

Creating AWS instance

- Create a free tier Amazon AWS account (Debit/credit card needed for a minimal transaction of Rs. 2)

Create an Amazon ec2 instance

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' page. It lists several AMI options:

- macOS Mojave 10.14.6 - ami-007e277d769aa198c**: Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. A 'Select' button is available.
- Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-03d64741867e7bb94**: Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. A 'Select' button is available.
- SUSE Linux Enterprise Server 15 SP2 (HVM), SSD Volume Type - ami-0f052119b3c7e61d1**: Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. A 'Select' button is available.

An 'Explore AWS' sidebar is visible, showing information about Amazon SNS and a 'Try it out' button. At the bottom, there are links for Feedback, English (US), Privacy Policy, Terms of Use, and Cookie preferences.

- Choose your Instance type

The screenshot shows the 'Step 2: Choose an Instance Type' page. It displays a table of instance families:

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input checked="" type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	t2	t2.3xlarge	12	48	EBS only	-	Moderate	Yes

At the bottom, there are buttons for Cancel, Previous, Review and Launch, and Next: Configure Instance Details.

3. Configure instance details

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of Instances	<input type="text" value="1"/>	Launch into Auto Scaling Group
Purchasing option	<input checked="" type="checkbox"/> Request Spot Instances	
Network	vpc-d3a12bb8 (default)	<input type="button" value="Create new VPC"/>
Subnet	No preference (default subnet in any Availability Zone)	<input type="button" value="Create new subnet"/>
Auto-assign Public IP	Use subnet setting (Enable)	
Placement group	<input type="checkbox"/> Add instance to placement group	
Capacity Reservation	Open	
Domain join directory	No directory	<input type="button" value="Create new directory"/>
IAM role	None	<input type="button" value="Create new IAM role"/>
Shutdown behavior	Stop	
Stop - Hibernate behavior	<input type="checkbox"/> Enable hibernation as an additional stop behavior	
Enable termination protection	<input type="checkbox"/> Protect against accidental termination	

Cancel Previous **Review and Launch** Next: Add Storage

4. Then click on review and launch on previous step

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

AMI Details

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-03d64741867e7bb94

Free tier eligible

Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
i2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups

Security group name: launch-wizard-2

Note: Improve your instances' security. Your security group, launch-wizard-2, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. Edit security groups

Cancel Previous **Launch**

5. After clicking on launch, create a new key pair for your machine and download the keypair and then click on launch instances

The screenshot shows the AWS Step 7: Review Instance Launch wizard. The main page displays instance details like AMI, Instance Type (I2.micro), and Security Groups. A modal dialog titled "Select an existing key pair or create a new key pair" is open. It contains instructions about key pairs, a dropdown for selecting a key pair name ("AWS_NEW_KEY"), a "Download Key Pair" button, and a note about storing the private key file securely. At the bottom of the dialog are "Cancel" and "Launch Instances" buttons.

6. The instance will be launching. It might take some time.

The screenshot shows the AWS Launch Status page. It displays a green success message: "Your instances are now launching" with a link to view the launch log. Below it is a blue info message: "Get notified of estimated charges" with a link to create billing alerts. Further down, there's a section titled "How to connect to your instances" with a note about usage hours and a link to monitor instance status. A "Helpful Resources" section lists links to connect to a Linux instance, learn about the AWS Free Usage Tier, and access EC2 User Guide and Discussion Forum. At the bottom, there are standard footer links for feedback, privacy policy, terms of use, and cookie preferences.

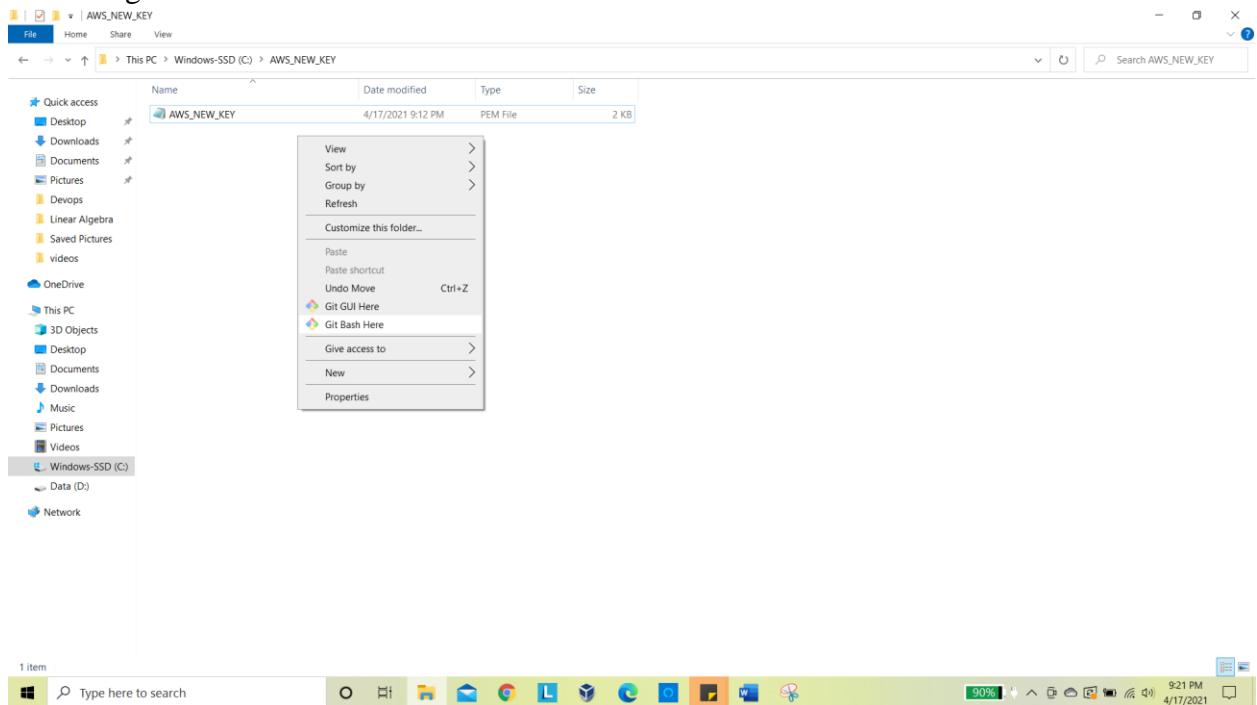
- Click on instance id to view status of instance. It is in running status.

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with various navigation options like 'EC2 Dashboard', 'Events', 'Tags', 'Limits', 'Instances', 'Instance Types', 'Launch Templates', 'Spot Requests', 'Savings Plans', 'Reserved Instances', 'Dedicated Hosts', 'Capacity Reservations', 'Images', 'AMIs', 'Elastic Block Store', 'Volumes', and 'Snapshots'. The main area displays 'Instances (1/1)' with a search bar and a table. The table has columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Public IPv4 DNS. One row is shown with the instance ID 'i-01ef0d0bc9fa06179e', state 'Running', type 't2.micro', and other details. Below the table, there's a detailed view for 'Instance: i-07649146a09edee44' with tabs for 'Details', 'Security', 'Networking', 'Storage', 'Status checks', 'Monitoring', and 'Tags'. The 'Details' tab is selected, showing sections for 'Instance summary' and 'Network interface details'.

- Connect to your aws instance using git Bash (download git for desktop: <https://git-scm.com/download/win>)

9. Connect to AWS instance

Open the path where you have saved the downloaded key pair and right click and then Click on git bash here.

