

Jenkins 1  
Users and Roles and in Jenkins  
Master-Slave architecture  
Pipeline

### User and Roles in Jenkins

There are multiple people (Dev team, Testing team, DevOps team, ) working on the same project. Do we want to give access to everyone working on the project the entire Jenkins dashboard? The access level will be different for different teams in Jenkins. that's where we need User management in Jenkins. Generally in every project, multiple teams (Dev, DevOps, QA) could be there and for every team Jenkins access would be provided. Every team members will have their own user account to login into Jenkins and not every team member will have complete access to Jenkins. Certain teams such as Dev, QA team will have limited access to Jenkins because they are responsible just to run the job not to create, edit, or delete the jobs whereas Operations team will have more access to Jenkins as they are responsible to create, edit or delete jobs in Jenkins.

Creating Users and managing their permissions:

Start Jenkins-Server

**Instances (1/4)** [Info](#)

Find Instance by attribute or tag (case-sensitive) All states ▼

	Name <a href="#">↗</a>	Instance ID	Instance state <a href="#">▼</a>	Instance type <a href="#">▼</a>	Status check
<input type="checkbox"/>	DevOpsCourse...	i-0f87d8181852ad376	⊖ Stopped <a href="#">↗</a> <a href="#">↗</a>	t2.micro	–
<input type="checkbox"/>	TerraformEC2	i-0f3b562c215e434b7	⊖ Stopped <a href="#">↗</a> <a href="#">↗</a>	t2.micro	–
<input type="checkbox"/>	EKS-host	i-01289fc5ca918b25f	⊖ Stopped <a href="#">↗</a> <a href="#">↗</a>	t2.micro	–
<input checked="" type="checkbox"/>	Jenkins-server	i-0abe9191466188c59	✔ Running <a href="#">↗</a> <a href="#">↗</a>	t2.medium	🕒 Initializing

<http://16.52.83.212:8080/login?from=%2F>

+ New Item

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Build Queue ▼

No builds in the queue.

All +

S	W	Name ↓
✔	☀	DemoFirstJob
✔	☁	Maven-git-job
✔	☀	maven-git-tomcat-job

Manage Jenkins

- 

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

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

## Users

Manage Jenkins > Jenkins' own user database

Users 1

+ 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 1	Name	
 demo_user	demo	

## Create User

### Create User

Username

user1

Password

\*\*\*\*\*

Confirm password

\*\*\*\*\*





Full name

User1

Users 2

+ 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 1	Name	
 demo_user	demo	
 user1	User1	 

# Manage Jenkins

Building on the built-in node can be a security issue. You should set up distributed builds. See [the docs](#)



## System Configuration



System  
Configure global settings and paths.



Tools  
Configure tools, their locations, and automatic installers.



Clouds  
Add, remove, and configure cloud instances to provision agents on-demand.



Appearance  
Configure the look and feel



## Security



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



Credentials  
Configure credentials

# Security

## Authentication

☐ Disable "Keep me signed in" ?

## Security Realm

Jenkins' own user database

☐ Allow users to sign up ?

## Authorization

Logged-in users can do anything

☐ Allow anonymous read access ?

## In Authorization select matrix-based security

☐ Allow users to sign up ?

### Authorization

Matrix-based security

User/group	Overall		Credentials		Agent					Job					Run		View		SCM	Metrics												
	Administer	Read	Create	Delete	ManageDomains	Update	View	Build	Connect	Create	Delete	Disconnect	Provision	Build	Configure	Cancel	Create	Delete	Discover	Move	Read	Workspace	Delete	Replay	Update	Configure	Create	Delete	Read	Tag	HealthCheck	ThreadDump
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Authenticated Users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Add user...		Add group...		?																												

### Authorization

Matrix-based security

User/group	Overall	Credentials		Agent						Job						Run		View		SCM	Metrics											
	Administer	Create	Delete	Manage domains	Update	View	Build	Configure	Connect	Create	Delete	Disconnect	Provision	Build	Cancel	Configure	Create	Delete	Discover	Move	Read	Workspace	Delete	Reply	Configure	Delete	Create	Read	Tag	Healthcheck	Thread/Jump	View
👤 Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
👤 Authenticated Users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
👤 demo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
👤 User1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Add user...		Add group...		?																												

