



# Install And Configure Jenkins on AWS

[Edition 04] [Last Update 220920]

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## 1 INTRODUCTION

Jenkins is an open-source automation server that integrates with a number of AWS Services, such as AWS CodeCommit, AWS CodeDeploy, Amazon EC2 Spot, and Amazon EC2 Fleet. You can use Amazon Elastic Compute Cloud (Amazon EC2) to deploy a Jenkins application on AWS in a matter of minutes.

This tutorial walks you through the process of deploying a Jenkins application. You will launch an EC2 instance, install Jenkins on that instance, and configure Jenkins to automatically spin up Jenkins build slave instances if build abilities need to be augmented on the instance.

Amazon EC2 presents a true virtual computing environment, allowing you to use web service interfaces to launch instances with a variety of operating systems, load them with your custom application environment, manage your network's access permissions, and run your image using as many or few systems as you desire.

### This activity guide cover steps for:

- Step 1: Launch an EC2 Instance
- Step 2: Install JDK
- Step 3: Install and Configure Jenkins
- Step 4: Clean Up







## 2 DOCUMENTATION LINKS

- 1. Amazon EC2 https://aws.amazon.com/ec2/
- 2. Features of Amazon EC2 https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/concepts.html
- 3. Amazon EC2 FAQs https://aws.amazon.com/ec2/faqs/
- 4. Getting Started with Amazon EC2 linux Instances https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2\_GetStarted.html
- 5. Jenkins on AWS (whitepaper) https://d0.awsstatic.com/whitepapers/DevOps/Jenkins on AWS.pdf
- 6. DevOps and AWS https://aws.amazon.com/devops/





## 3 PRE-REQUISITE

1. An AWS Account (Free or Paid).





## 4 LAUNCHING A LINUX INSTANCE USING EC2

**Note:** Launching a Linux Instance means you will create a Virtual Machine and access it using tools like Putty, MobaXterm etc. You shall be accessing this Virtual machine using internet, accessing on internet means these machines are physically present in the datacenters that lie in different Regions in the world. A datacenter is a place used to house computer systems and associated components, such as routers, switches, firewalls, storage systems, servers etc. So, you are basically accessing the machine present in such datacenters from anywhere in the world via internet. The launching of an instance does not depend on the underlying infrastructure whether your Laptop is having Windows or macOS.

### 4.1 Creating an EC2 Instance

**Note:** Amazon EC2 basically provides a **Virtual Computing environment**, where they have pre-configured AMI (Amazon Machine Image) from which you can launch Virtual machines. In this section, we shall see the steps to create an configure the Linux Ec2 instance from a pre-configured AMI named Linux-2 AMI.

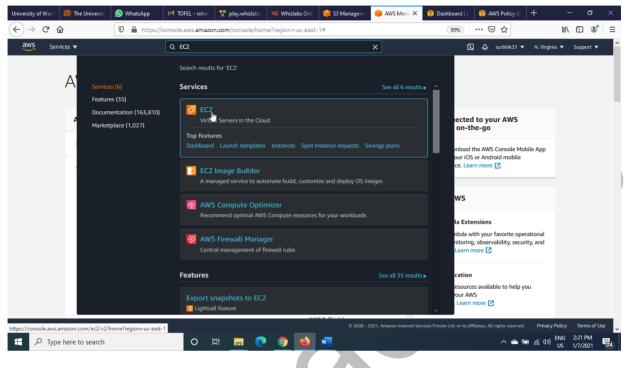
#### 1. Open your console.

AWS Manageme	ant Consola		
Avis Managerin			
AWS services			Stay connected to your AWS resources on-the-go
Recently visited services			Download the AWS Console Mobile Ap
▼ All services			device. Learn more 🔀
Compute     EC2     Lightsail [2]     Lambda	Quantum Technologies Amazon Braket     One     Amazon Braket     One     One	<ul> <li>Security, Identity, &amp; Compliance IAM Resource Access Manager</li> </ul>	Explore AWS
Batch Elastic Beanstalk Serverless Application Repository AWS Outposts	Management & Governance AWS Organizations CloudWatch AWS Auto Scaling CloudFormation CloudFormation	Cognito Secrets Manager GuardDuty Inspector Amazon Macie	AWS Lambda Extensions Use AWS Lambda with your favorite operation tools for monitoring, observability, security, an governance. Learn more
EC2 Image Builder Containers Elastic Container Registry Elastic Container Service Elastic Kubernetes Service	CloudTrail Config OpsWorks Service Catalog Systems Manager AWS AppConfig	AWS Single Sign-On Certificate Manager Key Management Service CloudHSM Directory Service	AWS Certification Explore the resources available to help you prepare for your AWS Certification. Learn more [2]





2. Search for **EC2** in the search bar and click on it.



3. Click on Instances (running).

Resource Groups & Tag Editor						
New EC2 Experience X	Resources			EC2	Global view 🖪 🛛 C	0
C2 Global View	You are using the following	Amazon EC	2 resources in the US Wes	t (Oregon) Reg	gion:	
vents	Instances (running)	0	Dedicated Hosts	0	Elastic IPs	0
imits	Instances	0	Key pairs	3	Load balancers	0
istances	Placement groups	0	Security groups	6	Snapshots	0
stances New	Volumes	0				
istance Types						

4. Click on Launch Instances on the right corner.





aws Services ▼		🔷 rohan @ 1111	I-6727-3292 ▼ N. Virginia ▼ Support ▼
New EC2 Experience Tell us what you think	Instances Info	C Connect Instance state V Acti	ons V Launch instances V
EC2 Dashboard New	Q Filter instances		↑ < 1 > ⊚
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Limits	Name V Instance ID	Instance state $\triangledown$ Instance type $\triangledown$ Status c	heck Alarm Status Availabili
▼ Instances	No matching instances found		
Instances New	<		>
Instance Types			l
Launch Templates			
Spot Requests	Select an instance above		
Savings Plans	Select an instance above		
Reserved Instances			
Dedicated Hosts New			
Scheduled Instances			
Capacity Reservations			
▼ Images			
AMIs			
Feedback English (US) 🔻	·	© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. A	Il rights reserved. Privacy Policy Terms of Use
E Chasse no	me as <b>Webserver</b>		
5. Choose na	me as webserver		
Name and t	tags Info		
Name			
Webserver			Add additional tags

6. Choose Amazon Linux 2 AMI, select 64-bit (x86) architecture and Click on Select.

Quickstart AMIs (46) Commonly used AMIs	My AMIs (0) Created by me		ketplace AMIs (5943) rusted third-party AMIs	Community AMIs (500) Published by anyone			
Refine results	ami (4	6 filtered, 46 ur	Amazon Linux 2 AM	II (HVM) - Kernel 5.10, SSD Volun 272 (64-bit (x86)) / ami-07c02c3812		٦	< -
		Amazon Linux	Amazon EC2, systeme	es with five years support. It provides 1 219, GCC 7.3, Glibc 2.26, Binutils 2. sor of the Amazon Linux AMI that is zard.	29.1, and the latest software pac	kages through extras.	Select 64-bit (x86) 64-bit (Arm
<ul> <li>Free tier only Info</li> <li>OS category</li> </ul>		/erified provider	removed normans m				

**Note:** Here, in the above step we are selecting the Amazon Linux 2 AMI which is basically preconfigured with some tools installed on it like Amazon Linux 2 AMI comes with AWS CLI pre-installed. AWS CLI is basically the Command Line Interface provided by AWS to access any of their services using CLI.





7. Choose an Instance type t2.micro as it is in free tier.

#### Instance type Info

#### Instance type

t2.micro	Free tier eligible	
Family: t2 1 vCPU 1 GiB Memory On-Demand Linux pricing: 0.0116 USD per Hour On-Demand Windows pricing: 0.0162 USD per Hour	•	Compare instance types

**Note:** Here we must choose the instance type as **t2.micro**, because it is free tier eligible, i.e. you won't be charge for running the instance with this instance type as we need to perform the labs being in free tier. So, please make sure you select the t2.micro as the instance type else you shall be charged for running instances from Paid AMI's.