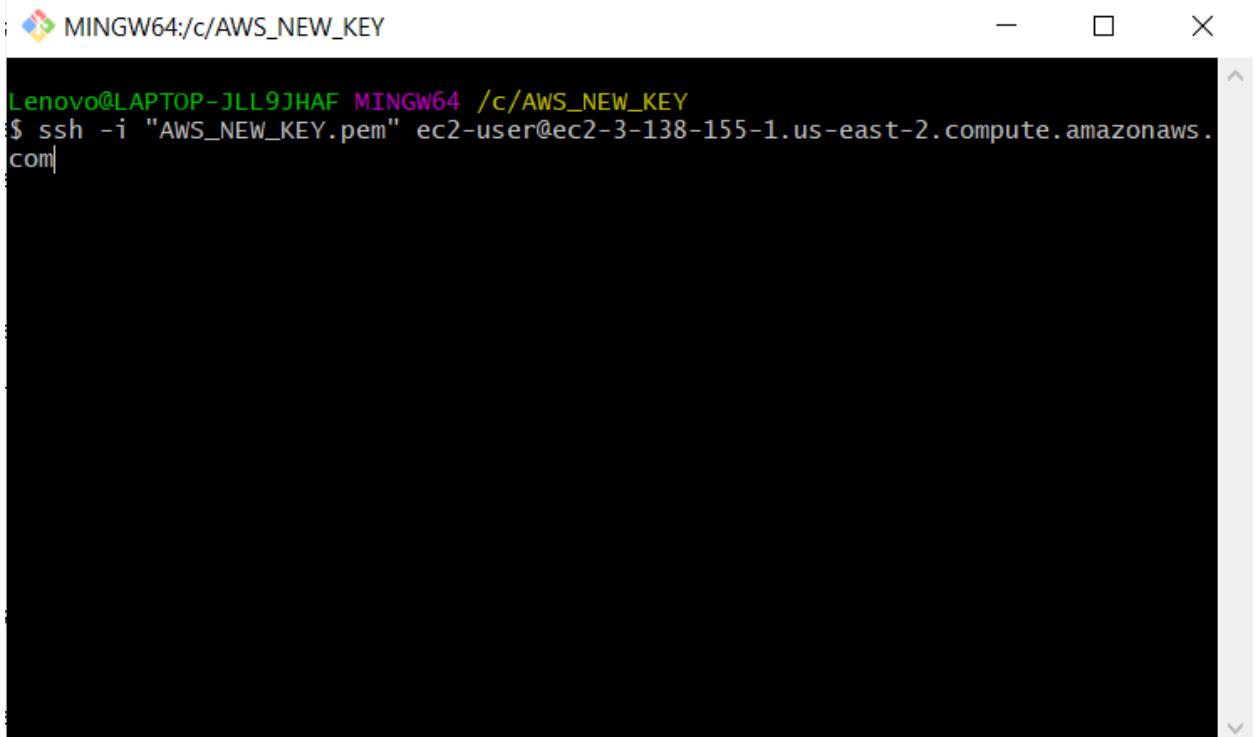


10. Now go back to ec2 instance and click on connect and copy the path Connect to your instance using its Public DNS:

The screenshot shows the AWS EC2 Instances page. A search bar at the top right contains the text "search: i-01efd0bc9fa06179e". Below it, a table lists one instance: "i-01efd0bc9fa06179e" (Running, t2.micro, 2/2 checks passed). The "Connect" button is highlighted in yellow. On the left sidebar, under "Instances", "Instances" is selected. The main content area shows the details for the selected instance, including its Public IPv4 address (3.143.234.12) and Private IPv4 addresses (172.31.18.80).

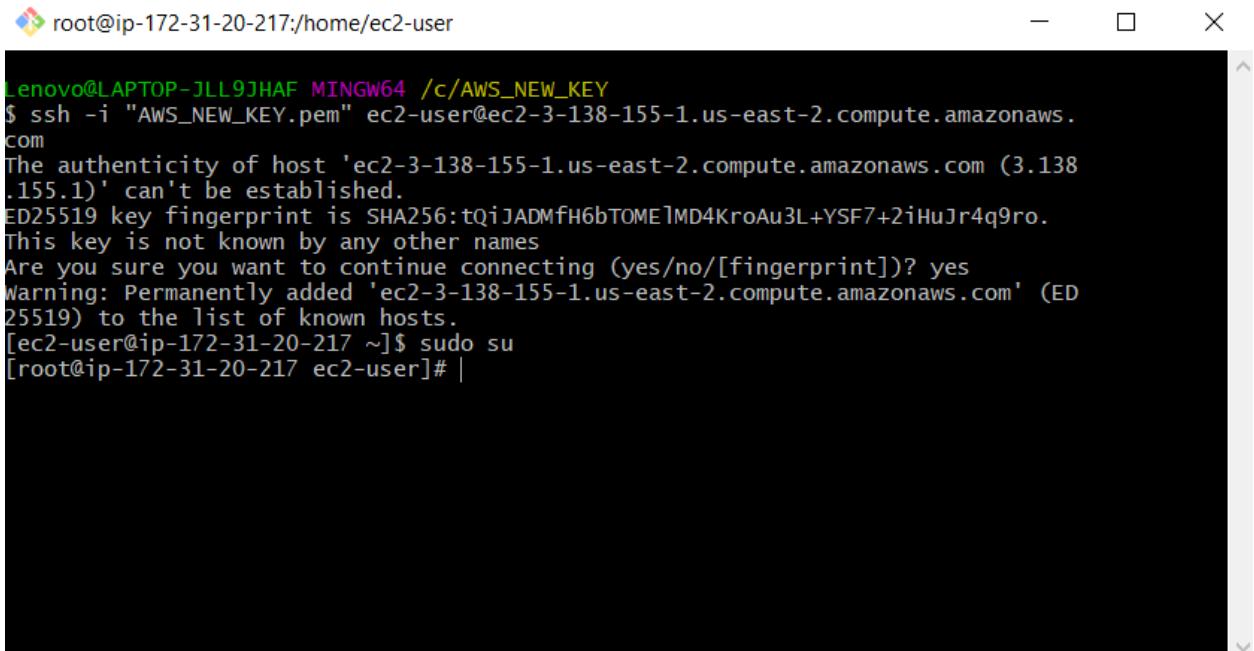
The screenshot shows the "Connect to instance" page for the instance "i-07649146a09edee44". The "SSH client" tab is selected. It provides instructions for connecting via SSH, including steps to open an SSH client, locate the private key file "aws_key.pem", run "chmod 400 aws_key.pem", and connect using the Public DNS "ec2-3-143-234-12.us-east-2.compute.amazonaws.com". A note at the bottom states: "Note: 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." The "Feedback", "English (US)", and "Cookie preferences" buttons are visible at the bottom.

11. Go to git bash and paste the path copied above



```
Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY
$ ssh -i "AWS_NEW_KEY.pem" ec2-user@ec2-3-138-155-1.us-east-2.compute.amazonaws.com|
```

12. Hit enter on writing above command and we are connected to ec2 instance. Now we have to switch to root user



```
root@ip-172-31-20-217:/home/ec2-user
Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY
$ ssh -i "AWS_NEW_KEY.pem" ec2-user@ec2-3-138-155-1.us-east-2.compute.amazonaws.com
The authenticity of host 'ec2-3-138-155-1.us-east-2.compute.amazonaws.com (3.138
.155.1)' can't be established.
ED25519 key fingerprint is SHA256:tQiJADMfH6bTOME1MD4KroAu3L+YSF7+2iHuJr4q9ro.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
warning: Permanently added 'ec2-3-138-155-1.us-east-2.compute.amazonaws.com' (ED
25519) to the list of known hosts.
[ec2-user@ip-172-31-20-217 ~]$ sudo su
[root@ip-172-31-20-217 ec2-user]# |
```