Apply then Save

Logout

# Sign in to Jenkins

Username

user1

Password

.....

☐ Keep me signed in

Sign in

For example, user1 cannot have access to Configure

Dashboard >

Build History

Project Relationship

Check File Fingerprint

My Views

Build Queue

No builds in the queue.

Build Executor Status

0/2

All

S	W	Name ↓	Last Success
✓	☀	DemoFirstJob	22 hr #3
✓	☁	Maven-git-job	9 hr 4 min #6
✓	☀	maven-git-tomcat-job	3 hr 44 min #2

Icon: S M L

Say we have 200 users are there, and it is cumbersome to give role-based access to entire 200 users imagine. The solution is to create User-Roles, Developer-Role then we will assign to specific teams

Logout then login as admin user

Creating Users and managing their Permissions

--> Jenkins dashboard

Dashboard --> Manage Jenkins --> Configure Security --> Security Realm (Jenkins own user database) -> Authorization (Matrix base security) -> Add users (demo\_user, user1) Add permission based on requirements. Enable API token stats --> Apply and Save

39:00

## User Roles in Jenkins

We can assign roles and in Role we can configure what that role-assigned user can do with Jenkins

We create a Role then we add Users into that Role

--> Install "Role-based Authorization Strategy" plugin (this plugin allows us to define roles and assign users to them)

```
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
Last login: Sun Jun 22 23:07:01 2025 from 136.56.236.206  
ubuntu@ip-172-31-11-116:~$  
ubuntu@ip-172-31-11-116:~$  
ubuntu@ip-172-31-11-116:~$  
ubuntu@ip-172-31-11-116:~$
```

Xterm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

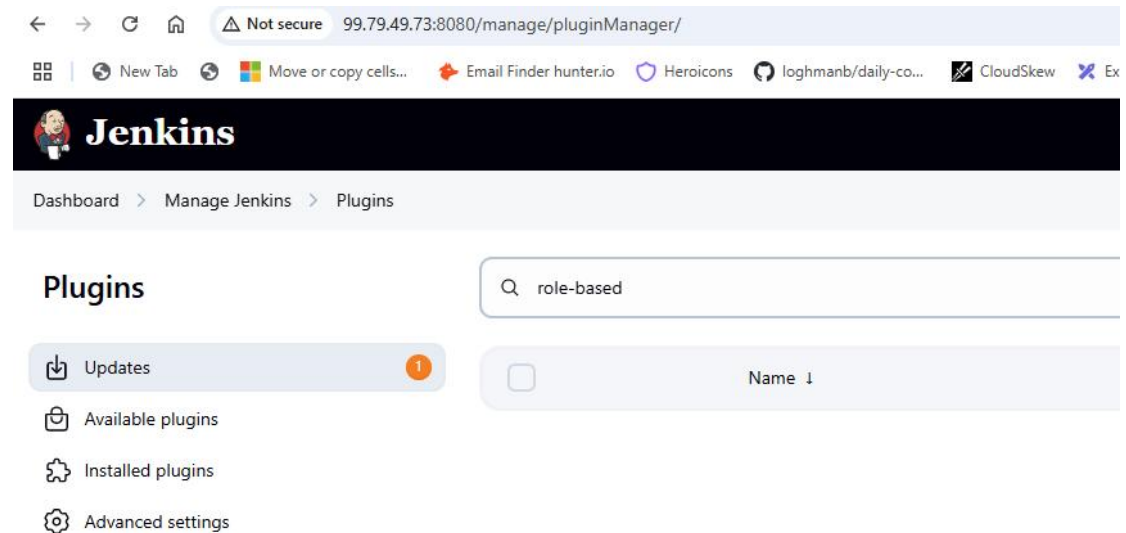
<http://99.79.49.73:8080/login?from=%2F>

