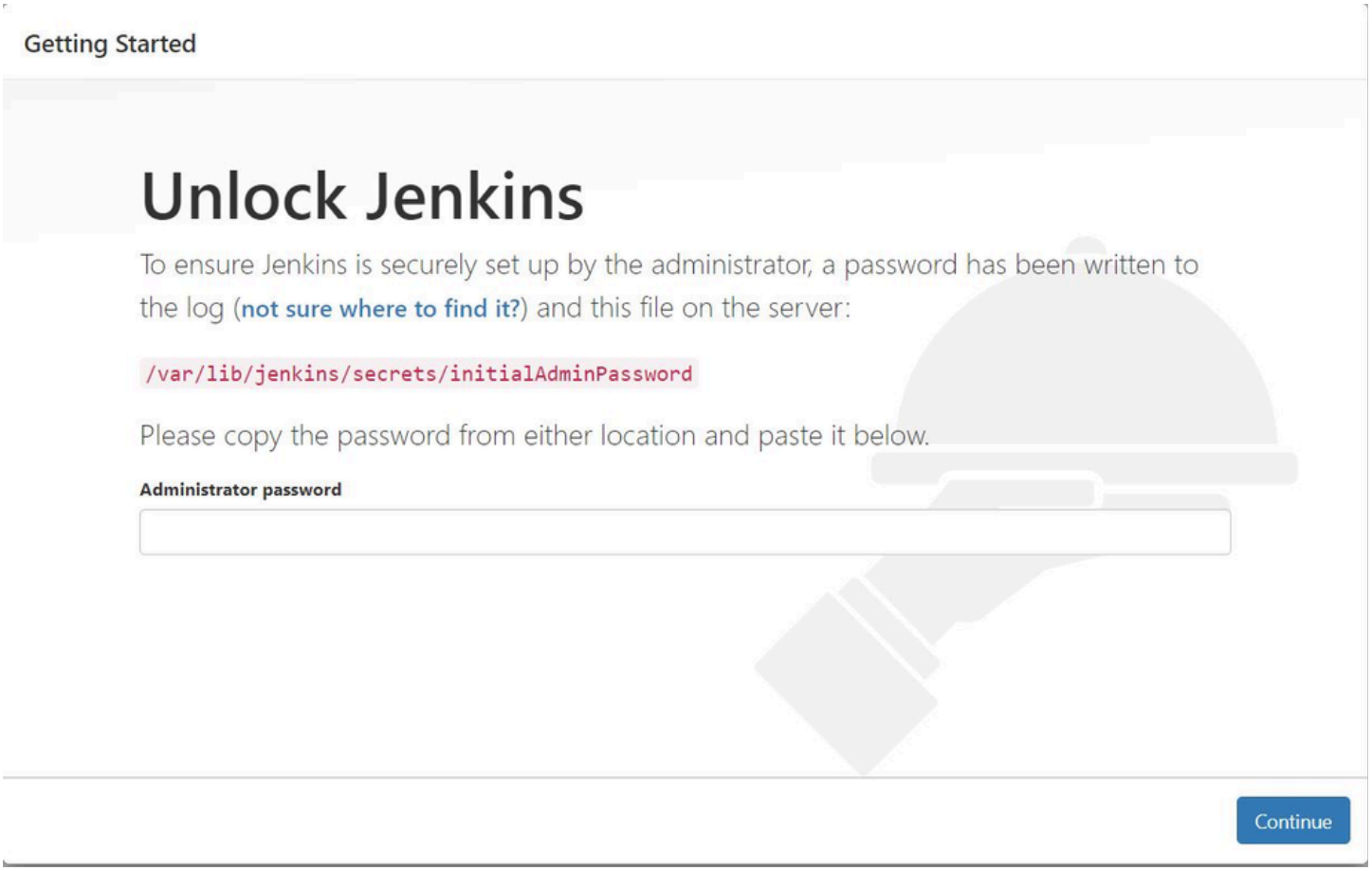

EC2 > Instances > Launch an instance
Inbound Security Group Rules
Security group rule 1 (TCP, 22, 0.0.0.0/0)
Remove
Type | Info
ssh
Protocol | Info
TCP
Port range | Info
22
Source type | Info
Anywhere
Source | Info
Add CIDR, prefix list or security group
0.0.0.0/0
Description - optional | Info
e.g. SSH for admin desktop
Security group rule 2 (TCP, 8080, 0.0.0.0/0)
Remove
Type | Info
Custom TCP
Protocol | Info
TCP
Port range | Info
8080
Source type | Info
Anywhere
Source | Info
Add CIDR, prefix list or security group
0.0.0.0/0
Description - optional | Info
e.g. SSH for admin desktop
Security group rule 3 (TCP, 80, 0.0.0.0/0)
Remove
Type | Info
HTTP
Protocol | Info
TCP
Port range | Info
80
Source type | Info
Anywhere
Source | Info
Add CIDR, prefix list or security group
0.0.0.0/0
Description - optional | Info
e.g. SSH for admin desktop
Summary
Number of instances | Info
1
Software Image (AMI)
Canonical, Ubuntu, 24.04, amd6...read more
ami-04b4f1a9cf54c11d0
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 8 GiB
Cancel
Launch instance
Preview code


Configure storage Info
Advanced
1x
30
GiB
gp2
Root volume, Not encrypted
Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage
Add new volume
The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance
Click refresh to view backup information
The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.
0 x File systems
Edit
Virtual server type (instance type)
t2.micro
Firewall (security group)
New security group
Storage (volumes)
1 volume(s) - 30 GiB
Cancel
Launch instance
Preview code


EC2 > Instances
EC2
Dashboard
EC2 Global View
Events
Instances
Instances
Instances (1) Info
Last updated less than a minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Ubuntu-VM-S...
i-0d71df149a9d3e7c4
Running
t2.micro
Initializing
View alarms +
us-east-1b
ec2-18-212-12-34.com...
18.212.12.34


Command Prompt
Microsoft Windows [Version 10.0.19045.5440]
(c) Microsoft Corporation. All rights reserved.
C:\Users\admin>cd downloads
C:\Users\admin\Downloads>ssh -i "Ubuntu-VM-Server-keypair.pem" ubuntu@ec2-18-212-12-34.compute-1.amazonaws.com


ubuntu@ip-172-31-92-224: ~
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro
System information as of Mon Mar 17 23:06:37 UTC 2025
System load: 0.41
Usage of /: 6.0% of 28.02GB
Memory usage: 21%
Swap usage: 0%
Processes: 105
Users logged in: 0
IPv4 address for enX0: 172.31.92.224
Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Last login: Mon Mar 17 23:06:38 2025 from 101.0.63.61
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
ubuntu@ip-172-31-92-224:~$


Getting Started
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.
Administrator password
Continue