#### 8. Select a new keypair.

#### ▼ Key pair (login) Info

You can use a key pair to se the instance.	curely connect to your instance. E	insure that you have access t	to the sele	cted ke	y pair before you launch
Key pair name - required					
Select			▼	С	Create new key pair





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Key pairs allow you to connect to your instance securely.		
Enter the name of the key pair below. When prompted, store the private key in a secure		
and accessible location on your computer. You will need it later to connect to your		
	Kerread more	
Key pair name		
jenkins	type)	
The name can include upto 255 ASCII characters. It can't include leading or trailing spaces.	, I	
Key pair type		
RSA		
RSA encrypted private and public key pair		
○ ED25519		
ED25519 encrypted private and public key pair (Not supported for Windows instances)		
Private key file format		
• .pem	ar includes 750 hicro in the	
For use with OpenSSH	b is	
ppk	ge on free tier	
For use with PuTTY		
	Launch inst	

9. Now in networking, Click on **Create a new Security Group**, provide the security group a name and mention the same in description, then Click on **Add security Rule.** 

▼ Network settings Info	
VPC - required Info	
vpc-027791e4cf8428650 (default) . 172.31.0.0/16	• C
Subnet Info	
No preference	Create new subnet
Auto-assign public IP Info	
Enable	•
Firewall (security groups) Info A security group is a set of firewall rules that control the traffic for your instance. Add rules to al	llow specific traffic to reach your
Create security group     Select existing security group	
Security group name - required	
k21-web-dmz	
This security group will be added to all network interfaces. The name can't be edited after the security group will draracters: a-z, A-Z, 0-9, spaces, and://#.@[]+=&;{}!\$*	ecurity group is created. Max length is
Description - <i>required</i> Info	



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Type Info	Protocol Info	Port range Info	
ssh	ТСР	22	
Source type Info	Source Info	Description - optional Info	
Anywhere	• Add CIDR, prefix list or security	e.g. SSH for admin desktop	
	0.0.0.0/0 🗙		
	0/0 allow all IP addresses to access your ins	tance. We recommend setting X	

**Note:** In the above steps, we are creating and configuring rules for a security group. A security group is basically a virtual firewall for EC2 instances to control incoming and outgoing traffic to your instances.

- 10. Search for HTTP and press enter, port shall be **80**, source shall be **0.0.0.0/0 (IPv4), ::/0** (ipv6) traffic
- 11. Click on Add Security Rule, Keep it Custon TCP & port no will be 8080.
- 12. Click on Launch Instance

Type Info	Protocol Info	Port range Info A	Amazon Linux 2 AMI (HVM) - Ker <mark>read m</mark>
HTTP	▼ ТСР	80 ar	ami-0c2ab3b8efb09f272
		v	/irtual server type (instance type)
Source type Info	Source Info	Description - optional Info	2.micro
Custom	<ul> <li>Q Add CIDR, prefix list or sec</li> </ul>	rity e.g. SSH for admin desktop	
Custom			Firewall (security group)
Custom	::/0 × 0.0.0.0/0 ×		New security group)
Custom	::/0 X 0.0.0.0/0 X	N	
	::/0 ×     0.0.0.0/0 ×       3 (TCP, 8080, Multiple sources)	S	New security group
		S	New security group Storage (volumes) 1 volume(s) - 8 GiB
Security group rule	3 (TCP, 8080, Multiple sources)	Remove	New security group Storage (volumes) I volume(s) - 8 Gi8 Free tier: In your first year includes 75 hours of t2.micro (or t3.micro in the
Security group rule Type Info	3 (TCP, 8080, Multiple sources) Protocol Info	Remove 1 Port range Info	Vew security group Storage (volumes) 1 volume(s) - 8 GiB ③ Free tier: In your first year includes 750





**Note:** We add http rule here because we need to access our Webpage. As the **communication** for request and response between Webserver and Browser **happens on port 80** which is **http**.

Note: We have added 8080 port here because the default port for Jenkins is 8080

Success Successfully initiated launch of	instance (i-027ba060342207db8)
Launch log	
Next Steps	
Get notified of estimated charges	X
Create billing alerts to get an email no	tification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier
How to connect to your instance	
Your instance is launching and it migh	t be a few minutes until it is in the running state, when it will be ready for you to use
Click View Instances to monitor your in	stance's status. Once your instance is in the 'running' state, you can connect to it from the Instances screen. Find out how to connect to your instance
View more resources to get you starte	d
	View all ins
	N View Instances.
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ws services ▼ unch Status	n View Instances.
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Services ▼      Unch Status      Ine nonowing instance ranners      Get notified of estimated      Create billing alerts to get an e      v to connect to your instances      instances are launching, and it may to     or terminate your instances.      View Instances to monitor your instances	View Instances.     Volum @ 111-6727-3292 * N. Virginia * Supplementation of the standard standar
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Services ▼      unch Status      I'the romowing instance numeries      Get notified of estimated     Create billing alerts to get an e      v to connect to your instances      rinstances are launching, and it may to     roterminate your instances.      K View Instances to monitor your instances.      K View Instances to monitor your instances.      K View Instances to monitor your instances.      We to connect to your Linux instance     exam about AWS Free Usage Tier      le your instances are launching you call	View Instances.     (View Instances.)      (View Instances.)

15. Here, you shall see your instance is launching and the **Status check** is **Initializing**, wait for some time.





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New EC2 A Contract of the second seco	Instances (1/1) Info	Connect	Instance state 🔻	Actions V Lau	unch instances	•
EC2 Dashboard New Events New	Q Filter instances				< 1 >	0
Tags Limits	Name V Instance ID	Instance state v Instance type v	Status check		oility zone ⊽	Public
▼ Instances	Webserver i-Odc66c49a94669e74		Initializing	No alarms + us-east	-1b	ec2-52-
Instances New Instance Types Launch Templates		l				
Spot Requests Savings Plans Reserved Instances	Instance: i-0dc66c49a94669e74 (Webserver)	=				
Dedicated Hosts New Scheduled Instances Capacity Reservations	Details         Security         Networking         Storage           Instance summary         Info	Status Checks Monitoring Tags				
<ul> <li>Images</li> <li>AMIs</li> </ul>	Instance ID i-Odc66c49a94669e74 (Webserver)	Public IPv4 address		V4 addresses .31.87.227		
Elastic Block Store Volumes	Instance state O Running	Public IPv4 DNS D ec2-52-91-14-146.compute-1.amazonaws.c	Private IF	∿4 DNS 72-31-87-227.ec2.internal		
Feedback English (US) 🔻		© 2008 – 2020, Amazon (	nternet Services Private Ltd. o	r its affiliates. All rights reserved.	Privacy Policy To	erms of Use

16. Refresh and you shall see your instance are Up and Running, and **Status check** has changed to **2/2 checks**.

nstances (1) Ind Q. Search							C	Connect Instar	Actions	s <b>v</b> Launch ins	< 1 )	> @
Name	$\nabla$	Instance ID	Instance stat	:e ⊽	Instance type	$\bigtriangledown$	Status check	Alarm status	Availability Zone 🛛 🗸	Public IPv4 DNS	$\nabla$	Public
Webserver		i-027ba060342207db8	⊘ Running	æΘ	t2.micro		<ol> <li>Initializing</li> </ol>	No alarms 🕇	us-west-2b	ec2-35-90-241-152	.us	35.90.2

Now, we have successfully created our first Linux Instance using EC2.

**Note:** Now, wait for the Status check of the instance to change to 2/2 checks pass as the instance is launching from an AMI and it needs time to install all the preconfigured things like AWS CLI and other tools. So, please wait till the Status check becomes 2/2 checks pass and then only proceed with further steps, and if status check has not passed then you shall get error in the further steps so please wait.

**Note:** Now we have launched the instance successfully, further we need to access the instance so, we have two ways for accessing an instance-

- a. Accessing via Browser using EC2 instance Connect.
- b. Accessing using Putty (a Secure Shell SSH client).





In further steps we shall see both the ways to access Linux EC2 instances.

### 4.2 Accessing EC2 Instance Using Browser SSH Connection

**Note:** Till now, we have launched an instance successfully, but we need to access it to run commands so for accessing our instance the easy way is you can access the CLI directly from the browser using EC2 instance connect that we shall see in further steps.

1. Select your Instance and Click on **Connect**.

aws Services 🔻	🛱 🗘 rohan @ 1111-6727-3292 ▼ N. Virginia ▼ Support ▼	
New EC2 Experience Tell us what you think	Instances (1/1) Info C Connect Instances T Actions V Launch Instances V	^
EC2 Dashboard New Events New	Q, Filter instances (1 > @	
Tags	🗹 Name 🔻 Instance ID Instance state 🗸 Instance type 🗸 Status check Alarm Status Availability zone 🖉 Publ	ic I
Limits	Vebserver i-Odc66c49a94669e74 🔗 Running @@ t2.micro 🔗 2/2 checks No alarms 🕂 us-east-1b ec2-5	52-
▼ Instances	< Comparison of the second sec	>
Instances New		
Instance Types		
Launch Templates		
Spot Requests		
Savings Plans		
Reserved Instances -		~
Dedicated Hosts New		•
Scheduled Instances	Instance: i-Odc66c49a94669e74 (Webserver)	
Capacity Reservations	Details Security Networking Storage Status Checks Monitoring Tags	
▼ Images		
AMIs	▼ Instance summary Info	
<ul> <li>Elastic Block Store</li> </ul>	Instance ID Public IPv4 address Private IPv4 addresses	
Volumes v	📑 i-0dc66c49a94669e74 (Webserver) 📑 52.91.14.146   open address 🗹 📑 172.31.87.227	~
Feedback English (US) 🔻	© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of	Jse