The image shows two screenshots of the Jenkins web interface. The top screenshot is the Jenkins Dashboard, featuring the Jenkins logo, a 'Dashboard' link, and a sidebar with navigation options: '+ New Item', 'Build History', 'Project Relationship', 'Check File Fingerprint', 'Manage Jenkins', and 'My Views'. The main content area shows a 'Build Queue' section with the message 'No builds in the queue.' and a list of three items, each with a green checkmark and a yellow warning icon. The bottom screenshot is the 'Manage Jenkins' page, which is organized into sections: 'System Configuration' (containing 'System', 'Tools', 'Plugins', and 'Node'), 'Security' (containing 'Security', 'Credentials', 'Credential Providers', and 'User'), and 'Status Information'. Each section contains links to various configuration options, such as 'Configure global settings and paths' for the System section and 'Secure Jenkins; define who is allowed to access/use the system.' for the Security section.

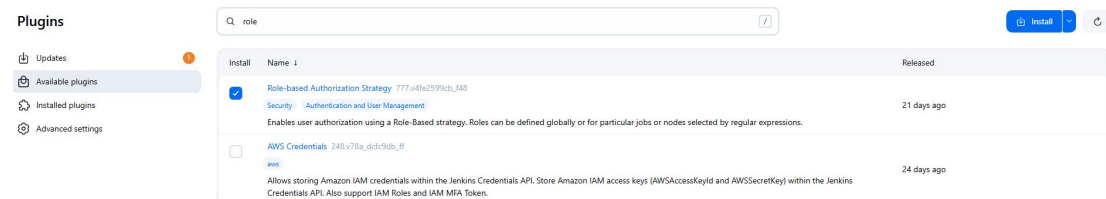
<http://99.79.49.73:8080/manage/configureSecurity/>

Right now Role-based option is not available

<http://99.79.49.73:8080/manage/pluginManager/>



## Select Role-based Authorization Strategy



## Plugins

- Updates
- Available plugins
- Installed plugins
- Advanced settings
- Download progress**

## Download progress

### Preparation

- Checking internet connectivity
- Checking update center connectivity
- Success

Role-based Authorization Strategy ✓ Success

Loading plugin extensions ✓ Success

→ [Go back to the top page](#)

(you can start using the installed plugins right away)

→ ☐ Restart Jenkins when installation is complete and no jobs are running

Go back to Manage Jenkins --> Users

of Jenkins



#### Credential Providers

Configure the credential providers and types



#### Users

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



#### Load Statistics

Check your resource utilization and see if



#### About Jenkins

See the version and license information.

## Create User

Username

user2

Password

.....

Confirm password

.....

Full name

User2

Manage --> Security

Now we can see Role-Based Strategy here

☐ Allow users to sign up ?

Authorization

Role-Based Strategy

Markup Formatter

Markup Formatter ?

Plain text

Shows descriptions mostly as written. HTML unsafe characters like < and & are escaped to their respective character entities, and line breaks are converted to HTML line breaks.

Agents

54:00



<http://3.98.56.215:8080/login?from=%2F>

Security Realm

Jenkins' own user database

☐ Allow users to sign up

Authorization

Role-Based Strategy

Markup Formatter

Markup Formatter

Plain text

Shows descriptions mostly as written. HTML unsafe characters like < and & are escaped to their respective character entities, and line breaks are converted to their HTML equivalent.

Global roles

Role	Overall	Credentials				Agent				Job				Run		View		SCM	Metrics											
		Update Managem Delete	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	HealthCheck	ThreadDump	View
 admin		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

admin has entire Administrator access

Global roles

	Role	Overall	Credentials			Agent							Job					Run	View		SCM	Metrics													
		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	HealthCheck	ThreadDump	View
	admin																																		
	devops																																		
	development																																		
	qa testing																																		

Different roles like devops, development, qa testing

Manage Roles

Assign Roles

Permission Templates

Role Strategy Macros

### Assign Roles

Global roles

User/Group	admin	development	devops	qa testing
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Authenticated Users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
demo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Add User

Add Group

Item roles

Manage Roles

Assign Roles

Permission Templates

Role Strategy Macros

## Assign Roles

Global roles

User/Group	admin	development	devops	qa testing
Anonymous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Authenticated Users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
demo	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
User1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
User2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Add User

Add Group

--> Manage Jenkins --> Configure Security --> Authorization --> "Role-based Strategy" --> Save and Apply