13. We need to deploy war file so we need tomcat server

Steps to configure EC2 instance on tomcat server

14. Install java

```
root@ip-172-31-20-217:~# ssh -i "AWS_NEW_KEY.pem" ec2-user@ec2-3-138-155-1.us-east-2.compute.amazonaws.com
The authenticity of host 'ec2-3-138-155-1.us-east-2.compute.amazonaws.com (3.138.155.1)' can't be established.
ED25519 key fingerprint is SHA256:tQijADMfH6bTOME1MD4KroAu3L+YSF7+2iHuJr4q9ro.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-138-155-1.us-east-2.compute.amazonaws.com' (ED25519) to the list of known hosts.
[ec2-user@ip-172-31-20-217 ~]# sudo su
[root@ip-172-31-20-217 ~]# yum install java-1.8*
Last metadata expiration check: 0:14:34 ago on Sat 17 Apr 2021 03:56:17 PM UTC.
Dependencies resolved.
=====
Package           Arch    Version        Repository      Size
=====
Installing:
java-1.8.0-openjdk   x86_64  1:1.8.0.282.b08-2.el8_3  rhel-8-appstream-rhui-rpms  333 k
java-1.8.0-openjdk-accessibility  x86_64  1:1.8.0.282.b08-2.el8_3  rhel-8-appstream-rhui-rpms  95 k
=====
[root@ip-172-31-20-217 ~]#
```

15. Check the version on java installed

```
[root@ip-172-31-20-217 ~]# java -version
openjdk version "1.8.0_282"
OpenJDK Runtime Environment (build 1.8.0_282-b08)
OpenJDK 64-Bit Server VM (build 25.282-b08, mixed mode)
[root@ip-172-31-20-217 ~]#
```

16. Download tomcat from <https://downloads.apache.org/tomcat/>

17. Need to install wget command to download anything on ec2 instance. We will install tomcat using wget command. For that we need to change the directory to Change the path to 'cd /opt'

18. Intsall wget

```
root@ip-172-31-20-217:~# cd /opt
[root@ip-172-31-20-217 opt]# yum install wget -y
Last metadata expiration check: 0:29:03 ago on Sat 17 Apr 2021 03:56:17 PM UTC.
Dependencies resolved.
=====
Package      Architecture Version        Repository      Size
=====
Installing:
wget         x86_64      1.19.5-10.el8      rhel-8-appstream-rhui-rpms      734 k
=====
Transaction Summary
Install 1 Package
Total download size: 734 k
Installed size: 2.8 M
Downloading Packages:
wget-1.19.5-10.el8.x86_64.rpm          4.8 MB/s | 734 kB     00:00
Total                                         3.2 MB/s | 734 kB     00:00
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
```

19. Intsall tomcat <https://downloads.apache.org/tomcat/tomcat-8/v8.5.65/bin/apache-tomcat-8.5.65.tar.gz> and check if its installed

```
root@ip-172-31-20-217:/opt
Running scriptlet: wget-1.19.5-10.el8.x86_64
Verifying           : wget-1.19.5-10.el8.x86_64
1/1
1/1

Installed:
  wget-1.19.5-10.el8.x86_64

Complete!
[root@ip-172-31-20-217 opt]# wget https://downloads.apache.org/tomcat/tomcat-8/v8.5.65/bin/apache-tomcat-8.5.65.tar.gz
--2021-04-17 16:27:12-- https://downloads.apache.org/tomcat/tomcat-8/v8.5.65/bin/apache-to
mcat-8.5.65.tar.gz
Resolving downloads.apache.org (downloads.apache.org)... 88.99.95.219, 2a01:4f8:10a:201a::2
Connecting to downloads.apache.org (downloads.apache.org)|88.99.95.219|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10523269 (10M) [application/x-gzip]
Saving to: 'apache-tomcat-8.5.65.tar.gz'

apache-tomcat-8.5.65.t 100%[=====] 10.04M 6.45MB/s   in 1.6s
2021-04-17 16:27:14 (6.45 MB/s) - ‘apache-tomcat-8.5.65.tar.gz’ saved [10523269/10523269]

[root@ip-172-31-20-217 opt]# ls
apache-tomcat-8.5.65.tar.gz
[root@ip-172-31-20-217 opt]# |
```

20. Then untar and unzip using tar command :

```
root@ip-172-31-20-217:/opt
[root@ip-172-31-20-217 opt]# tar -zvxf apache-tomcat-8.5.65.tar.gz
apache-tomcat-8.5.65/conf/
apache-tomcat-8.5.65/conf/catalina.policy
apache-tomcat-8.5.65/conf/catalina.properties
apache-tomcat-8.5.65/conf/context.xml
apache-tomcat-8.5.65/conf/jaspic-providers.xml
apache-tomcat-8.5.65/conf/jaspic-providers.xsd
apache-tomcat-8.5.65/conf/logging.properties
apache-tomcat-8.5.65/conf/server.xml
apache-tomcat-8.5.65/conf/tomcat-users.xml
apache-tomcat-8.5.65/conf/tomcat-users.xsd
apache-tomcat-8.5.65/conf/web.xml
apache-tomcat-8.5.65/bin/
apache-tomcat-8.5.65/lib/
apache-tomcat-8.5.65/logs/
apache-tomcat-8.5.65/temp/
apache-tomcat-8.5.65/webapps/
apache-tomcat-8.5.65/webapps/ROOT/
apache-tomcat-8.5.65/webapps/ROOT/WEB-INF/
apache-tomcat-8.5.65/webapps/docs/
apache-tomcat-8.5.65/webapps/docs/WEB-INF/
apache-tomcat-8.5.65/webapps/docs/annotationapi/
apache-tomcat-8.5.65/webapps/docs/api/
apache-tomcat-8.5.65/webapps/docs/appdev/
```