2. Under EC2 Instance Connect, let everything default and Click on Connect.





aws	Services ▼	\$	rohan @ 1111-6727-3292 🔻	N. Virginia 🔻	Support 🔻
=	C2 > Instances > i-Odc66c49a946669e74 > Connect to instance				
	Connect to instance Info Connect to your instance I-0dc66c49a94669e74 (Webserver) using any of these options				
	EC2 Instance Connect Session Manager SSH client				
	Instance ID D i-0dc66c49a94669e74 (Webserver)				
	Public IP address      52.91.14.146				
	User name ec2-user				
	Connect using a custom user name, or use the default user name ec2-user for the AMI used to launch the instance.				
	ONOte: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.				
		]			
	Cancel				
https://conso	le.aws.amazon.com/ec2/v2/connect/ec2-user/i-0dc66c49a94669e74	D 2008 - 2020, Amazon Internet Services Private Li	td. or its affiliates. All rights reserved.	Privacy Policy	Terms of Use

3. Now you shall be redirected to new window and you shall see the Linux CLI.



i-0dc66c49a94669e74 (Webserver) Public IPs: 52.91.14.146 Private IPs: 172.31.87.227







## 4.3 Accessing EC2 Instance Using Putty

**Note:** PuTTY is an SSH and telnet client. PuTTY is a free and open-source terminal emulator, serial console and network file transfer application. It supports several network protocols, including SCP, SSH, Telnet, rlogin, and raw socket connection. In this section, we will **download and install Putty** and will try to SSH (Secure Shell) into our instance using it.

1. Download and Install Putty from <a href="http://www.chiark.greenend.org.uk/~sgtatham/putty/">http://www.chiark.greenend.org.uk/~sgtatham/putty/</a> Once you Click on the link you shall see this screen, Click on **Download it here**.

2. Now Click on 64-bit one and install it once downloaded.







#### Download PuTTY: latest release (0.74)

Home | FAQ | Feedback | Licence | Updates | Mirrors | Keys | Links | Team Download: Stable · Snapshot | Docs | Changes | Wishlist

This page contains download links for the latest released version of PuTTY. Currently this is 0.74, released on 2020-06-27.

When new releases come out, this page will update to contain the latest, so this is a good page to bookmark or link to. Alternatively, here is a permanent link to the 0.74 release.

Release versions of PuTTY are versions we think are reasonably likely to work well. However, they are often not the most up-to-date version of the code available. If you have a problem with this release, then it might be worth trying out the <u>development snapshots</u>, to see if the problem has already been fixed in those versions.

Package files						
You probably want one of these. They include versions of all the PuTTY utilities.						
(Not sure whether you want the 32-bit or the 64-bit version	on? Read the FAQ e	entry.)				
MSI ('Windows Installer')						
32-bit:         putty-0.74-installer.msi           64-bit:         putty-64bit-0.74-installer.msi	<u>(or by FTP)</u> (or by FTP)	(signature) (signature)				
Unix source archive .tar.gz: <u>putty-0.74.tar.gz</u>	(or by FTP)	(signature)				
Alternative binary files						

Putty will start downloading.

When new releases come out, this page will update to contain the latest, so th

Release versions of PuTTY are versions we think are reasonably likely to woll this release, then it might be worth trying out the <u>development snapshots</u>, to s

	Package fil	les	
	You probably	want one of these. They include versions of	all the PuT
	(Not sure whe	ether you want the 32-bit or the 64-bit version	n? Read the
	MSI ('Windo	ows Installer')	
	32-bit:	<u>putty-0.74-installer.msi</u>	<u>(or by F</u>
	64-bit:	<u>putty-64bit-0.74-installer.msi</u>	<u>(or by F</u>
	Unix source	archive	
https:/	//the.earth.li/~sgtath	am/putty/latest/w64/putty-64bit-0.74-installer.msi	<u>(or by F</u>
	<b>риtty-64bit-0.74</b> 2.7/2.7 мв	-imsi	

Once downloaded, go to the downloads window on the laptop & double click to install it.



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File Home	Share	View									
Pin to Quick Copy access	Dacto	ut opy path aste shortcut	Move to •	Copy to •	Delete	Rename	New folder	The New item ▼ The Easy access ▼	Properties	I Open ▼ i Edit i History	Select all
Cl	ipboard			Org	anize			New	O	pen	Select
$\begin{array}{ccc} \leftarrow & \rightarrow & & \uparrow \\ \hline \end{array}$	↓ > This PC	C > OS (C:) Name	<ul> <li>Users</li> </ul>	> surt	oh > Do	ownloads	>	↓ Date modified		Туре	
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📜 New folder		S SCT AU	aderny) i	b. 744	ankshi (	PR6_013				E-mail N	lessage

It will open the setup wizard & then proceed to the next step, click **Next** to move ahead, complete all the steps to install & once done, click **Finish** 

🕞 PuTTY release 0.74 (64-bit	) Setup — 🗆 🗙	PuTTY release 0.74 (64-bit	t) Setup — 🗆 🗙
đ	Welcome to the PuTTY release 0.74 (64-bit) Setup Wizard		Completed the PuTTY release 0.74 (64-bit) Setup Wizard
R. S.	The Setup Wizard will install PuTTY release 0.74 (64-bit) on your computer. Click Next to continue or Cancel to exit the Setup Wizard.	R.	Click the Finish button to exit the Setup Wizard.
3			1
2		Ż	View README file
	Back Next Cancel		Back Finish Cancel

**Note:** When you download & install PuTTY, it will automatically install PuTTYgen too on your local laptop/PC



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All Apps Documents Web More 🕶 Best match	
PuTTY App	
Apps  PuTTYgen  >	PuTTY App
generation     >       generation     >       putty-64bit-0.73-installer.msi     >	C Open
Search the web putty - See web results	<ul> <li>Run Pageant</li> <li>Run PuTTYgen</li> </ul>
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/	server12_private
𝒫 putty	o 🛱 💿 📓 🤻 불

**Note:** Now, we have downloaded a key from the AWS console while creating Key-Pair, that key has an **.pem (privacy enhanced mail)** extension. However, putty reads key only with **.ppk (putty private key)** extension so need to convert our **.pem key** into **.ppk key** so that Putty can read and use the key to login in our instance.

For converting the key we need to load the Key in **PuTTYgen** which you can get when you search for it in the menu bar in your laptop, once the key is loaded we generate a key in **.ppk** extension using **PuttyGen.** 

3. Once installed **Open PuTTYgen**, under Type of key to generate, make sure **RSA** is selected.



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E	ile <u>K</u> ey Con <u>v</u> ersions <u>H</u> elp Key No key.			
	Actions Generate a public/private key pair Load an existing private key file		<u>G</u> enerate Load	
[	Save the generated key Parameters Type of key to generate: ● <u>R</u> SA ○ <u>D</u> SA Number of <u>b</u> its in a generated key:	Save public key	Save private key SSH- <u>1</u> (RSA) 2048	
∎ bad.				L

4. Now Click on Load.

New EC2     Experience     Tell us what you think	Instances (1/1) Info	PuTTY Key Generator	C Connect In ? ×	Actions V	Launch instances
EC2 Dashboard New Events New	Q. Filter instances	ile Key Conversions Help Key No key.			< 1 >
Tags	✓ Name			tus check Alarm Status	Availability zone 🗢 🛛 P
Limits	Vebserver			2/2 checks No alarms +	us-east-1b e
▼ Instances	<				
Instances New					
Instance Types					
Launch Templates					
Spot Requests		Actions			
Savings Plans		Generate a public/private key pair	Generate		
Reserved Instances		Load an existing private key file	Load		
Dedicated Hosts New		Save the generated key Save public	lic key Save privite key		
Scheduled Instances	Instance: i-Odc66c49a94669e74 (V	Parameters			
Capacity Reservations	Details Security Netw		Ed25519 OSSH-1 (RSA)		
▼ Images		Number of bits in a generated key:	2048		
	▼ Instance summary Info				
AMIs				Private IPv4 addresses	
AMIs  Elastic Block Store	Instance ID	Public IPv4 address		Private IPv4 addresses	

5. Click on All Files under the dropdown in the folder where your .pem file is saved.





New EC2 Experience X	Instances (1/1) Info		C Con	nnect Instance	e state 🔻 🛛 Actions	<ul> <li>Launch instances</li> </ul>
Experience Tell us what you think EC2 Dashboard New	Q. Filter instances		· Millionation, 1	<ul> <li>         ひ         Search AG05     </li> </ul>	Create_an_EC2_I A	< 1 > ©
Tags	▼ Name マ	Organize  New folder  Desktop	Name	Date modified	III ▼ III ?	Availability zone ⊽ Public I
imits		🕹 Downloads 🖈	A finality in a lateral	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		
nstances	Webserver	🗄 Documents 🖈	I for all the lot of the second	A.C. 495 (1997)	+	us-east-1b ec2-52-
istances New	`	📰 Pictures 🛛 🖈	International Contra	10 mil 1000 (m. 10	10.000	
Istance Types		<ul> <li>A final spinor</li> </ul>				
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avings Plans		<ul> <li>OneDrive</li> </ul>				
eserved Instances		💻 This PC				
edicated Hosts New	Instance: i-0dc66c49a94669e74	3D Objects				
cheduled Instances		Desktop 🗸 <			<u> </u>	
apacity Reservations	Details Security Net	File name	s		te Key Files (*.ppk) 🗸	
mages				PuTTY Priva All Files (*.*)	te Key Files (*.ppk)	
MIs	▼ Instance summary Info					
	Instance ID	1	Public IPv4 address		Private IPv4 addresses	
lastic Block Store	i-0dc66c49a94669e74 (We	oserver)	52.91.14.146   open address		172.31.87.227	
olumes	v				—	~

**Note:** If you don't select All files, you won't be able to see the .pem file. So please make sure you have selected All files from the Dropdown.