--> Create User Roles --> Manage Jenkins --> Manage and Assign Roles --> Manage Roles and define roles based on our requirements (admin, QA, development, ), later we went to assign role --> Add to create a new role --> Add user to the roles

(Dashboard -> Manage Jenkins -> Manage and Assign the roles -> Assign roles (refer live class recordings))

### Master and Slave Architecture in Jenkins

Currently we have only one machine in the entire eco-system

So much of burden into one machine is not recommended. We can divide the burden by following Master-Slave Architecture. If you are running a pipeline, one pipeline consists of multiple jobs. So many jobs running in one machine will be a huge burden. A machine that's already there, that's considered as Master machine. I will create different jobs on Master machine then running jobs will be divided onto different machines (many worker nodes or slave machines), which are responsible to run the jobs. Burden will not be there on one machine.

--> If we use one machine for Jenkins, then the moment we run multiple jobs it may burden the machine, which can lead to system crash to decrease burden on Jenkins server/VM, we can go with Master-Slave configuration. It could be used to reduce the burden on Jenkins Server/VM by distributing tasks/load

### Jenkins Master vs Jenkins Slave:

#### Jenkins Master

--> The machine or server, where Jenkins tool is installed can be referred as Master machine, which is used to create jobs, schedule jobs, and manage the jobs

--> It will also distribute jobs execution into Slave machines/servers

(We can Run/Execute jobs on Jenkins Master machine too however, it is not recommended)

#### Jenkins Slave

It is a machine which is connected to Jenkins Master machine and execute the jobs/tasks assigned by Master machine/server

Slave server/machine will receive tasks from Master machine for the job execution

1:14:30

Lets Jenkins-server be the Master machine

<input type="checkbox"/>	EKS-host	i-01289fc5ca918b25f	Stopped	t2.micro	-	<a href="#">View alarms</a>
<input checked="" type="checkbox"/>	Jenkins-server	i-0abe9191466188c59	Running	t2.medium	Initializing	<a href="#">View alarms</a>

Create JenkinsSlave VM

### 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](#)

Name

JenkinsSlave

[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. See [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](#)



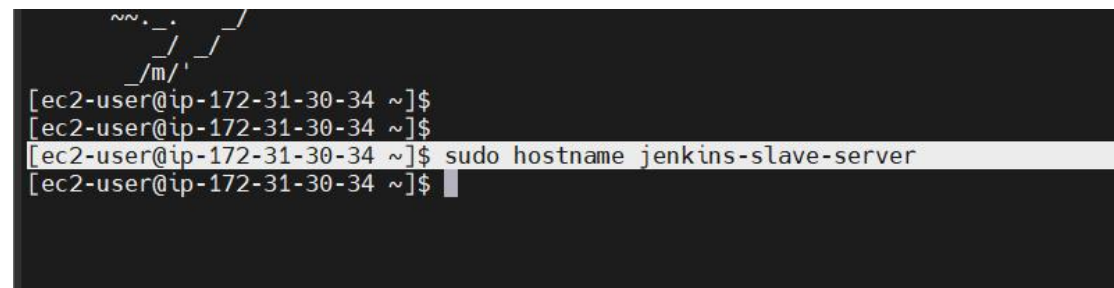
[Browse more](#)  
Including AMIs  
AWS, Marketpla  
the Communi

#### Amazon Machine Image (AMI)

Amazon Linux 2023 kernel-6.1 AMI  
ami-0f9cb75652314425a (64-bit (x86), uefi-preferred) / ami-023e47e3606952731 (64-bit (Arm), uefi)

Free tier eligi

```
[ec2-user@ip-172-31-30-34 ~]$ sudo hostname jenkins-slave-server
```



```
sudo rpm --import https://yum.corretto.aws/corretto.key
sudo curl -Lo /etc/yum.repos.d/corretto.repo https://yum.corretto.aws/corretto.repo
sudo yum install -y java-21-amazon-corretto-devel
```