Getting Started

Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

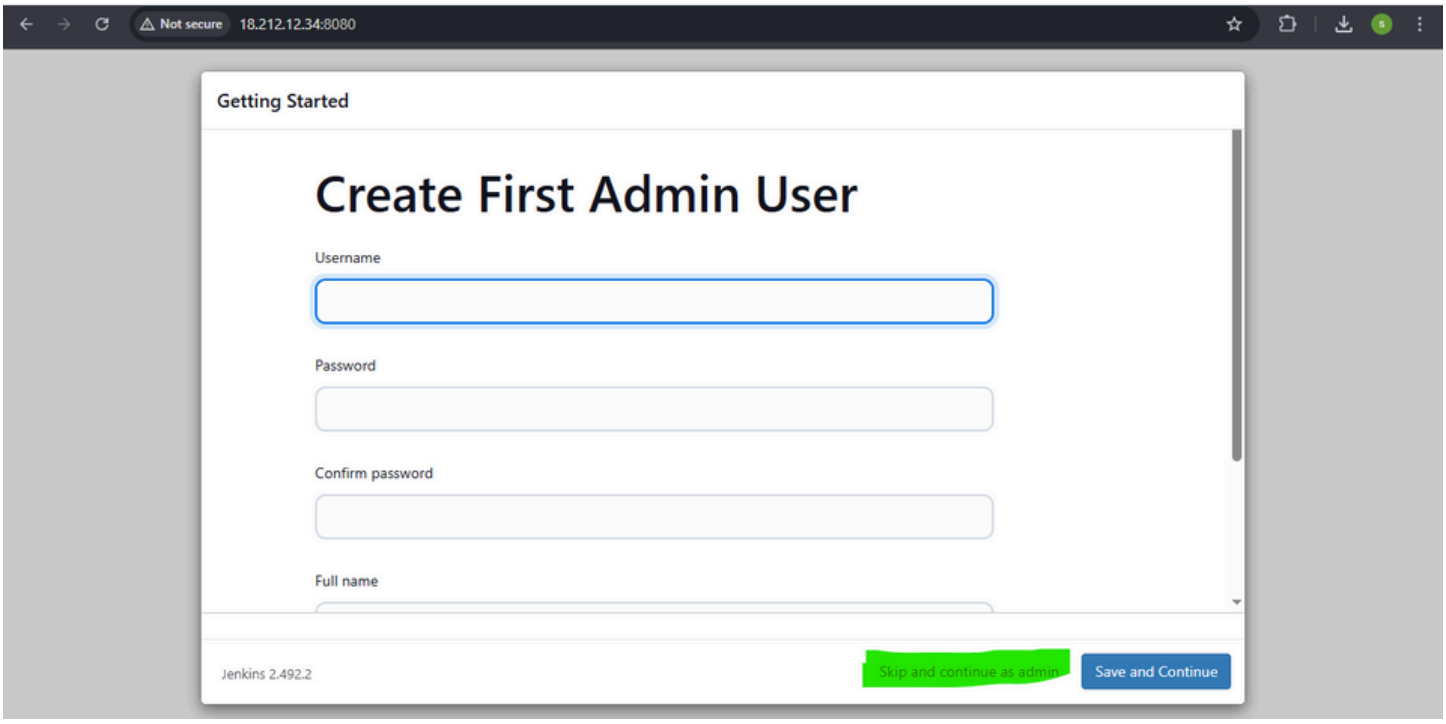