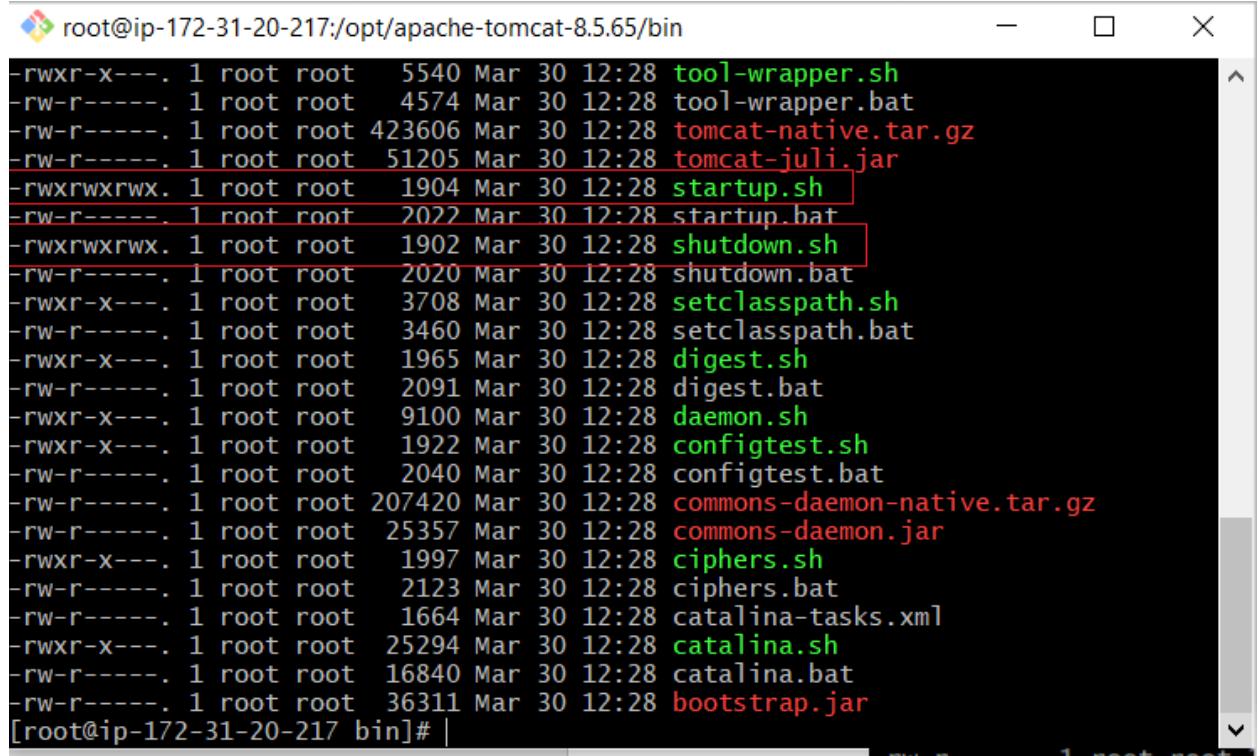
21. Change directory to cd `apache-tomcat-8.5.65` . Then change directory to cd **bin**. To access default tomcat page first access services under bin directory here is startup.sh and shutdown.sh file:

```
[root@ip-172-31-20-217 ec2-user]# cd /opt
[root@ip-172-31-20-217 opt]# ls
apache-tomcat-8.5.65 apache-tomcat-8.5.65.tar.gz
[root@ip-172-31-20-217 opt]# cd apache-tomcat-8.5.65
[root@ip-172-31-20-217 apache-tomcat-8.5.65]# ls
bin           CONTRIBUTING.md  logs       RELEASE-NOTES  webapps
BUILDING.txt  lib             NOTICE     RUNNING.txt   work
conf          LICENSE         README.md  temp
[root@ip-172-31-20-217 apache-tomcat-8.5.65]# |
```

```
root@ip-172-31-20-217:/opt/apache-tomcat-8.5.65/bin
[root@ip-172-31-20-217 apache-tomcat-8.5.65]# cd bin
[root@ip-172-31-20-217 bin]# ls -ltrr
total 872
-rwxr-x---. 1 root root  1908 Mar 30 12:28 version.sh
-rw-r-----. 1 root root  2026 Mar 30 12:28 version.bat
-rwxr-x---. 1 root root  5540 Mar 30 12:28 tool-wrapper.sh
-rw-r-----. 1 root root  4574 Mar 30 12:28 tool-wrapper.bat
-rw-r-----. 1 root root 423606 Mar 30 12:28 tomcat-native.tar.gz
-rw-r-----. 1 root root 51205 Mar 30 12:28 tomcat-juli.jar
-rwxr-x---. 1 root root  1904 Mar 30 12:28 startup.sh
-rw-r-----. 1 root root  2022 Mar 30 12:28 startup.bat
-rwxr-x---. 1 root root  1902 Mar 30 12:28 shutdown.sh
-rw-r-----. 1 root root  2020 Mar 30 12:28 shutdown.bat
-rwxr-x---. 1 root root  3708 Mar 30 12:28 setclasspath.sh
-rw-r-----. 1 root root  3460 Mar 30 12:28 setclasspath.bat
-rwxr-x---. 1 root root  1965 Mar 30 12:28 digest.sh
-rw-r-----. 1 root root  2091 Mar 30 12:28 digest.bat
-rwxr-x---. 1 root root  9100 Mar 30 12:28 daemon.sh
-rwxr-x---. 1 root root  1922 Mar 30 12:28 configtest.sh
-rw-r-----. 1 root root  2040 Mar 30 12:28 configtest.bat
-rw-r-----. 1 root root 207420 Mar 30 12:28 commons-daemon-native.tar.gz
-rw-r-----. 1 root root 25357 Mar 30 12:28 commons-daemon.jar
-rwxr-x---. 1 root root  1997 Mar 30 12:28 ciphers.sh
-rw-r-----. 1 root root  2123 Mar 30 12:28 ciphers.bat
```

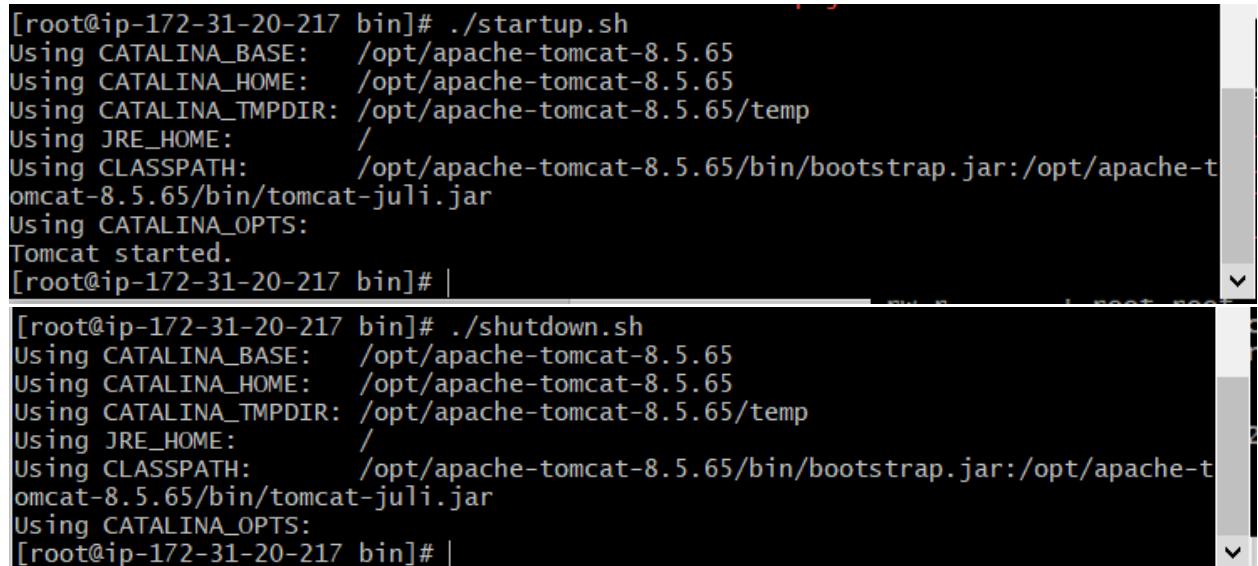
22. Give execute permissions to startup.sh and shutdown.sh and check execute permissions granted to both

```
[root@ip-172-31-20-217 bin]# chmod 777 startup.sh
[root@ip-172-31-20-217 bin]# chmod 777 shutdown.sh
[root@ip-172-31-20-217 bin]# ls -ltr|
```



```
root@ip-172-31-20-217:/opt/apache-tomcat-8.5.65/bin
-rwxr-x---. 1 root root 5540 Mar 30 12:28 tool-wrapper.sh
-rw-r-----. 1 root root 4574 Mar 30 12:28 tool-wrapper.bat
-rw-r-----. 1 root root 423606 Mar 30 12:28 tomcat-native.tar.gz
-rw-r-----. 1 root root 51205 Mar 30 12:28 tomcat-juli.jar
-rwxrwxrwx. 1 root root 1904 Mar 30 12:28 startup.sh
-rw-r-----. 1 root root 2022 Mar 30 12:28 startup.bat
-rwxrwxrwx. 1 root root 1902 Mar 30 12:28 shutdown.sh
-rw-r-----. 1 root root 2020 Mar 30 12:28 shutdown.bat
-rwxr-x---. 1 root root 3708 Mar 30 12:28 setclasspath.sh
-rw-r-----. 1 root root 3460 Mar 30 12:28 setclasspath.bat
-rwxr-x---. 1 root root 1965 Mar 30 12:28 digest.sh
-rw-r-----. 1 root root 2091 Mar 30 12:28 digest.bat
-rwxr-x---. 1 root root 9100 Mar 30 12:28 daemon.sh
-rwxr-x---. 1 root root 1922 Mar 30 12:28 configtest.sh
-rw-r-----. 1 root root 2040 Mar 30 12:28 configtest.bat
-rw-r-----. 1 root root 207420 Mar 30 12:28 commons-daemon-native.tar.gz
-rw-r-----. 1 root root 25357 Mar 30 12:28 commons-daemon.jar
-rwxr-x---. 1 root root 1997 Mar 30 12:28 ciphers.sh
-rw-r-----. 1 root root 2123 Mar 30 12:28 ciphers.bat
-rw-r-----. 1 root root 1664 Mar 30 12:28 catalina-tasks.xml
-rwxr-x---. 1 root root 25294 Mar 30 12:28 catalina.sh
-rw-r-----. 1 root root 16840 Mar 30 12:28 catalina.bat
-rw-r-----. 1 root root 36311 Mar 30 12:28 bootstrap.jar
[root@ip-172-31-20-217 bin]# |
```