6. Select our **.pem file** and Click on **Open**.

aws Services 🔻				-3292 ▼ N. Virginia ▼ Support ▼
New EC2 Experience Tell us what you think	Q Filter instances	1	nnect Instance state  Actions X	Launch instances     ✓
EC2 Dashboard New Events New	C Organize • N	« Desk >		
Tags Limits <b>Instances</b>	☑     Name     □     Desktop       ☑     Webserver     □     Documents       <	* Name	Date modified Type as	Availability zone ♥     Public I       us-east-1b     ec2-52-       >     >
Instances New Instance Types Launch Templates Spot Requests	All and a second s	Linux-Key.pem	05-11-2020 21:51 PEM File	
Savings Plans Reserved Instances Dedicated Hosts New	OneDrive     OneDrive     This PC     Jostance: i-0dc66c49a94669e74		-	
Scheduled Instances Capacity Reservations	Details Security Net	V C	All File (*.*)	_
APPID     Elastic Block Store     Volumes     Feedback English (US)	Instance ID D i-Odc66c49a94669e74 (Webserver)	Public IPv4 address	Private IPv4 addresses D 172.31.87.227 O, Amazon Internet Services Private Ltd. or its affiliates. All right	s reserved. Privacy Policy Terms of Use
		2000 - 2020 	o, renezan metrice de neu rinate cua, or its annoaces. As right	selected. They toky terms of ose

7. Now Click on OK.





New EC2 X	Instances (1/1) Info	C	Connect Instan	nce state 🔻 🛛 Actions 🔻	Launch instances	
Tell us what you think	Q Filter instances	PuTTY Key Generator	? ×		< 1 >	0
EC2 Dashboard New		File Key Conversions Help			· · · /	U
Events New	Cles	Key Public key for pasting into OpenSSH authorized_keys file:				
Tags Limits	Name 🗢	ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQCM4JyW8HSb52gCTc7kKmJJ		heck Alarm Status	Availability zone ⊽	Public
umits	Vebserver	+#xWpmLS6N3WZH7k5R/Hzkk2WHuP4RsHeVgU70hUpk +WWHhpfhaf5m20ML5ch2atger52M2atg	2/2 ch	hecks No alarms +	us-east-1b	ec2-52-
nstances	<	Key fingerprit PuTTYgen Notice	× 6:39			>
nstances New		Key commen				
nstance Types		Key passphra O Successfully imported foreign key (OpenSSH SSH-2 private key (old PEM format	£)).			
aunch Templates		Confirm pass To use this key with PuTTY, you need to use the "Save private key" command to				
pot Requests	-	Actions save it in PuTTY's own format.				
avings Plans		Generate a p	ste			
leserved Instances		Load an exis				
Dedicated Hosts New		Save the generated key Save public key Save	ave private key			
Scheduled Instances	Instance: i-Odc66c49a94669e74 (V	Parameters				
Capacity Reservations	Details Security Netw		O SSH-1 (RSA)			
Images		Number of bits in a generated key:	2048			
Mis	▼ Instance summary Info					
Elastic Block Store	Instance ID	Public IPv4 address		Private IPv4 addresses		
/olumes	i-0dc66c49a94669e74 (Webser	ver)	1	172.31.87.227		

### 8. Click on **Save private key**.

New EC2 Experience	Instances (1/1) Info	-	C Connect	Instance state V Actions V	Launch instances 💌
Tell us what you think	Q Filter instances	PuTTY Key Generator		×	< 1 > @
EC2 Dashboard New		File Key Conversions	Help		
Events New	Cle	Key Public key for pasting into	OpenSSH authorized_keys file:		
Tags Limits	✓ Name	ssh-rsa AAAAB3NzaC1vc2EAAA	ADAQABAAABAQCM4JyW8HSb52gCTc7kKmJKvlppfsuneoz	tus check Alarm Status	Availability zone 👳 🦳 Publ
Limits	Webserver	+fxWpmLS6N3WZH7k5	TCu7utlocyEYW3zABllbBUv35tSc/RyRBo3RpDOkwAF	2/2 checks No alarms +	us-east-1b ec2-
Instances	<		sh rsa 2048 0c:6e:3d:59:c4:03:1e:2e:0e:e1:a5:19:bb:60:56:39		
Instances New			nported-openssh-key		
Instance Types		Key passphrase:		Ξ.	
Launch Templates		Confirm passphrase:		<b>1</b>	
Spot Requests	-	Actions			
Savings Plans		Generate a public/private	e key pair Generate		
Reserved Instances		Load an existing private k	key file Load	ī	
Dedicated Hosts New		Save the generated key	Save public key Save private key		
Scheduled Instances	Instance: i-Odc66c49a94669e74 (V	Parameters	la l	21	
Capacity Reservations	Details Security Netw	Type of key to generate:			
Images		RSA ODS     Number of bits in a gener		2	
Images AMIs	♥ Instance summary Info	Hander of bis in a gener			
Elastic Block Store	Instance ID		Public IPv4 address	Private IPv4 addresses	
	🗇 i-Odc66c49a94669e74 (Webse	erver)	52.91.14.146   open address 🔀	172.31.87.227	
Volumes eedback English (US) V	~		1997 1997 1997 1997 1997 1997 1997 1997	nternet Services Private Ltd. or its affiliates. All rights n	eserved. Privacy Policy Terms of

**Note:** Here when we select Save private key, we are basically saving the .ppk key that we require to login in our instance. **So, make sure you save it.** 

9. Click on Yes.







aws Services ▼		ᡇ 🕈 rohan @ 1111-6727-3292 🔻 N. Virginia 🔻 Support 🔻
New EC2 Experience Tell us what you think	Q Filter instances	C     Connect     Instance state     ▲     Actions     ▼       PuTTY Key Generator     ?     ×     <     1 >        ile     Key Conversions     Help
EC2 Dashboard New	Cle:	Key Public key for pasting into OpenSSH authorized_keys file:
Tags Limits	<ul> <li>✓ Name </li> <li>✓ Webserver</li> </ul>	ahna AAAAB3NaacTyb2EAAAADAQABAAABAQCM4yW8HSb52gCTc7k/kmJKvpfsuneoz TOJCo7AANYogS9+9-GOnTmC3VWFhzFSpcb-wrHalGTAAm +kWmpLSGN2V7L7k5FHabskurM+zR3Febg1DTnDipk Z/2 checks No alarms + us-east-1b ec2-52.
▼ Instances Instances New	<	+IQWHHgfQqFfm7HW,TcCu7utocyEYW3zABlbBU/39lSc/RyRBo3RpDOkwAF v Key fingerpint: Key onment:
Instance Types Launch Templates		Key passphrase: Confirm passphrase to protect it?
Spot Requests Savings Plans		Actions Generate a public Yes No merete
Reserved Instances Dedicated Hosts New	Instance: i-Odc66c49a94669e74 (V	Laad an existing private key file Laad Save the generated key Save public key Save private key
Scheduled Instances Capacity Reservations	Details Security Netw	Parameters Type of key to generate: © RSA ODSA OECDSA OEd25519 OSSH-1 (RSA)
▼ Images AMIs	▼ Instance summary Info	Number of bits in a generated key: 2048
▼ Elastic Block Store Volumes ∨	Instance ID i-Odc66c49a94669e74 (Webser	Public IPv4 address         Private IPv4 addresses           ver)         52.91.14.146   open address 2         172.31.87.227
Feedback English (US) 🔻		© 2008 - 2020, Amazon internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Uso