Install suggested plugins

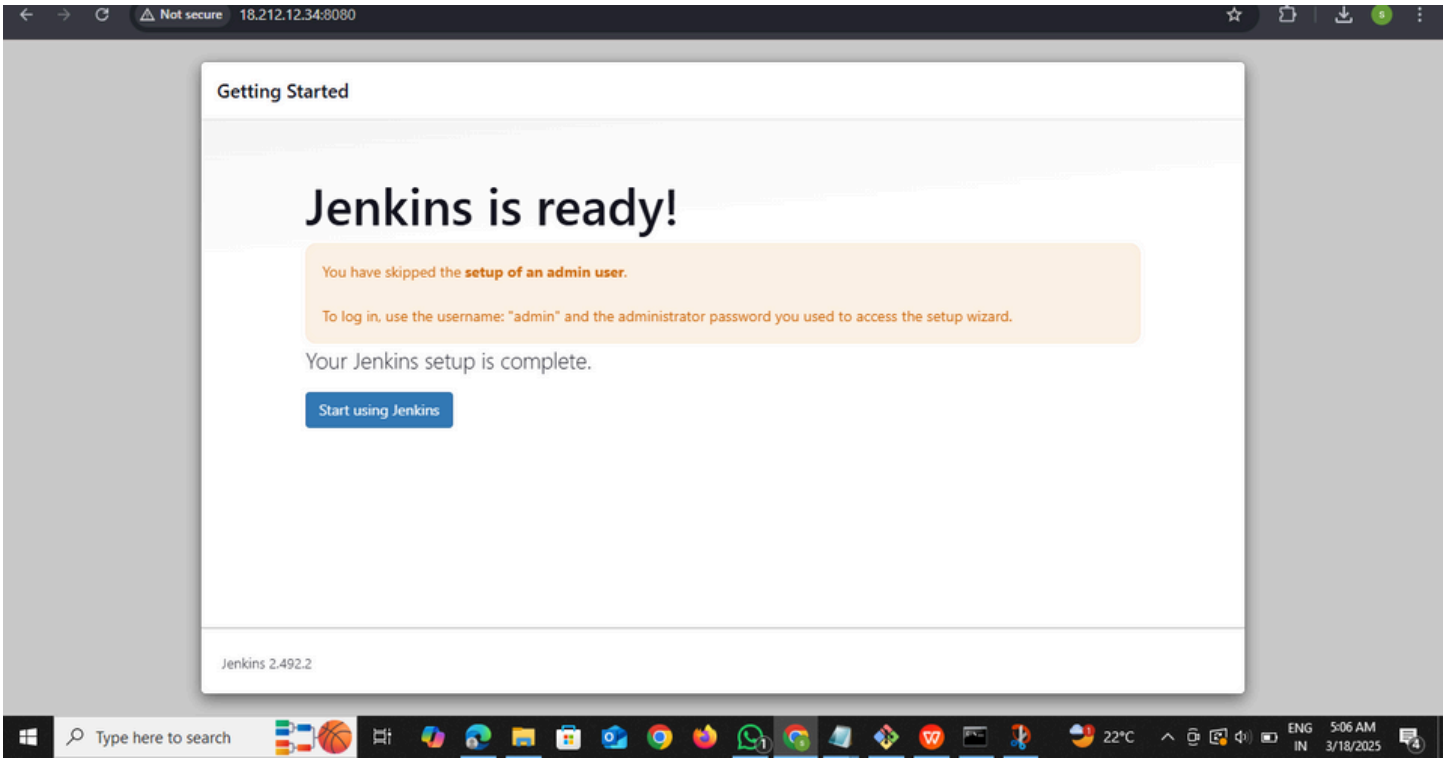
Install plugins the Jenkins community finds most useful.