23. In order to start and shutdown tomcat, write ./startup.sh to start and ./shutdown.sh to shutdown



```
[root@ip-172-31-20-217 bin]# ./startup.sh
Using CATALINA_BASE:   /opt/apache-tomcat-8.5.65
Using CATALINA_HOME:   /opt/apache-tomcat-8.5.65
Using CATALINA_TMPDIR: /opt/apache-tomcat-8.5.65/temp
Using JRE_HOME:        /
Using CLASSPATH:       /opt/apache-tomcat-8.5.65/bin/bootstrap.jar:/opt/apache-tomcat-8.5.65/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
[root@ip-172-31-20-217 bin]# |
[root@ip-172-31-20-217 bin]# ./shutdown.sh
Using CATALINA_BASE:   /opt/apache-tomcat-8.5.65
Using CATALINA_HOME:   /opt/apache-tomcat-8.5.65
Using CATALINA_TMPDIR: /opt/apache-tomcat-8.5.65/temp
Using JRE_HOME:        /
Using CLASSPATH:       /opt/apache-tomcat-8.5.65/bin/bootstrap.jar:/opt/apache-tomcat-8.5.65/bin/tomcat-juli.jar
Using CATALINA_OPTS:
[root@ip-172-31-20-217 bin]# |
```

24. Go to ec2 instance and click on security groups. By default it runs on port 22 . Add a new port 8080 to it.

The screenshots illustrate the process of modifying an EC2 instance's security group settings:

- Screenshot 1: Security Group Details**
Shows the "Security details" tab for a security group named "launch-wizard-2". It lists the owner ID (027153808051) and launch time (Sat Apr 17 2021 21:15:18 GMT+0530). The "Inbound rules" section shows one rule allowing TCP port 22 from 0.0.0.0/0. A yellow box highlights the security group name "sg-08b42a73a14ad34d7 (launch-wizard-2)".
- Screenshot 2: Inbound Rules Configuration**
Shows the "Inbound rules" page where a new rule is being added. The rule type is "Custom TCP", protocol is "TCP", port range is "8080", and source is "0.0.0.0/0". A note at the bottom states: "⚠️ NOTE: Any edits made on existing rules will result in the edited rule being deleted and a new rule created with the new details. This will cause traffic that depends on that rule to be dropped for a very brief period of time until the new rule can be created." The "Save rules" button is visible at the top right.
- Screenshot 3: Security Group Details (New Experience)**
Shows the "Details" tab for the security group "launch-wizard-2". It displays the security group name, ID, owner, and VPC ID. The "Inbound rules" section shows three rules: one for SSH (port 22), one for Custom TCP (port 8080), and one for Custom TCP (port 8080). The "Edit inbound rules" button is visible at the top right.

25. To access tomcat in a browser, copy the public ip of your aws instance and add ':8080' at the end.

Start the tomcat by ./start.sh in git

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
-	i-01ef0bc9fa06179e	Running	t2.micro	2/2 checks passed	No alarms	us-east-2b	ec2-3-138-1...
-	i-07649146a09edee44	Running	t2.micro	2/2 checks passed	No alarms	us-east-2b	ec2-3-143-2

Below screen will appear on writing 3.138.155.1:8080 in browser

If you're seeing this, you've successfully installed Tomcat. Congratulations!

Developer Quick Start

- [Tomcat Setup](#)
- [First Web Application](#)
- [Realms & AAA](#)
- [JDBC DataSources](#)
- [Examples](#)
- [Servlet Specifications](#)
- [Tomcat Versions](#)

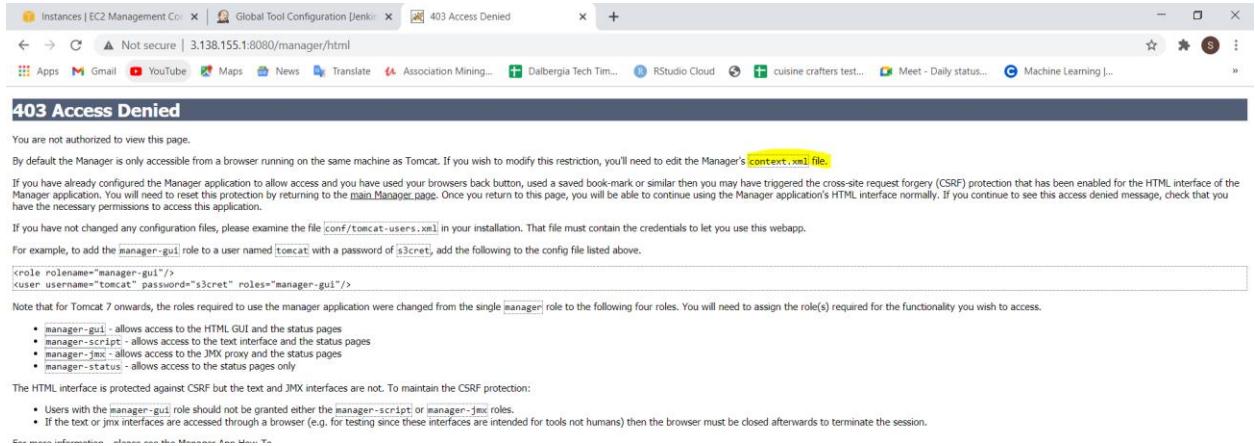
Managing Tomcat
For security, access to the [manager webapp](#) is restricted. Users are defined in: `$CATALINA_HOME/conf/tomcat-users.xml`
In Tomcat 8.5 access to the manager application is split between different users. [Read more...](#)

Documentation
[Tomcat 8.5 Documentation](#)
[Tomcat 8.5 Configuration](#)
[Tomcat Wiki](#)
Find additional important configuration information in:
`$CATALINA_HOME RUNNING.txt`
Developers may be interested in:
[Tomcat 8.5 Bug Database](#)

Getting Help
[FAQ and Mailing Lists](#)
The following mailing lists are available:

- tomcat-announce**
Important announcements, releases, security vulnerability notifications. (Low volume).
- tomcat-users**
User support and discussion
- taglibs-user**
User support and discussion for [Apache Taglibs](#)
- tomcat-dev**
Development mailing list, including commit

26. We need to edit the context.xml file in order to access these manager app .Then it will accessible from the same machine as tomcat.



27. Search context.xml file via find command if will give the location

Command: find / -name context.xml

```
[root@ip-172-31-20-217 bin]# ./startup.sh
Using CATALINA_BASE:      /opt/apache-tomcat-8.5.65
Using CATALINA_HOME:       /opt/apache-tomcat-8.5.65
Using CATALINA_TMPDIR:    /opt/apache-tomcat-8.5.65/temp
Using JRE_HOME:           /
Using CLASSPATH:          /opt/apache-tomcat-8.5.65/bin/bootstrap.jar:/opt/apache-tomcat-8.5.65/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
[root@ip-172-31-20-217 bin]# find / -name context.xml
/opt/apache-tomcat-8.5.65/conf/context.xml
/opt/apache-tomcat-8.5.65/webapps/examples/META-INF/context.xml
/opt/apache-tomcat-8.5.65/webapps/host-manager/META-INF/context.xml
/opt/apache-tomcat-8.5.65/webapps/manager/META-INF/context.xml
[root@ip-172-31-20-217 bin]# |
```

28. Edit the `/opt/apache-tomcat-8.5.65/webapps/host-manager/META-INF/context.xml` and `/opt/apache-tomcat-8.5.65/webapps/manager/META-INF/context.xml` file using vi editor. Highlighted below what to edited in both files: (highlighted)

```
<!--<valve className="org.apache.catalina.valves.RemoteAddrValve"  
allow="127\\.\\d+\\.\\d+|::1|0:0:0:0:0:0:1" /-->
```