We need Java for Jenkins

```

[ec2-user@ip-172-31-30-34 ~]$
[ec2-user@ip-172-31-30-34 ~]$ sudo hostname jenkins-slave-server
[ec2-user@ip-172-31-30-34 ~]$
[ec2-user@ip-172-31-30-34 ~]$
[ec2-user@ip-172-31-30-34 ~]$
[ec2-user@ip-172-31-30-34 ~]$ mkdir slavenode
[ec2-user@ip-172-31-30-34 ~]$ pwd
/home/ec2-user
[ec2-user@ip-172-31-30-34 ~]$ cd slavenode/
[ec2-user@ip-172-31-30-34 slavenode]$ pwd
/home/ec2-user/slavenode
[ec2-user@ip-172-31-30-34 slavenode]$ cd ..
[ec2-user@ip-172-31-30-34 ~]$
[ec2-user@ip-172-31-30-34 ~]$

```

```

[ec2-user@ip-172-31-30-34 ~]$ javac -version
javac 21.0.7

```

### 1. Create Master VM

Launch Linux VM (recommended Ubuntu -> t2.medium)

Install Java

Install Jenkins

(Follow the initial steps and commands of this notes to do the same)

### 2. Create Jenkins Slave VM

Created Linux VM (Ubuntu -> t2.micro)

Change hostname for readability

(sudo hostname jenkins-slave-server)

\$ exit

Install java

\$ sudo apt install openjdk-21-jdk

Create one directory in home/ubuntu

\$ mkdir slavenode

### 3 --> Configure Slave server/node in Jenkins Master server/node

Jenkins Dashboard --> Manage Jenkins --> Select Node option --> Assign Name and Select Permanent

Agent --> Enter remote root directory (/home/ubuntu/slavenode) --> Label name (assign a name of

your own choice) --> Select launch method "Launch Agent Via SSH" --> Give Host as "Slave VM DNS

URL" --> Add credentials --> Select kind as SSH username with Private key and --> User as : Ubuntu -->

Select Private key as enter directly and add Private key

(Open Pem file and the content of Pem file copied and added into this configuration --> Save)

Host key verification strategy --> Manually trusted key verification strategy --> Apply and Save

(Watch Live class recordings to configure by following above steps)

Go to Dashboard and create any Jenkins job and run the Jenkins job --> Console output we can verify that the Jenkins jobs are getting executed in Jenkins slave node

Build & Deployment

--> Limitation & Challenges in manual build and deployment process

--> Automating build and deployment (Jenkins)

--> CICD --> Jenkins set up in Linux (for Windows watch Youtube of link attached)

--> Job creation

--> Git + Maven job + Git + Maven + Tomcat job

--> User and Role management (Role-based access)

--> Master-slave configuration

--> Plugins management (Deploy to container plugin, Role-based strategy plugin)

Jenkins pipeline:

Two ways:

Declarative pipeline

Scripted pipeline (Groovy script)

Entire build & deployment is pipeline

Go back to Jenkins Master

```
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/conf$ cd ../
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8$ cd bin/
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/bin$ sh startup.sh
Using CATALINA_BASE:   /home/ubuntu/apache-tomcat-11.0.8
Using CATALINA_HOME:   /home/ubuntu/apache-tomcat-11.0.8
Using CATALINA_TMPDIR: /home/ubuntu/apache-tomcat-11.0.8/temp
Using JRE_HOME:        /usr
Using CLASSPATH:        /home/ubuntu/apache-tomcat-11.0.8/bin/bootstrap.jar:/home/ubuntu/apache-tomcat-11.0.8/bin/tomcat-juli.jar
Tomcat started.
ubuntu@ip-172-31-11-116:~/apache-tomcat-11.0.8/bin$
```

<http://35.182.80.43:8080/login?from=%2F>

+ New Item

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Build Queue

No builds in the queue.

Build Executor Status

0/2

All

+

S	W	Name	Last Success
✓	☀	DemoFirstJob	5 days 0 hr #3
✓	☁	Maven-git-job	4 days 11 hr #6
✓	☀	maven-git-tomcat-job	4 days 6 hr #2

## Manage Jenkins

Plugins

Add, remove, disable or enable plugins that can extend the functionality of Jenkins.