## 10. Enter Linux-Key as the name and Click on Save.

aws Services 🔻			🔷 rohan @ 1111-6727	-3292 ▼ N. Virginia ▼ Support ▼
New EC2	Instances (1/1) Info		nnect Instance state 🔻 Actions	▼ Launch instances ▼
Tell us what you think	Q Filter instances	Save private key as:	×	< 1 > ©
EC2 Dashboard New	÷	→ · · ↑ 🦳 « Desk >	✓ ♂ Search AG05_Create_an_EC2_I	
Events New		ganize 🔻 New folder	(≣≣ ▾ 😮	
Tags	✓ Name	😥 Documents 🖈 ^ Name	Date modified Type Js	Availability zone 🗢 Public I
Limits	Vebserver	E Pictures 🖈	a - second to have +	us-east-1b ec2-52-
▼ Instances	< webserver	All and all and a second secon	D-COLUMN TAXAB	US-edst-10 ecz-52-
Instances New				
Instance Types		THE REAL PROPERTY AND A DECIMAL OF A DECIMALO OF A DECIMALO OF A DECIMALO OF A DECIMAL OF A DECIMAL OF A DECI		
Launch Templates		OneDrive		
Spot Requests				
Savings Plans	-	This PC 3D Objects		
Reserved Instances				~
Dedicated Hosts New		•	>	• • •
Scheduled Instances	Instance: i-0dc66c49a94669e74 (	File name: Linux-Key	~	^
Capacity Reservations	Details Security Net	Save as type: PuTTY Private Key Files (*.ppk)	~	
▼ Images		Hide Folders	Save Cancel	
AMIs	▼ Instance summary Info			
Elastic Block Store	Instance ID	Public IPv4 address	Private IPv4 addresses	
Volumes 🗸	i-0dc66c49a94669e74 (Webserve	er) 🗇 52.91.14.146   open address 🖸	172.31.87.227	
Feedback English (US) 🔻		© 2008 - 202	0, Amazon Internet Services Private Ltd. or its affiliates. All right	s reserved. Privacy Policy Terms of Use

11. Now Select your instance and Copy the **public IPv4 address** under Details as shown below.





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New EC2 Experience Tell us what you think	Instances (1/1) Info	C Connect	Instance state v Actions v Launch instances v	- 1
EC2 Dashboard New Events New	Clear filters			٥
Tags	Name 🗢 Instance ID	Instance state $\  \  \nabla$ Instance type $\  \  \nabla$	Status check Alarm Status Availability zone $\triangledown$ Pu	ublic I
Limits	✓ Webserver i-Odc66c49a9	94669e74 🔗 Running 🔍 Q t2.micro	⊘ 2/2 checks No alarms + us-east-1b ec	c2-52·
▼ Instances	¢			<u> </u>
Instances New		_		
Instance Types				
Launch Templates	Instance: i-0dc66c49a94669e74 (Webserver)			
Spot Requests	Details Security Networking	Storage Status Checks Monitoring Tags		
Savings Plans	· · · · · · · · · · · · · · · · ·			
Reserved Instances	▼ Instance summary Info	⊘ Public IPv4 address		
Dedicated Hosts New	Instance ID	copied	Private IPv4 addresses	
Scheduled Instances	i-0dc66c49a94669e74 (Webserver)	52.91.14.146   open address 🖸	□ 172.31.87.227	
Capacity Reservations				
▼ Images	Instance state	Public IPv4 DNS	Private IPv4 DNS	
	⊘ Running	ec2-52-91-14-146.compute-1.amazonaws.	.com   open 🗇 ip-172-31-87-227.ec2.internal	
AMIs		address 🖸		
▼ Elastic Block Store	Instance type	Elastic IP addresses	VPC ID	
Volumes 🗸	t2.micro	-	D vpc-998144e4 🔀	~
Feedback English (US) 🔻			Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms	ofUse

12. Now Open **Putty** and paste the Public-ip address under Host Name (or IP address) you copied and click on **plus mark on SSH**.

🕵 PuTTY Configuration		? ×
Category:		
Session	Basic options for your PuTTY sessio	n
Logging	Specify the destination you want to connect to	0
⊡ ·· Terminal … Keyboard	Host Name (or IP address) Po	ort
- Bell	52.91.14.146 24	2
Features	Connection type:	
- Window	◯ Raw ◯ Telnet ◯ Rlogin ● SSH	Serial
 - Appearance	Load, save or delete a stored session	
Behaviour	Saved Sessions	
···· Translation		
Colours	Default Settings	
		Load
Data		Save
Proxy		Delete
Telnet		Delete
R SSH		
Lo Serial	Close window on exit:	
	Always Never Only on clean	n exit
	,	
About Help	Open	Cancel





13. Under it now Click on Auth.

ategory:			
Features     Window     Appearance     Behaviour     Translation     Selection     Colours     Connection     Proxy     Telnet     Rlogin     SSH     Kex     Host keys     Cipher     Auth     Auth     TI W	^	Basic options for your PuTTY session Specify the destination you want to connect to Host Name (or IP address) Port 52.91.14.146 22 Connection type: O Raw O Telnet O Rlogin O SSH O Serial Load, save or delete a stored session Saved Sessions Default Settings Load Save Delete	
Tunnels Bugs More bugs	~	Close window on exit: Always Never  Only on clean exit	

**Note:** Under Auth we shall provide the **.ppk key** that we generated earlier to authenticate us to login in our instance.

14. Now Click on Browse.



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	🕵 PuTTY Configuration	? ×
	Category:	
	Features A Options controlling S	SSH authentication
	<ul> <li>Window</li> <li>✓ Display pre-authentication</li> <li>Behaviour</li> <li>Bypass authentication en</li> </ul>	
	Colours Attempt authentication us	
	Connection Attempt TIS or CryptoCare	
	Proxy	
	Telnet     Telnet     Riogin     Allow agent forwarding	
	SSH Allow attempted changes	
	Wex     Private key file for authentica     Wex     Host keys	stion: Browse
	Cipher	Browse
	e Auth	
	X11	
	···· Tunnels ···· Bugs	
	More bugs 🗸	
	About Help (	Open Cancel
15. Now Selec	t our <b>.ppk file</b> and Click on <b>Open</b> .	
Г		
	Reputty Configuration ?	×
	🕵 Select private key file	×
	$\leftarrow$ $\rightarrow$ $\checkmark$ $\uparrow$ $\square$ < limit is last particular to the second sec	Search AG05_Create_an_EC2_I
	Organize 👻 New folder	≣≡ ▾ 🔳 ?
	Desktop 🖈 ^ Name	Date modified Type
	🕹 Downloads 🖈	ACCOUNT NAME
	🚰 Documents 🖈	OTTOELOF BANKS
	E Pictures 🖈	05 11 2020 22-26 DuTTV Drivets Key
	Linux-Key	05-11-2020 22:36 PuTTY Private Key
	Type: PuTTY Priva Size: 1.42 KB	ate Key File
	Date modified: 05	5-11-2020 22:36
	<ul> <li>OneDrive</li> </ul>	
	This PC	
	3D Objects	>
	File name:	✓ PuTTY Private Key Files (*.ppk) ✓
		Open 🔻 Cancel

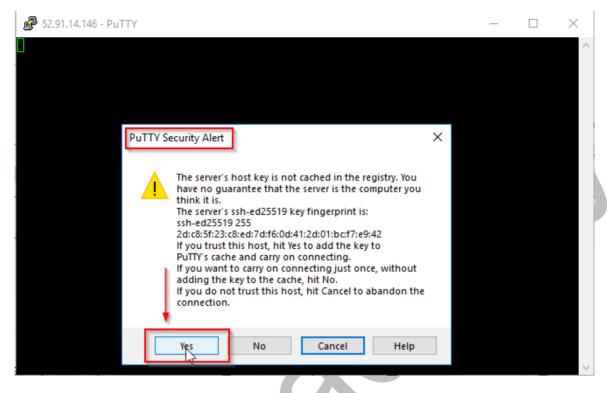
16. Now Click on Yes.



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17. Now type **ec2-user** for login as and press Enter.







**Note:** Don't forget to type ec2-user to login as it is the default user by which you login into a Linux EC2 instance.

18. Now you have successfully connected to your Linux instance using putty.

ec2-user@ip-172-31-87-227:~  $\times$ login as: ec2-user Authenticating with public key "imported-openssh-key" Last login: Thu Nov 5 16:42:19 2020 from ec2-18-206-107-24.compute-1.amazonaws. com Amazon Linux 2 AMI https://aws.amazon.com/amazon-linux-2/ 25 package(s) needed for security, out of 39 available Run "sudo yum update" to apply all updates. [ec2-user@ip-172-31-87-227 ~]\$ Ι



### 5 INSTALL AND CONFIGURE JENKINS

In this step you will deploy Jenkins on your EC2 instance by completing the following tasks:

- Connect to Your Linux Instance
- Install JDK on the Linux Instance
- Download and Install Jenkins
- Configure Jenkins

### 5.1 Connect To Your Linux Instance

Note: Follow Section 4.3 To connect to your Linux Instance using PUTTY.