The screenshot shows a terminal window with the following session:

```
root@ip-172-31-20-217:/opt/apache-tomcat-8.5.65/bin  
root@ip-172-31-20-217 bin]# find / -name context.xml  
opt/apache-tomcat-8.5.65/conf/context.xml  
opt/apache-tomcat-8.5.65/webapps/examples/META-INF/context.xml  
opt/apache-tomcat-8.5.65/webapps/host-manager/META-INF/context.xml  
opt/apache-tomcat-8.5.65/webapps/manager/META-INF/context.xml  
root@ip-172-31-20-217 bin]# ^C  
root@ip-172-31-20-217 bin]# vi /opt/apache-tomcat-8.5.65/webapps/host-manager/M  
TA-INF/context.xml  
root@ip-172-31-20-217 bin]# ./startup.sh  
sing CATALINA_BASE: /opt/apache-tomcat-8.5.65  
sing CATALINA_HOME: /opt/apache-tomcat-8.5.65  
sing CATALINA_TMPDIR: /opt/apache-tomcat-8.5.65/temp  
sing JRE_HOME: /  
sing CLASSPATH: /opt/apache-tomcat-8.5.65/bin/bootstrap.jar:/opt/apache-t  
mcat-8.5.65/bin/tomcat-juli.jar  
sing CATALINA_OPTS:  
tomcat started.  
root@ip-172-31-20-217 bin]# vi /opt/apache-tomcat-8.5.65/webapps/host-manager/M  
TA-INF/context.xml  
root@ip-172-31-20-217 bin]# vi /opt/apache-tomcat-8.5.65/webapps/host-manager/M  
TA-INF/context.xml  
root@ip-172-31-20-217 bin]# vi /opt/apache-tomcat-8.5.65/webapps/manager/META-I  
F/context.xml  
root@ip-172-31-20-217 bin]# |
```

```
root@ip-172-31-20-217:/opt/apache-tomcat-8.5.65/bin - □ ×
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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
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limitations under the License.

->
<Context antiResourceLocking="false" privileged="true" >
    <CookieProcessor className="org.apache.tomcat.util.http.Rfc6265CookieProcessor"
        sameSiteCookies="strict" />
    <!--<Valve className="org.apache.catalina.valves.RemoteAddrValve"
        allow="127\\.\\d+\\.\\d+\\.\\d+|:1|0:0:0:0:0:0:1" />-->
    <Manager sessionAttributeValueClassNameFilter="java\\.lang\\.\\?Boolean|Integer|Long|Number|String|org\\.apache\\.catalina\\.filters\\.CsrfPreventionFilter\\$LruCache\\?|java\\.util\\.\\?LinkedHashMap"/>
</Context>
<wl>
```

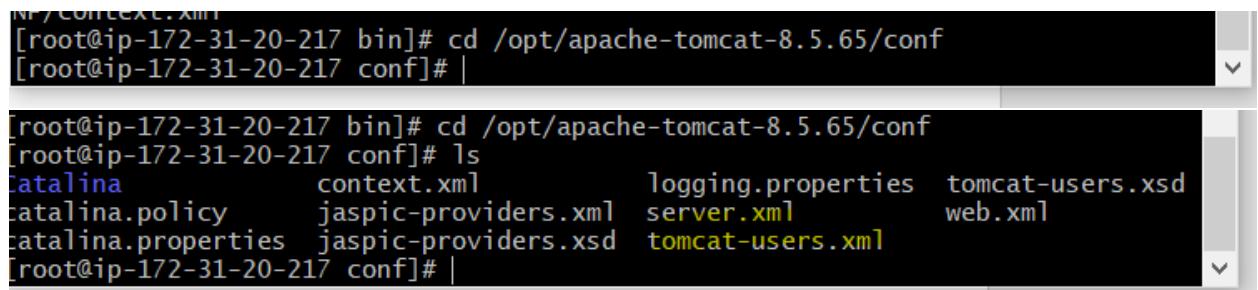
29. Now click on manager app in tomcat page and below screen will appear



30. In conf , there is a file called **tomcat.users.xml** , here we need to add user and role.
For this we need to change path and then access tomcat-users-xml file and edit that file using VI editor

Add users and roles

```
<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user username="admin" password="admin" roles="manager-gui, manager-script, manager-jmx,
manager-status"/>
<user username="deployer" password="deployer" roles="manager-script"/>
<user username="tomcat" password="s3cret" roles="manager-gui"/>
```



A terminal window showing the contents of the Tomcat configuration directory. The directory structure is as follows:

```
bin/ context.xml logging.properties tomcat-users.xsd
conf/ catalina context.xml server.xml web.xml
      catalina.policy jaspic-providers.xml
      catalina.properties jaspic-providers.xsd
      tomcat-users.xml
```

The file **tomcat-users.xml** is highlighted in yellow.

```
root@ip-172-31-20-217:/opt/apache-tomcat-8.5.65/conf
http://www.apache.org/licenses/LICENSE-2.0
```

```
Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

-->
<tomcat-users xmlns="http://tomcat.apache.org/xml"
               xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
               version="1.0">

<!--
  NOTE: By default, no user is included in the "manager-gui" role required
  to operate the "/manager/html" web application. If you wish to use this app,
  you must define such a user - the username and password are arbitrary. It is
  strongly recommended that you do NOT use one of the users in the commented out
  section below since they are intended for use with the examples web
  application.
-->

<role rolename="manager-gui"/>
<role rolename="manager-script"/>
<role rolename="manager-jmx"/>
<role rolename="manager-status"/>
<user username="admin" password="admin" roles="manager-gui, manager-script, manager-jmx, manager-status"/>
<user username="deployer" password="deployer" roles="manager-script"/>
<user username="tomcat" password="s3cret" roles="manager-gui"/>

<!--
  NOTE: The sample user and role entries below are intended for use with the
  examples web application. They are wrapped in a comment and thus are ignored
  when reading this file. If you wish to configure these users for use with the
  examples web application, do not forget to remove the <!... ...> that surrounds
  them. You will also need to set the passwords to something appropriate.
-->
<!--
<role rolename="tomcat"/>
<role rolename="role1"/>
<user username="tomcat" password=<must-be-changed> roles="tomcat"/>
<user username="both" password=<must-be-changed> roles="tomcat,role1"/>
<user username="role1" password=<must-be-changed> roles="role1"/>
-->
</tomcat-users>
~
```

31. Again refresh tomcat server and access manager app sign in with username and password it will reflect as below:

Username :admin

Password: admin

The screenshot shows a web browser window with the URL 3.138.155.1:8080/manager/html. The page title is "Tomcat Web Application Manager". At the top, there is a message box with "Message: OK". Below it is a navigation bar with tabs: "Manager", "List Applications", "HTML Manager Help", "Manager Help", and "Server Status". The main content area is titled "Applications" and contains a table with the following data:

Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/docs	None specified	Tomcat Documentation	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/examples	None specified	Servlet and JSP Examples	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/host-manager	None specified	Tomcat Host Manager Application	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes
/manager	None specified	Tomcat Manager Application	true	1	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

32. Here is the link for project just clone it in where you had saved your AWS key by clicking git bash here.

git clone <https://github.com/simran21-91/hello-world.git>

The screenshot shows a Windows file explorer window with the path [This PC > Windows-SSD \(C\) > AWS_NEW_KEY](#). The file "AWS_NEW_KEY" is selected, showing its details: Date modified 4/17/2021 9:12 PM, Type PEM File, Size 2 KB. A context menu is open over the file, with the "Git Bash Here" option highlighted. The menu also includes options like "View", "Sort by", "Group by", "Refresh", "Customize this folder...", "Paste", "Paste shortcut", "Give access to", "New", and "Properties". The background shows a Microsoft Word document titled "Devops CI CD - Word" and a taskbar with various icons.