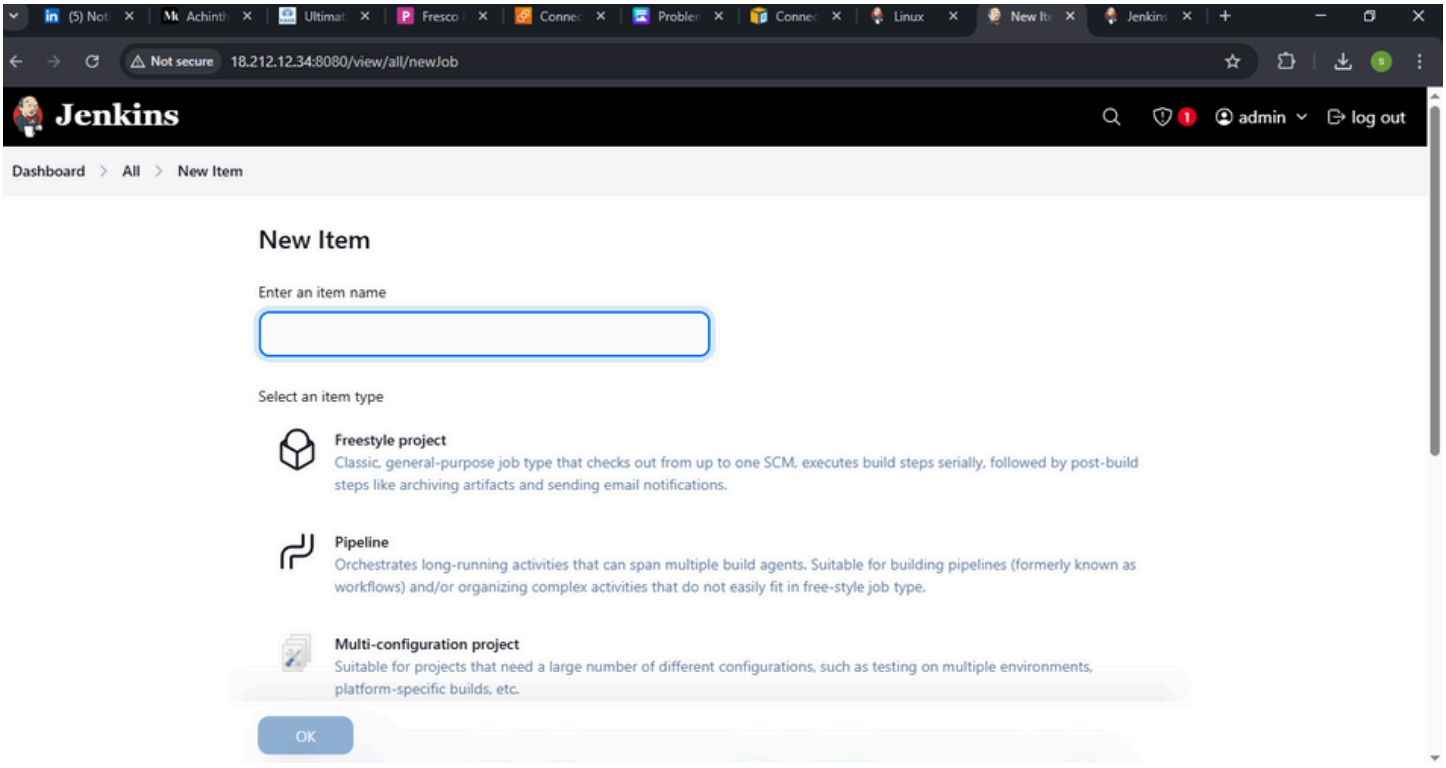
Select plugins to install