Nodes

Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

feel of Jenkins

Click Nodes

## Nodes


S	Name ↓	Architecture	Clock Difference
	<a href="#">Built-In Node</a>	Linux (amd64)	In sync
Data obtained		16 min	16 min

Icon: S M **L**

We can see one Built-In Node  
Click on the New Node

+ New Node

Configure M

Free Disk Space	Free Swap Space	Free Temp Space	Response
3.11 GiB	 0 B	3.11 GiB	
16 min	16 min	16 min	



Dashboard > Manage Jenkins > Nodes > New node

## New node

Node name

jenkins-slave1

Type



Permanent Agent

Adds a plain, permanent agent to Jenkins. This is called such as dynamic provisioning. Select this type if no other machines managed outside Jenkins, etc.

Create

Click Create

Remote root directory ?

**Remote directory is mandatory**

An agent needs to have a directory dedicated to Jenkins. Specify the path to this directory on the agent. It is best to use an absolute path, such as `/var/jenkins` or `c:\jenkins`. This should be a path local to the agent machine. There is no need for this path to be visible from the controller.

Agents do not maintain important data: all job configurations, build logs and artifacts are stored on the controller, so it would be possible to use a temporary directory as the agent root directory. However, by giving an agent a directory that is not deleted after a machine reboot, for example, the agent can cache data such as tool installations, or build workspaces. This prevents unnecessary downloading of tools, or checking out source code again when builds start to run on this agent again after a reboot.

If you use a relative path, such as `./jenkins-agent`, the path will be relative to the working directory provided by the *Launch method*.

```
[ec2-user@ip-172-31-30-34 ~]$ cd slavenode/  
[ec2-user@ip-172-31-30-34 slavenode]$ pwd  
/home/ec2-user/slavenode
```

Name ?

jenkins-slave1

Description ?

This is Jenkins-Slave1

Plain text [Preview](#)

Number of executors ?

2

Remote root directory ?

/home/ec2-user/slavenode

An agent needs to have a directory dedicated to Jenkins. Specify the path to this directory on the agent. It is best to use an absolute path, such as `/var/lib/jenkins`, for this path to be visible from the controller.

Agents do not maintain important data: all job configurations, build logs and artifacts are stored on the controller, so it would be possible to use a temporary directory. However, by giving an agent a directory that is not deleted after a machine reboot, for example, the agent can cache data such as tool installations, and avoid downloading them again when builds start to run on this agent again after a reboot.

If you use a relative path, such as `./jenkins-agent`, the path will be relative to the working directory provided by the *Launch method*.

- For launchers where Jenkins controls starting the agent process, such as SSH, the current working directory will typically be consistent, e.g. the



Labels ?

jenkins-slave1

Usage ?

Use this node as much as possible

Launch method ?

Launch agents via SSH


Host ?

 The Host must be specified

Credentials ?

- none -

+ Add

 The selected credentials cannot be found

Host Key Verification Strategy ?

Known hosts file Verification Strategy

Advanced ▼

Availability ?

## Copy Public DNS

i-01f4ee18204bd61fd (JenkinsSlave)


[Details](#) | [Status and alarms](#) | [Monitoring](#) | [Security](#) | [Networking](#) | [Storage](#) | [Tags](#)


### ▼ Instance summary [Info](#)


**Instance ID**  
 i-01f4ee18204bd61fd

**IPv6 address**  
-

**Hostname type**  
IP name: ip-172-31-30-34.ca-central-1.compute.internal

**Public IPv4 address**  
 3.99.157.235 | [open address](#)

**Instance state**  
 Running

**Private IP DNS name (IPv4 only)**  
 ip-172-31-30-34.ca-central-1.compute.internal

**Private IPv4 addresses**  
 172.31.30.34

**Public DNS**  
 ec2-3-99-157-235.ca-central-1.compute.amazonaws.com | [open address](#)

Usage ?

Use this node as much as possible

Launch method ?

Launch agents via SSH

Host ?

ec2-3-99-157-235.ca-central-1.compute.amazonaws.com

Credentials ?

- none -

+ Add



Jenkins

not be found

Host Key Verification Strategy ?

Known hosts file Verification Strategy

Advanced ▾

Availability ?