### 5.2 Install JDK & Configure Jenkins

1. Now in new tab switch to the root user.

sudo -i

2. Update the software packages

sudo yum update –y

```
[ec2-user@jenkins ~]$ sudo -i
[root@jenkins ~]# sudo yum update -y
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00
No Match for argument: -y
No packages marked for update
[root@jenkins ~]#
```

3. Add the Jenkins repo using the following command:

sudo wget -O /etc/yum.repos.d/jenkins.repo \

https://pkg.jenkins.io/redhat-stable/jenkins.repo

4. Import a key file from Jenkins-CI to enable installation from the package

sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key





[root@jenkins ~]# sudo wget -0 /etc/yum.repos.d/jenkins.repo \
> https://pkg.jenkins.io/redhat-stable/jenkins.repo
-2022-09-20 07:38:02-- https://pkg.jenkins.io/redhat-stable/jenkins.repo
Resolving pkg.jenkins.io (pkg.jenkins.io)... 146.75.34.133, 2a04:4e42:78::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|146.75.34.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 85
Saving to: '/etc/yum.repos.d/jenkins.repo'
100%[===========================]] 85 --.-K/s in 0s
2022-09-20 07:38:02 (5.73 MB/s) - '/etc/yum.repos.d/jenkins.repo' saved [85/85]
[root@jenkins ~]# sudo rpm --import https://pkg.jenkins.io/redhat-stable/jenkins.io.key
[root@jenkins ~]#

5. Upgrade the Software Packages

sudo yum upgrade

[root@jenkins ~]# sudo yum upgrade	
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd	
amzn2-core	
jenkins	
jenkins/primary_db	
Resolving Dependencies	
> Running transaction check	
> Package amazon-ssm-agent.x86_64 0:3.1.1575.0-1.amzn2 will be updated	
> Package amazon-ssm-agent.x86_64 0:3.1.1732.0-1.amzn2 will be an update	
> Package chrony.x86_64 0:4.0-3.amzn2.0.2 will be updated	
> Package chrony.x86_64 0:4.2-5.amzn2.0.2 will be an update	
> Package dhclient.x86_64 12:4.2.5-77.amzn2.1.6 will be updated	
> Package dhclient.x86_64 12:4.2.5-79.amzn2.1.1 will be an update	
> Package dhcp-common.x86_64 12:4.2.5-77.amzn2.1.6 will be updated	
> Package dhcp-common.x86_64 12:4.2.5-79.amzn2.1.1 will be an update	
> Package dhcp-libs.x86_64 12:4.2.5-77.amzn2.1.6 will be updated	
> Package dhcp-libs.x86_64 12:4.2.5-79.amzn2.1.1 will be an update	
> Package ec2-net-utils.noarch 0:1.7.0-1.amzn2 will be updated	
> Package ec2-net-utils.noarch 0:1.7.1-1.amzn2 will be an update	
> Package gnupg2.x86_64 0:2.0.22-5.amzn2.0.4 will be updated	
> Package gnupg2.x86_64 0:2.0.22-5.amzn2.0.5 will be an update	
> Package kernel.x86_64 0:5.10.135-122.509.amzn2 will be installed	

6. Install **Jenkins** on which we are configuring as Jenkins server and start Jenkins service

sudo amazon-linux-extras install java-openjdk11 -y

Verifying	: python-javapackages-3.4.1-11.amzn2.noarch
Verifying	: libXi-1.7.9-1.amzn2.0.2.x86_64
Verifying	: libICE-1.0.9-9.amzn2.0.2.x86_64
Verifying	: libfontenc-1.1.3-3.amzn2.0.2.x86_64
Verifying	: tzdata-java-2022c-1.amzn2.noarch
Verifying	: 1:java-11-openjdk-11.0.16.0.8-1.amzn2.0.1.x86_64
Verifying	: libXtst-1.2.3-1.amzn2.0.2.x86_64
Verifying	: copy-jdk-configs-3.3-10.amzn2.noarch
Verifying	: alsa-lib-1.1.4.1-2.amzn2.x86_64
Verifying	: 1:java-11-openjdk-headless-11.0.16.0.8-1.amzn2.0.1.x86_64
Verifying	: javapackages-tools-3.4.1-11.amzn2.noarch
	· · · · · · · · · · · · · · · · · · ·
Installed:	
	enidk.x86 64 1:11.0.16.0.8-1.amzn2.0.1

support@k21academy.com





7. Check for Java version

java -version

8. Now, install Jenkins.

sudo yum install jenkins -y

amzn2-core Resolving Dependencies > Running transaction chec	estions, langpacks, priorities :k 0:2.361.1-1.1 will be install		
Package	Arch	Version	Repository
Installing: jenkins	noarch	2.361.1-1.1	jenkins
Transaction Summary			
Install 1 Package Total download size: 89 M Installed size: 89 M Downloading packages: jenkins-2.361.1-1.1.noarch.r Running transaction check Running transaction test Transaction test succeeded Running transaction Installing : jenkins-2.361 Verifying : jenkins-2.361 Installed: jenkins.noarch 0:2.361.1-1 Complete! [root@jenkins ~]#	1.1-1.1.noarch 1.1-1.1.noarch		

9. Now, Enable & Start Jenkins

service jenkins start					
service jenkins enable					
[root@jenkins ~]# service jenkins start Starting jenkins (via systemctl): [root@jenkins ~]# service jenkins enable Usage: /etc/init.d/jenkins {start stop status try [root@jenkins ~]#	[ OK ] -restart restart force-reload reload probe}				

Thus, we have successfully installed Jenkins, in further steps we will configure Jenkins for username and password.





### 5.3 Configure Jenkins

- 1. is now installed and running on your EC2 instance.
- 2. To configure Jenkins:
- 3. Connect to <u>http://<your\_server\_public\_DNS>:8080</u> from your favorite browser. You will be able to access Jenkins through its management interface:
- 4. Open any Browser on your laptop/PC, In my case I will paste the below on the search bar <a href="http://3.88.111.169:8080/">http://3.88.111.169:8080/</a> (you use the IP of your instance)
- 5. You will see, a web page will get displayed, it is Jenkins Interface.

Note: take public IP of the machine and paste in browser

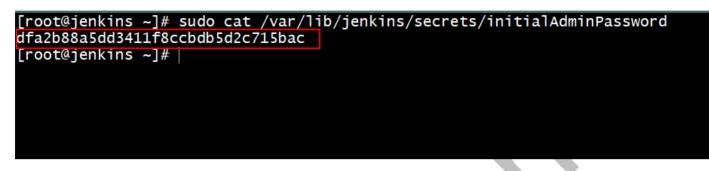
Unlock Jenkins
To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:
/var/lib/jenkins/secrets/initialAdminPassword
Please copy the password from either location and paste it below.
Administrator password





6. Get the **initialAdminPassword** using following command and **Copy** the **password** to start the Jenkins server setup.

sudo cat /var/lib/jenkins/secrets/initialAdminPassword



7. Paste the unlock key/password under Administrator password and click on Continue.

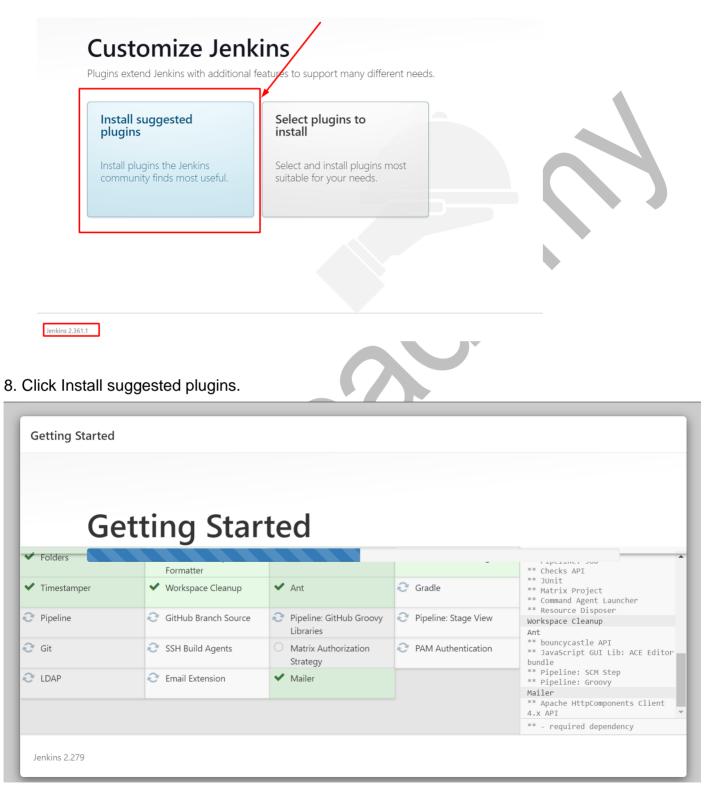
Getting Started

	s securely set up by th		sword has been writ	ten to
the log (not sure wl	here to find it?) and this	s file on the server:		
/var/lib/jenkins/s	ecrets/initialAdminPag	ssword		
Please copy the pa	assword from either lo	cation and paste it be	low.	
Administrator password				
•••••	••••			
This connection is not security	ire. Logins entered here could be co	mpromised. Learn More		





8. Now, click on Install suggested plugins.







9. Once the installation is complete, enter Administrator Credentials, click Save Credentials. OR

You can click Skip & Continue as Admin

**Getting Started** 

Create	First Ac	lmin Us	er	
Username:				
Password:				
Confirm password:				
Full name:				
E-mail address:			N	
				2
Jenkins 2.279			Skip and continue as adr	nin Save and Continue
0. And then click Save	and Finish.			