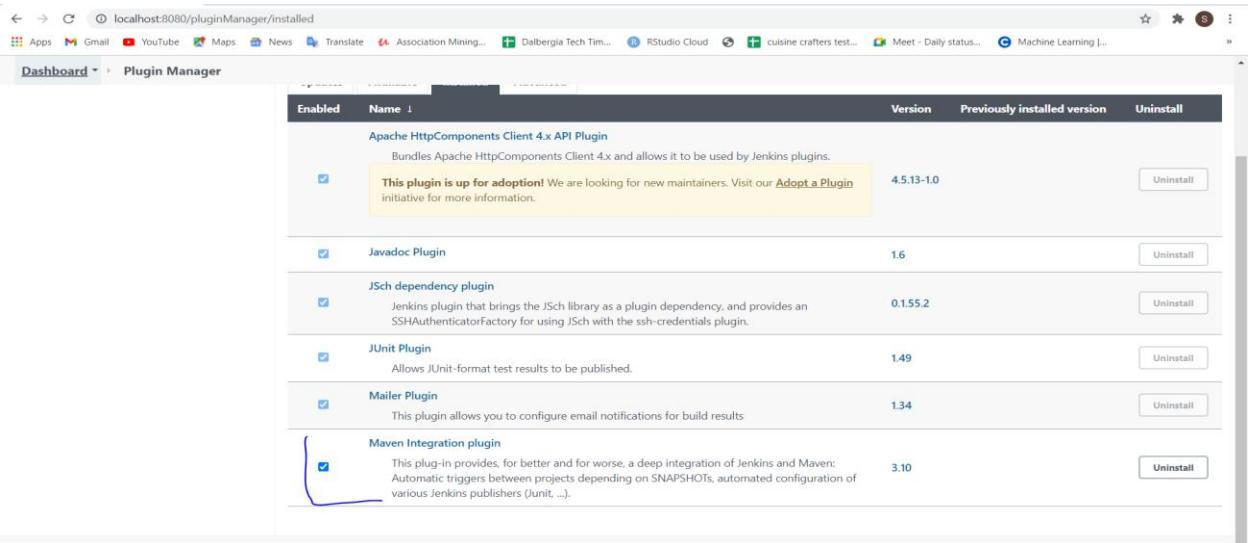
```

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY
$ git clone https://github.com/simran21-91/hello-world.git
Cloning into 'hello-world'...
remote: Enumerating objects: 267, done.
remote: Counting objects: 100% (35/35), done.
remote: Compressing objects: 100% (22/22), done.
remote: Total 267 (delta 8), reused 28 (delta 3), pack-reused 232
Receiving objects: 100% (267/267), 35.53 KiB | 2.73 MiB/s, done.
Resolving deltas: 100% (45/45), done.

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY
$ |

```

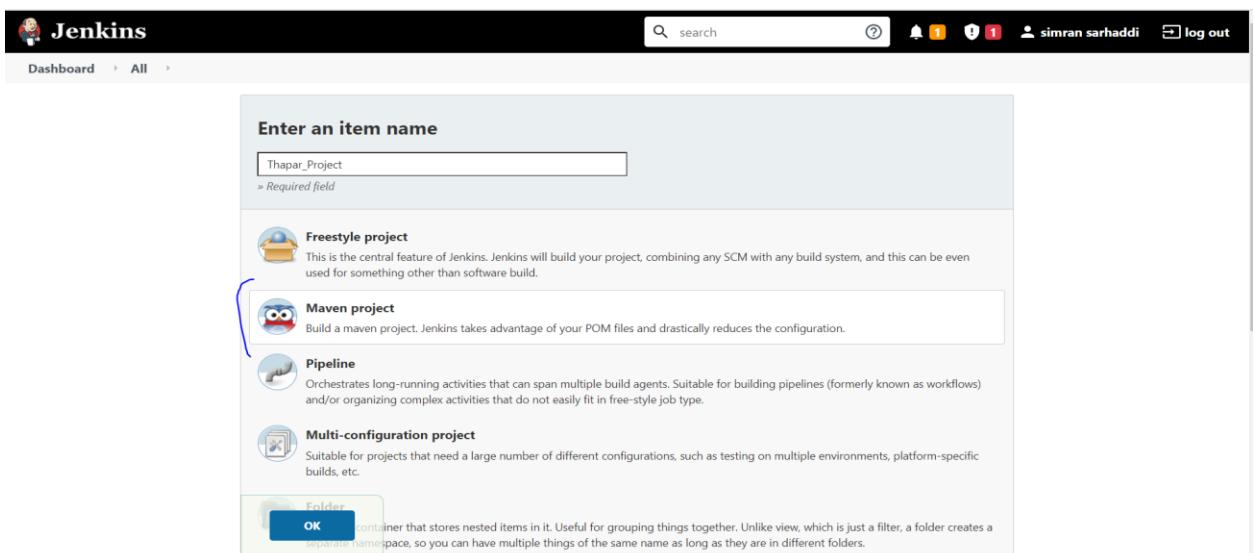
33. Open Jenkins>manage plugins> Install maven integration plugin in Jenkins



The screenshot shows the Jenkins Plugin Manager interface. The 'Enabled' tab is selected, and the list of installed plugins is displayed. A blue bracket highlights the 'Maven Integration plugin' row, which is described as providing deep integration between Jenkins and Maven. The plugin version is 3.10.

Enabled	Name	Version	Previously installed version	Uninstall
<input checked="" type="checkbox"/>	Apache HttpComponents Client 4.x API Plugin	4.5.13-1.0		<button>Uninstall</button>
<input checked="" type="checkbox"/>	Javadoc Plugin	1.6		<button>Uninstall</button>
<input checked="" type="checkbox"/>	JSch dependency plugin	0.1.55.2		<button>Uninstall</button>
<input checked="" type="checkbox"/>	JUnit Plugin	1.49		<button>Uninstall</button>
<input checked="" type="checkbox"/>	Mailer Plugin	1.34		<button>Uninstall</button>
<input checked="" type="checkbox"/>	Maven Integration plugin	3.10		<button>Uninstall</button>

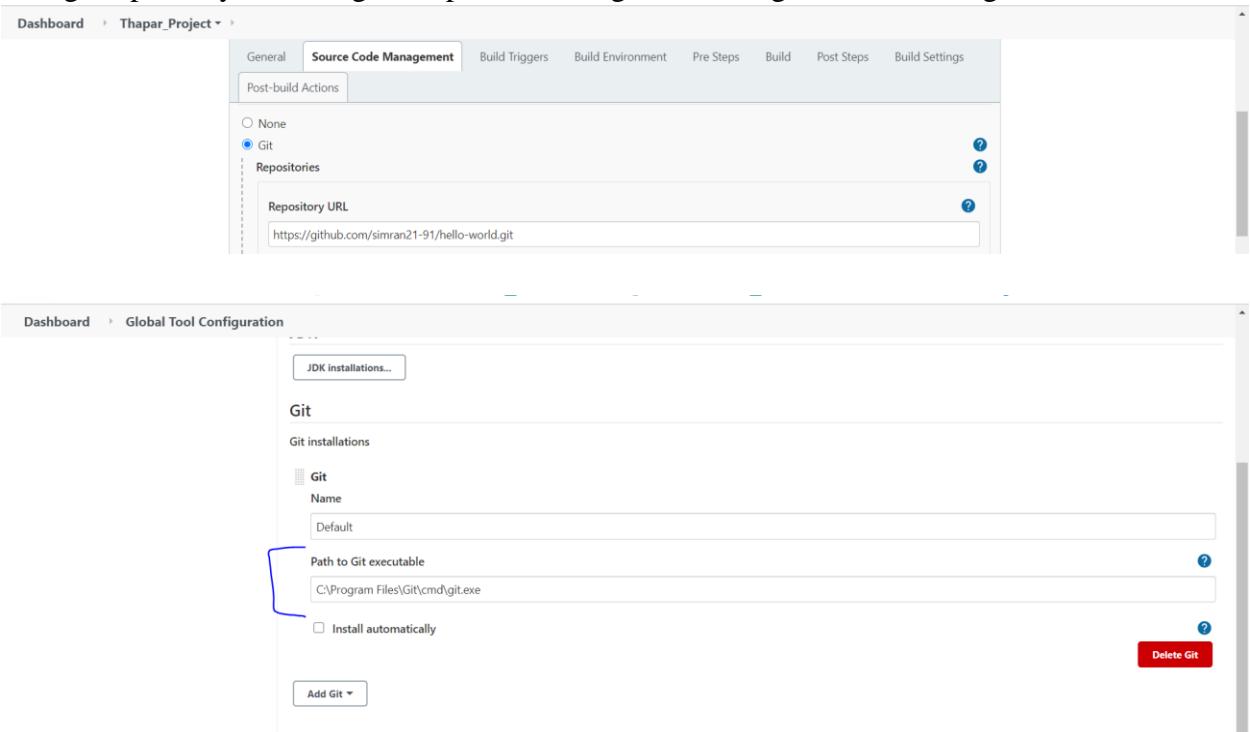
34. Create new item in Jenkins and select maven option