Use this agent online as much as possible

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 ?

Username

☐ Treat username as secret ?

## Jenkins Credentials Provider: Jenkins

Kind

SSH Username with private key

Scope ?

Global (Jenkins, nodes, items, all child items, etc)

ID ?

jenkins-slave-credentials

Description ?

jenkins-slave-credentials

Username

ec2-user

☐ Treat username as secret ?

Private Key

☒ Enter directly

Key

No Stored Value

Open DevOpsMar30.pem file copy contents and paste into Private Key

Click Add

Launch method ?

Launch agents via SSH

Host ?

ec2-3-99-157-235.ca-central-1.compute.amazonaws.com

Credentials ?

ec2-user (jenkins-slave-credentials)

+ Add

Host Key Verification Strategy ?

Manually trusted key Verification Strategy

☐ Require manual verification of initial connection ?

Advanced ▼

Availability ?

Keep this agent online as much as possible

Launch method ?

Launch agents via SSH

Host ?

ec2-3-99-157-235.ca-central-1.compute.amazonaws.com

Credentials ?

ec2-user (jenkins-slave-credentials)

+ Add

Host Key Verification Strategy ?

Manually trusted key Verification Strategy

☐ Require manual verification of initial connection ?

Advanced ▾

Availability ?

Keep this agent online as much as possible

### Node Properties

☐ Disable deferred wipeout on this node ?

☐ Disk Space Monitoring Thresholds

☐ Environment variables

Save

Click Save

Now we can see jenkins-slave1 node

## Nodes

S	Name ↓	Architecture	Clock Difference	Free Disk
	Built-In Node	Linux (amd64)	In sync	
	jenkins-slave1		N/A	
Data obtained		6 ms	4 ms	

Icon: S M L

```
[ec2-user@ip-172-31-30-34 slavenode]$ ls -l
total 1368
drwxrwxr-x. 4 ec2-user ec2-user    34 Jun 27 02:58 remoting
-rw-rw-r--. 1 ec2-user ec2-user 1396936 Jun 27 02:58 remoting.jar
```

Now we can see two extra files

```
ec2-user@ip-172-31-30-34 slavenode]$ ls -l
total 1368
drwxrwxr-x. 4 ec2-user ec2-user    34 Jun 27 02:58 remoting
-rw-rw-r--. 1 ec2-user ec2-user 1396936 Jun 27 02:58 remoting.jar
ec2-user@ip-172-31-30-34 slavenode]$
```

```
[ec2-user@ip-172-31-30-34 slavenode]$ cd remoting/
[ec2-user@ip-172-31-30-34 remoting]$ ls -l
total 0
drwxrwxr-x. 11 ec2-user ec2-user 96 Jun 27 02:59 jarCache
drwxrwxr-x. 2 ec2-user ec2-user 54 Jun 27 02:58 logs
[ec2-user@ip-172-31-30-34 remoting]$
```

Go back to Dashboard

[Dashboard](#) >

New Item

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

My Views

Build Queue

No builds in the queue.

All

+

S	W	Name ↓	Last Success
		<a href="#">DemoFirstJob</a>	5 days 1 hr <a href="#">#3</a>
		<a href="#">Maven-git-job</a>	4 days 12 hr <a href="#">#6</a>
		<a href="#">maven-git-tomcat-job</a>	4 days 7 hr <a href="#">#2</a>

Click Configure

## Configure

- General
- Source Code Management
- Triggers
- Environment
- Build Steps**
- Post-build Actions

☐ With Ant ?