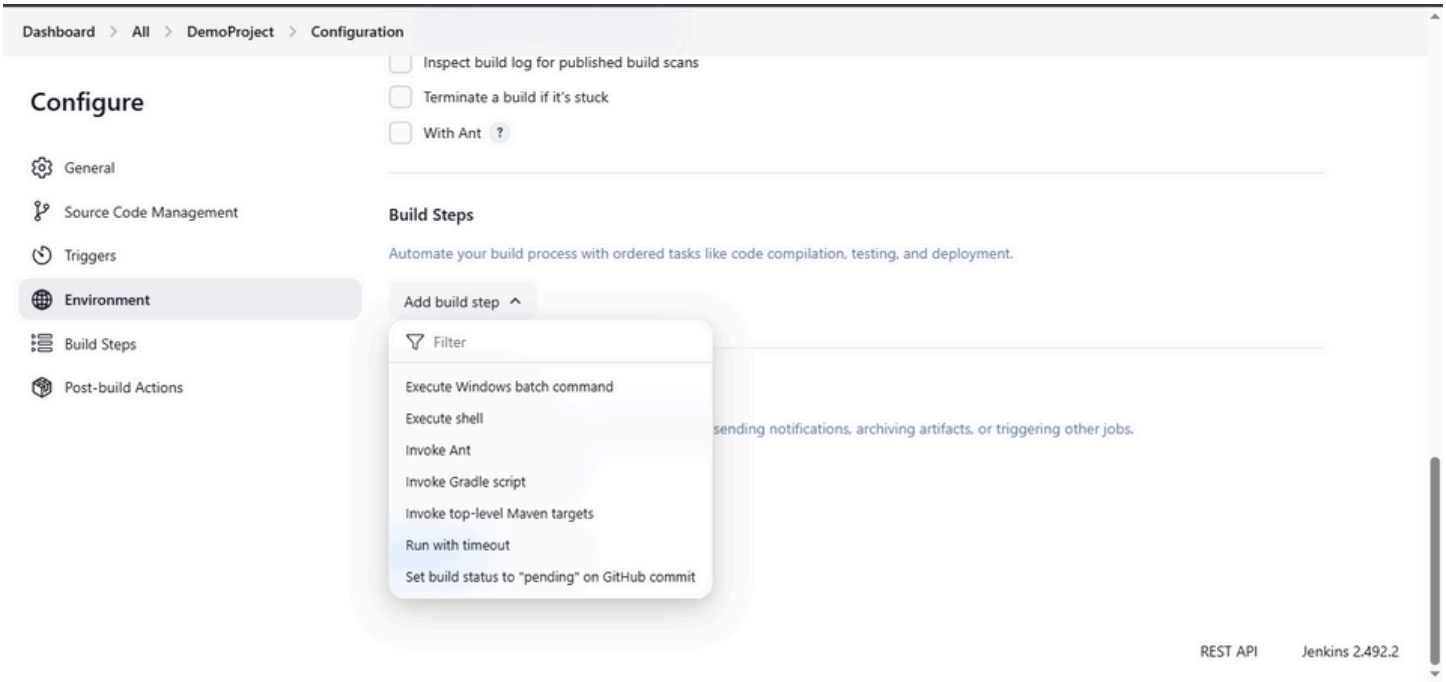
Select and install plugins most suitable for your needs.