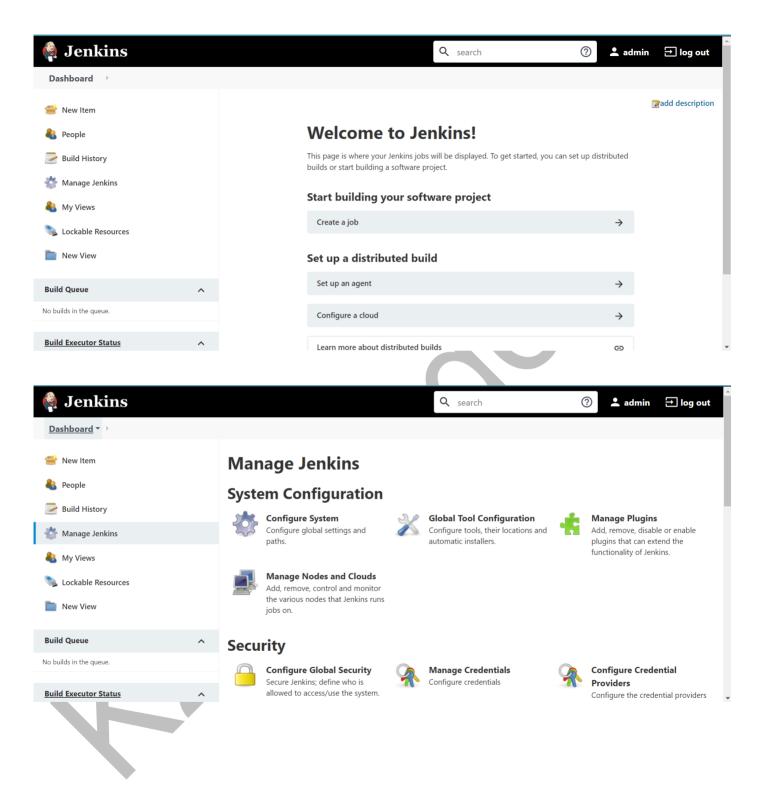




	Instance Configuration         Jenkins URL:         http://54.89.223.223:8080/         The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.         The proposed default value shown is not saved yet and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.
Jenkins 2.279 . Click S	Not now Save and Finish
etting St	irted
	Jenkins is ready!
	Jenkins is ready! You have skipped the setup of an admin user.
	You have skipped the <b>setup of an admin user</b> .











## 6 USEFUL COMMANDS (START/STOP, UPDATE, UNINSTALL)

• To stop Jenkins

sudo service jenkins stop

• To uninstall Jenkins

sudo service jenkins stop

sudo yum remove jenkins

sudo rm -r /var/lib/jenkins

- To start jenkins on a different port
   Update port number in /etc/sysconfig/jenkins
- To fetch initial admin password

sudo su -

- cd /var/lib/jenkins/secrets/
- cat initialAdminPassword





## 7 DELETING/CLEANUP

**Note:** In this section we will be deleting all the resources we have used for this lab in order to be in free tier limit, as keeping these resources running will be chargeable.

## 7.1 Stopping the Linux Instance

**Note:** We would always recommend to Terminate the instance if there is no requirement of it. But many times, it may happen that you shall require the instance after some time to continue with your work, then you shall stop the instance. Stopping the instance will not charge you but you shall be charged for the volume/storage attached to it. So, the charges shall be minimum as compared to running instance, but you will still get charged.

1. Back on EC2 Console, select our Instance, under instance state Click on Stop instance.

Tell us what you think EC2 Dashboard New Events New Tags			(hp 🔪 🔨 🔍
Limits	Webserver     instance iD		ate instance lo alarms + us-east-1b ec2
<ul> <li>Instances</li> </ul>	<		
Instances New			
Instance Types			- 8
Launch Templates	Instance: i-0dc66c49a94669e74 (Webserver)		
Spot Requests	Details Security Networking Storage	Status Checks Monitoring Tags	
Savings Plans			
Reserved Instances	▼ Instance summary Info		
Dedicated Hosts New	Instance ID	Public IPv4 address	Private IPv4 addresses
Scheduled Instances	i-0dc66c49a94669e74 (Webserver)	52.91.14.146   open address 🖸	172.31.87.227
Capacity Reservations			
Images	Instance state	Public IPv4 DNS	Private IPv4 DNS
AMIs		ec2-52-91-14-146.compute-1.amazonaws.com   open address 🖸	ip-172-31-87-227.ec2.internal
<ul> <li>Elastic Block Store</li> </ul>	Instance type	Elastic IP addresses	VPC ID
Volumes	v t2.micro	-	D vpc-998144e4 🖸
Feedback English (US) 🔻		© 2008 - 2020, Amazon Internet Service	is Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of





### 2. Click on Stop to Confirm.

New EC2 Experience	Instances (1/1) Inte		
Tell us what you think			
EC2 Dashboard New			
Events New			
Tags			
Limits	Webserver		
Instances	<	Stop instance?	×
Instances New		stop instance:	
Instance Types		Instance IDs	
Launch Templates		i-0dc66c49a94669e74 (Webserver)	
Spot Requests	Details Security Networking		
Savings Plans		To confirm that you want to stop the instance, choose the Stop button b	pelow.
Reserved Instances			
Dedicated Hosts New		Cancel	Stop
Scheduled Instances			B 17231.87.227
Capacity Reservations			
Images			
AMIs			
Elastic Block Store			

3. Now you shall see our instance is in stopping state, wait for some time.

aws Services V			뤚 🕈 rohan @ 1111-6727-3292 🔻 N. Virginia 🔻 Support 🔻
New EC2 Experience Tell us what you think	Successfully stopped i-Odc66c49a94669e74		>
EC2 Dashboard New	Instances (1/1) Info	C Connect Instar	ce state V Actions V Launch instances V
Events New	Q Filter instances		< 1 > 💿
Tags Limits	Clear filters		
Instances	✓ Name	Instance state v Instance type v Status c	heck Alarm Status Availability zone $\triangledown$ Public
Instances New	Webserver i-0dc66c49a94669e74	⊖ Stopping @Q t2.micro Ø2/2 cl	necks No alarms + us-east-1b ec2-52
Instance Types	<u>&lt;</u>		
Launch Templates			
Spot Requests	Instance: i-0dc66c49a94669e74 (Webserver)		
Savings Plans	Details Security Networking Storage	Status Checks Monitoring Tags	
Reserved Instances	· · · · · · · · · · · · · · · · ·		
Dedicated Hosts New	▼ Instance summary Info		
Scheduled Instances	Instance ID	Public IPv4 address	Private IPv4 addresses
Capacity Reservations	i-0dc66c49a94669e74 (Webserver)	52.91.14.146   open address	172.31.87.227
Images			
AMIs	Instance state  Stopping	Public IPv4 DNS	Private IPv4 DNS
Elastic Block Store	Stopping	ec2-52-91-14-146.compute-1.amazonaws.com   open address [2]	ip-172-31-87-227.ec2.internal
Volumes	<ul> <li>Instance type</li> </ul>	Elastic IP addresses	VPC ID
Feedback English (US) 🔻		© 2008 - 2020, Amazon Internet Servic	es Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Us





#### 4. Refresh and you shall see our instance have stopped.

aws Services <b>v</b>	
New EC2 Experience	<ul> <li>⊘ Successfully stopped i-Odc66c49a94669e74</li> </ul>
EC2 Dashboard New	Instances (1) Info
Events New	Q Filter instances < 1 > 🔕
Tags	search: webserver X Clear filters
Limits	Name ▽ Instance ID Instance state ▽ Instance type ⊽ Status check Alarm Status Availability zone ⊽ Public I
▼ Instances Instances New	Webserver     I-Odc66c49a94669e74     ⊘ Stopped @Q     t2.micro     -     No alarms + us-east-1b     -
Instance Types	
Launch Templates	Select an instance above
Spot Requests	
Savings Plans Reserved Instances	
Dedicated Hosts New	
Scheduled Instances	
Capacity Reservations	
▼ Images	
AMIs	
<ul> <li>Elastic Block Store</li> </ul>	
Volumes Volumes	© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use





## 7.2 Terminating the Linux Instance

**Note:** In this section, we shall see the steps to Terminate the EC2 instance, as if the instances are not terminated once there is no requirement of it then you shall be charged for using those resources. So, to be in free tier and complete all the labs please terminate the resources here the EC2 instance when in no use.