### 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](#)

```
echo "demo Jenkins first job"
touch alien.txt
echo "Demo first job completed"
```

Advanced ▾

Add build step ▾

It is creating alien.txt  
I click on Build Now

Dashboard > DemoFirstJob >

Status

Changes

Workspace

Build Now

Configure

Delete Project

Rename



## DemoFirstJob

This is a trial job

### Permalinks

- Last build (#3), 5 days 1 hr ago
- Last stable build (#3), 5 days 1 hr ago
- Last successful build (#3), 5 days 1 hr ago
- Last completed build (#3), 5 days 1 hr ago

### Builds

Filter

Today

✓ #4 3:08 AM

June 22, 2025

✓ #3 1:33 AM

✓ #2 1:27 AM

✓ #1 1:27 AM

### Console output

Building on the built-in node in workspace /var/lib/jenkins/workspace/DemoFirstJob

## ✓ Console Output

```
Started by user demo
Running as SYSTEM
Building on the built-in node in workspace /var/lib/jenkins/workspace/DemoFirstJob
[DemoFirstJob] $ /bin/sh -xe /tmp/jenkins18409477879517325015.sh
+ echo demo Jenkins first job
demo Jenkins first job
+ touch alien.txt
+ echo Demo first job completed
Demo first job completed
Finished: SUCCESS
```

### In slave-node properties

#### Node Properties

☐ Disable deferred wipeout on this node ?

☒ Disk Space Monitoring Thresholds

Free Disk Space Threshold ?

400MB

Free Disk Space Warning Threshold ?

2GiB

Free Temp Space Threshold ?

400MB

Free Temp Space Warning Threshold ?

2GiB

☐ Environment variables

☐ Tool Locations

Save

Apply

## Nodes

[+ New Node](#)

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space
	Built-In Node	Linux (amd64)	In sync	3.11 GiB	0 B	3.11 GiB
	jenkins-slave1	Linux (amd64)	In sync	6.03 GiB	0 B	474.54 MiB
Data obtained		2 min 59 sec	2 min 59 sec	2 min 59 sec	2 min 59 sec	2 min 59 sec

Icons: S M L

```
Building remotely on jenkins-slave1 in workspace /home/ec2-user/slavenode/workspace/DemoFirstJob
```

## ✓ Console Output

```
Started by user demo
Running as SYSTEM
Building remotely on jenkins-slave1 in workspace /home/ec2-user/slavenode/workspace/DemoFirstJob
[DemoFirstJob] $ /bin/sh -xe /tmp/jenkins820356806295351116.sh
+ echo 'demo Jenkins first job'
demo Jenkins first job
+ touch alien.txt
+ echo 'Demo first job completed'
Demo first job completed
Finished: SUCCESS
```

```
[ec2-user@ip-172-31-30-34 lib]$ cd /home/ec2-user/slavenode/workspace/DemoFirstJob
[ec2-user@ip-172-31-30-34 DemoFirstJob]$ ls -l
total 0
-rw-rw-r--. 1 ec2-user ec2-user 0 Jun 27 03:23 alien.txt
```

```
/var/lib
[ec2-user@ip-172-31-30-34 lib]$ cd /home/ec2-user/slavenode/workspace/DemoFirstJob
[ec2-user@ip-172-31-30-34 DemoFirstJob]$ ls -l
total 0
-rw-rw-r--. 1 ec2-user ec2-user 0 Jun 27 03:23 alien.txt
[ec2-user@ip-172-31-30-34 DemoFirstJob]$
```

Now we can see in the slave-node that alien.txt is created

Better to create an Ubuntu machine instead of Amazon Linux VM

1:51

Not needed this thing

## Nodes

[+ New Node](#)[Configure Monitors](#)[↻](#)

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	Built-In Node	Linux (amd64)	In sync	3.10 GiB	0 B	3.10 GiB	0ms
	jenkins-slave1		N/A	N/A	N/A	N/A	N/A
Data obtained		14 min	14 min	14 min	14 min	14 min	14 min



## Declarative approach pipeline



+ New Item

 Build History

 Project Relationship

 Check File Fingerprint

 Manage Jenkins

 My Views

## New Item --> Pipeline

### New Item

Enter an item name

scripted

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.



#### 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.

## Click Triggers

Configure

- General
- Triggers
- Pipeline
- Advanced

☐ Trigger builds remotely (e.g., from scripts) ?

Pipeline

Define your Pipeline using Groovy directly or pull it from source control.

Definition

Pipeline script

Script ?

```
1 pipeline {
2   agent any
3
4   stages {
5     stage('Hello') {
6       steps {
7         echo 'Hello World'
8       }
9     }
10  }
11 }
12
```

Hello World

☒ Use Groovy Sandbox ?