Jenkins 2.492.2

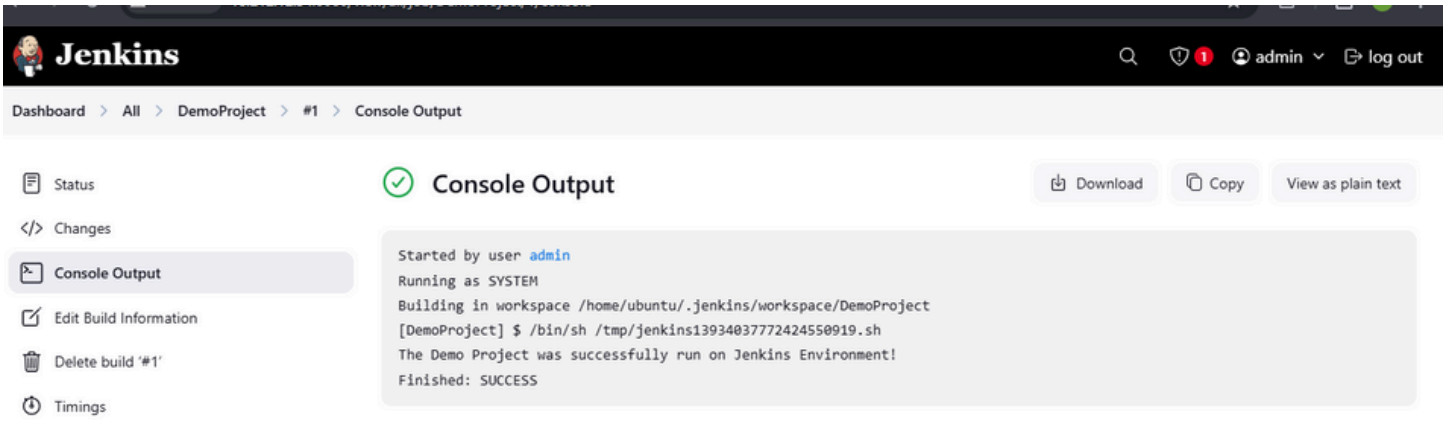



Not secure 18.212.12.34:8080
Getting Started
Jenkins is ready!
You have skipped the setup of an admin user.
To log in, use the username: "admin" and the administrator password you used to access the setup wizard.
Your Jenkins setup is complete.
Start using Jenkins
Jenkins 2.492.2
Type here to search
22°C
ENG
IN
5:06 AM
3/18/2025


Not secure 18.212.12.34:8080/view/all/newJob
Jenkins
admin
log out
Dashboard
All
New Item
New Item
Enter an item name
Select an item type
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.
OK


Dashboard > All > DemoProject > Configuration
Configure
General
Source Code Management
Triggers
Environment
Build Steps
Post-build Actions
Inspect build log for published build scans
Terminate a build if it's stuck
With Ant
Build Steps
Automate your build process with ordered tasks like code compilation, testing, and deployment.
Add build step
Filter
Execute Windows batch command
Execute shell
Invoke Ant
Invoke Gradle script
Invoke top-level Maven targets
Run with timeout
Set build status to "pending" on GitHub commit
sending notifications, archiving artifacts, or triggering other jobs.
REST API
Jenkins 2.492.2


Build Steps
Automate your build process with ordered tasks like code compilation, testing, and deployment.
Execute shell
Command
See the list of available environment variables
#!/bin/sh
echo "The Demo Project was successfully run on Jenkins Environment!"
exit 0
Advanced


Jenkins
admin
log out
Dashboard > All > DemoProject > #1 > Console Output
Status
Changes
Console Output
Edit Build Information
Delete build '#1'
Timings
Console Output
Download
Copy
View as plain text
Started by user admin
Running as SYSTEM
Building in workspace /home/ubuntu/.jenkins/workspace/DemoProject
[DemoProject] $ /bin/sh /tmp/jenkins13934037772424550919.sh
The Demo Project was successfully run on Jenkins Environment!
Finished: SUCCESS

Important Points:

After connecting to SSH

ssh -i "Ubuntu-VM-Server-keypair.pem" ubuntu@ec2-18-212-12-34.compute-1.amazonaws.com

after connecting to the server Run the Following Commands to install Jenkins on our server

1. **sudo apt update**
2. **Install the Java JDK as it is Prerequisites For Jenkins**
3. **sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \ https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key**
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. **sudo apt-get update**
6. **sudo apt-get install jenkins**

Visit http://<your-ec2-ip-address>:<port-specified> and ensure that Jenkins

is running successful.