1. Select our instance, under Instance state Click on Terminate instance.

aws Services V			🐥 🕈 rohan @ 1111-6727-3292 🔻 N. Virginia 🔻 Support 🔻
New EC2 Experience	Successfully stopped i-Odc66c49a94669e74		×
EC2 Dashboard New	Instances (1/1) Info	C Connect Instan	ce state ▲ Actions ▼ Launch instances ▼
Events New	Q Filter instances	Start i	nstance < 1 > ©
Tags Limits	Clear filters		t instance late instance
▼ Instances	Name V Instance ID Inst	tance state v Instance type v Termin	nate instance 🗸 🗸 m Status 🛛 Availability zone 🗢 Public I
Instances New		Stopped @ t2.micro –	o alarms + us-east-1b -
Instance Types	<		> Y
Launch Templates			
Spot Requests	Instance: i-Odc66c49a94669e74 (Webserver)		<u>^</u>
Savings Plans	Details Security Networking Storage Status	Checks Monitoring Tags	
Reserved Instances			
Dedicated Hosts New	▼ Instance summary Info		
Scheduled Instances	Instance ID Public	: IPv4 address	Private IPv4 addresses
Capacity Reservations	i-0dc66c49a94669e74 (Webserver)		172.31.87.227
▼ Images	Instance state Public	IPv4 DNS	Private IPv4 DNS
AMIs	⊖ Stopped –		D ip-172-31-87-227.ec2.internal
▼ Elastic Block Store	lastra tar	c IP addresses	VPCID
Volumes		: In addresses	VPC ID
Feedback English (US) 🔻		© 2008 - 2020, Amazon Internet Service	es Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use

### 2. Now Click on Terminate to Confirm.

		🖓 rohan	@ 1111-6727-3292 🔻 N. Virginia 🔻	Support 🔻
Successfully stopped i-Odc66c49e94669e74				×
	Terminate instance?	×		
	Instance IDs			
	i-0dc66c49a94669e74 (Webserver)			
Instance: I-Odc66c49a94569e74 (Webserver)	To confirm that you want to terminate the instance choose th	a terminate button below		
	Terminating the instance cannot be undone	le terminate batton below.		
	Ca			
	Public IPoA address		diversions.	
		df 17231.8		
	Success fully stopped a OddGedBadBadSterA      Instances (1/1) ene      Q. / Wer immedia      Search: webserver      Clear Filters      Name     Name     Instance ID      Webserver     I-Odd66c49294669e74 (Webserver)      Instance Summary Info      Info      Instance Summary Info      Inf		Concept of concep	Concrete Address the Addr





3. Your instance is in **shutting down** state, wait for some time.

aws Services V			🖨 🔹 rohan @ 1111-6727-3292 🔻 N. Vi	rginia 🔻 Support 🔻
New EC2 Experience Tell us what you think	▲ Successfully terminated i-0dc66c49a94669e74			×
EC2 Dashboard New Events New Tags	Instances (1/1) Info Q. Filter instances Clear filters	C Connec	tt Instance state V Actions V Laund	h instances V
Limits ▼ Instances	✓ Name	Instance state v Instance type v		y zone ⊽ Public I
Instances New	✓ Webserver i-0dc66c49a94669e74	⊖ Shuttin @Q t2.micro	<ul> <li>No alarms + us-east-1b</li> </ul>	
Instance Types Launch Templates Spot Requests	Instance: i-0dc66c49a94669e74 (Webserver)           Details         Security         Networking         Storage	Status Checks Monitoring Tags		
Savings Plans Reserved Instances Dedicated Hosts New Scheduled Instances Capacity Reservations	▼ Instance summary Info Instance ID     ☐ i-0dc66c49a94669e74 (Webserver)	Public IPv4 address	Private IPv4 addresses –	
▼ Images AMIs	Instance state O Shutting-down Instance type	Public IPv4 DNS - Elastic IP addresses	Private IPv4 DNS - VPC ID	v
Elastic Block Store     Volumes     Feedback English (US)	v			acy Policy Terms of Use

4. Refresh and you shall see our instance is Terminated.

aws Services 🔻			\$	rohan @ 1111-6727-3292 🔻	N. Virginia 🔻 Supp	port 🔻
New EC2 Experience	⊘ Successfully terminated i-0dc66c49a94669e74					×
EC2 Dashboard New	Instances (1) Info	[	C Connect Instance state	▼ Actions ▼	Launch instances	🗖 j
Events New	Q Filter instances				< 1 >	0
Tags	search: webserver X Clear filters					
▼ Instances	□ Name	Instance state ⊽	Instance type v Status check		lability zone ⊽	Public I
Instances New	Webserver i-0dc66c49a94669e74	⊖ Termina @Q	t2.micro –	No alarms + us-e	ast-1b	-
Instance Types	۲ ۲	63				, ·
Launch Templates		=				
Spot Requests	Select an instance above		l			
Savings Plans						
Reserved Instances						
Dedicated Hosts New						
Scheduled Instances						
Capacity Reservations						
▼ Images						
AMIs						
▼ Elastic Block Store						
Volumes						
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Thus, we have successfully Terminated the Linux EC2 instance.





## 8 TROUBLESHOOTING

#### Issue:

-pasn: Sudo: command not round [ec2-user@ip-172-31-14-202 ~]\$ sudo yum update -y Loaded plugins: extras suggestions, langpacks, priorities, update-motd No packages marked for update [ec2-user@ip-172-31-14-202 ~]\$ sudo wget -0 /etc/yum.repos.d/jenkins.repo http:/ /pkg.jenkinsci.org/redhat/jenkins.repo --2021-02-15 22:37:28-- http://pkg.jenkinsci.org/redhat/jenkins.repo Resolving pkg.jenkinsci.org (pkg.jenkinsci.org) ... failed: Name or service not k nown. wget: unable to resolve host address 'pkg.jenkinsci.org' [ec2-user@ip-172-31-14-202 ~]\$ [ec2-user@ip-172-31-14-202 ~]\$ sudo service jenkins start Starting jenkins (via systemctl): Job for jenkins.service failed because the control process exited with error code. See "systemctl status jenkins.service" and "journalctl -xe" for details. [FAILED] [ec2-user@ip-172-31-14-202 ~]\$ @ ec2-user@ip-172-31-14-202:~ [ec2-user@ip-172-31-14-202 ~]\$ sudo systemctl status jenkins.service • jenkins.service - LSB: Jenkins Automation Server Loaded: loaded (/etc/rc.d/init.d/jenkins; bad; vendor preset: disabled) Active: failed (Result: exit-code) since Mon 2021-02-15 22:40:49 UTC; 1min 5s ago Docs: man:systemd-sysv-generator(8) Process: 3377 ExecStart=/etc/rc.d/init.d/jenkins start (code=exited, status=1/ FAILURE) Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal systemd[1]: Start... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal runuser[3382]: pa... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal jenkins[3377]: St... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal jenkins[3377]: [F... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal systemd[1]: jenki... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal systemd[1]: Faile... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal systemd[1]: Unit ... Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal systemd[1]: jenki... Hint: Some lines were ellipsized, use -1 to show in full. [ec2-user@ip-172-31-14-202 ~]\$ journalctl -xe -- Defined-By: systemd -- Support: http://lists.freedesktop.org/mailman/listinfo/systemd-devel \_\_\_ -- Unit jenkins.service has begun starting up. Feb 15 22:40:49 ip-172-31-14-202.us-east-2.compute.internal runuser[3382]: pam u,



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#### Solution:

#### https://stackoverflow.com/questions/39621263/jenkins-fails-when-running-service-start-jenkins

# Search usable Java as /usr/bin/java might not point to minimal version required by Jenkins. # see http://www.nabble.com/guinea-pigs-wanted-----Hudson-RPM-for-RedHat-Linux-td25673707.html

candidates="

/etc/alternatives/java

/usr/lib/jvm/java-1.8.0/bin/java

/usr/lib/jvm/jre-1.8.0/bin/java

/usr/lib/jvm/java-11.0/bin/java

/usr/lib/jvm/jre-11.0/bin/java

/usr/lib/jvm/java-11-openjdk-amd64

/usr/bin/java

...

We need to install Java so make sure you have installed java and then you install all the Jenkins packages and keys.





## 9 SUMMARY

### This activity guide covered steps to:

- 1. Launching a Linux Instance Using EC2
  - a. Creating an EC2 Instance
  - b. Accessing EC2 Instance Using Browser SSH Connection
  - c. Accessing EC2 Instance Using Putty
- 2. Install and Configure Jenkins
- 3. Deleting/Cleanup
  - a. Stopping the Linux Instance
  - b. Terminating the Linux Instance