The screenshot shows the Jenkins 'Enter an item name' screen. The user has entered 'Thapar_Project' into the required field. Below the input field, there are four project creation options: 'Freestyle project', 'Maven project', 'Pipeline', and 'Multi-configuration project'. A blue bracket highlights the 'Maven project' option, which is described as utilizing POM files to reduce configuration. An 'OK' button is visible at the bottom of the list.

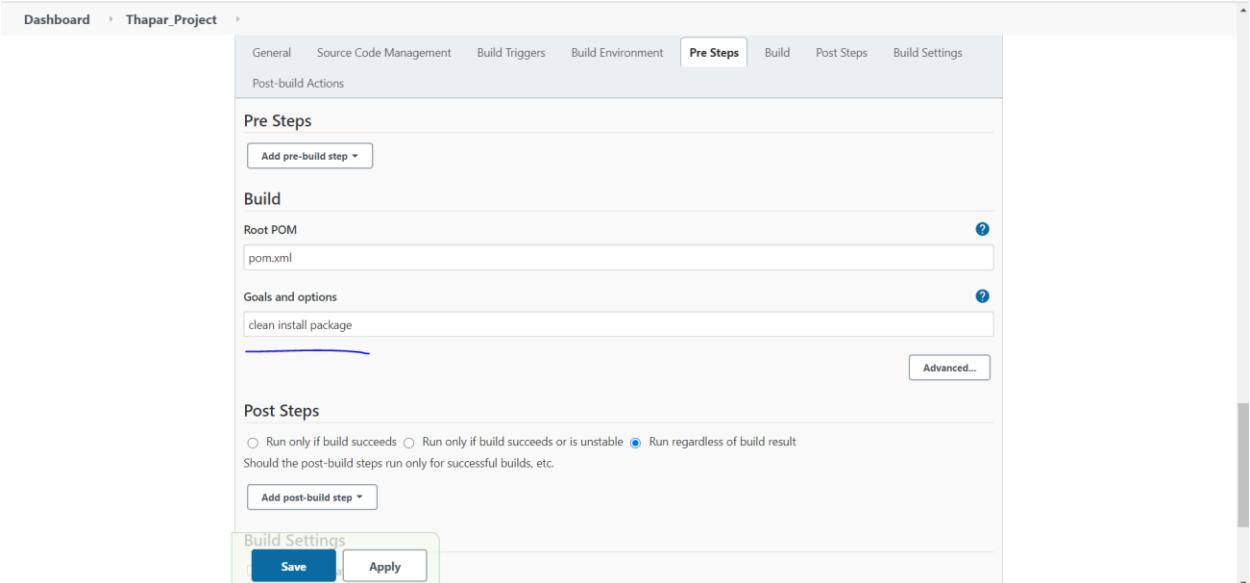
35. Configure the new item created.

Add git repository and add git.exe path in manage Jenkins> global tool configuration



The top screenshot shows the Jenkins project configuration screen. The 'Source Code Management' tab is selected, showing a 'Repositories' section with a 'Repository URL' input field containing 'https://github.com/simran21-91/hello-world.git'. The bottom screenshot shows the 'Global Tool Configuration' screen, specifically the 'Git' section. It displays a 'Name' field set to 'Default' and a 'Path to Git executable' field containing 'C:\Program Files\Git\cmd\git.exe'. A blue bracket highlights the 'Path to Git executable' field.

36. Scroll down and set the goal that means clean old build and just install the maven package



The screenshot shows the Jenkins project configuration screen with the 'Pre Steps' tab selected. In the 'Build' section, the 'Root POM' is set to 'pom.xml' and the 'Goals and options' field contains 'clean install package'. There is a blue bracket highlighting the 'Goals and options' field.

37. Download apache maven and jdk 8 and set the path in system environment variables of your machine as well as in Jenkins for both maven and java

Edit environment variable

X

C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2020....

C:\Program Files (x86)\apache-maven-3.6.3-bin\apache-maven-...

C:\Program Files\Java\jdk1.8.0_281\bin

New

Edit

Browse...

Delete

Move Up

Move Down

Edit text...

OK

Cancel

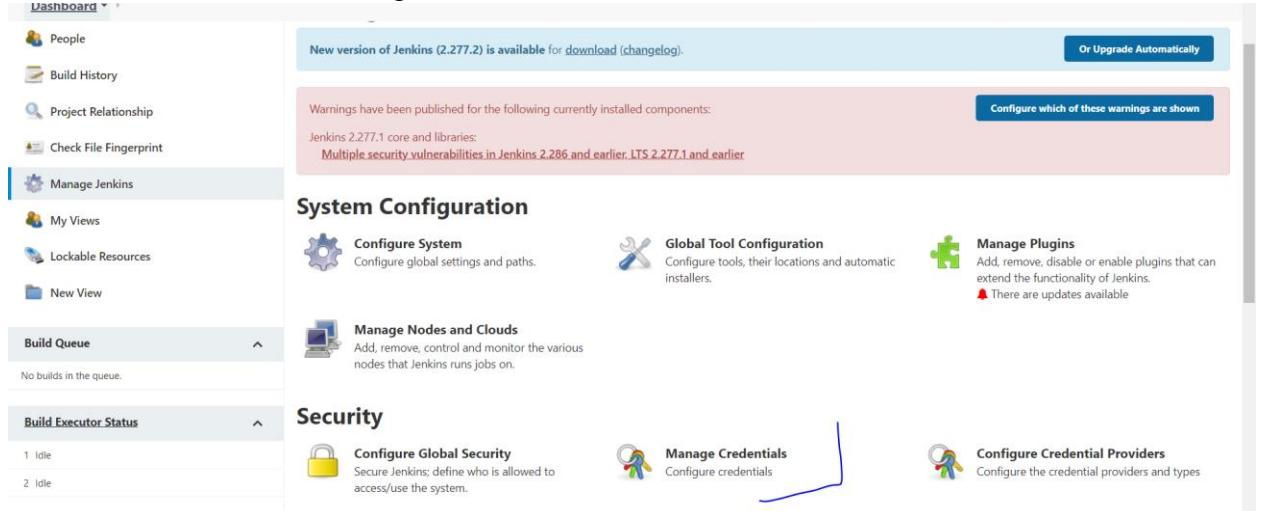
Set in Jenkins > Manage Jenkins > global configuration tool.

The screenshot shows two stacked Jenkins configuration pages. The top page is for 'Maven' installations, with fields for 'Name' (maven 3.6) and 'MAVEN_HOME' (C:\Program Files (x86)\apache-maven-3.6.3-bin\apache-maven-3.6.3). The bottom page is for 'JDK' installations, with fields for 'Name' (java_jdk) and 'JAVA_HOME' (C:\Program Files\Java\jdk1.8.0_281). Both pages include 'Add [Tool]' buttons, 'Save' and 'Apply' buttons, and 'Delete [Tool]' buttons.

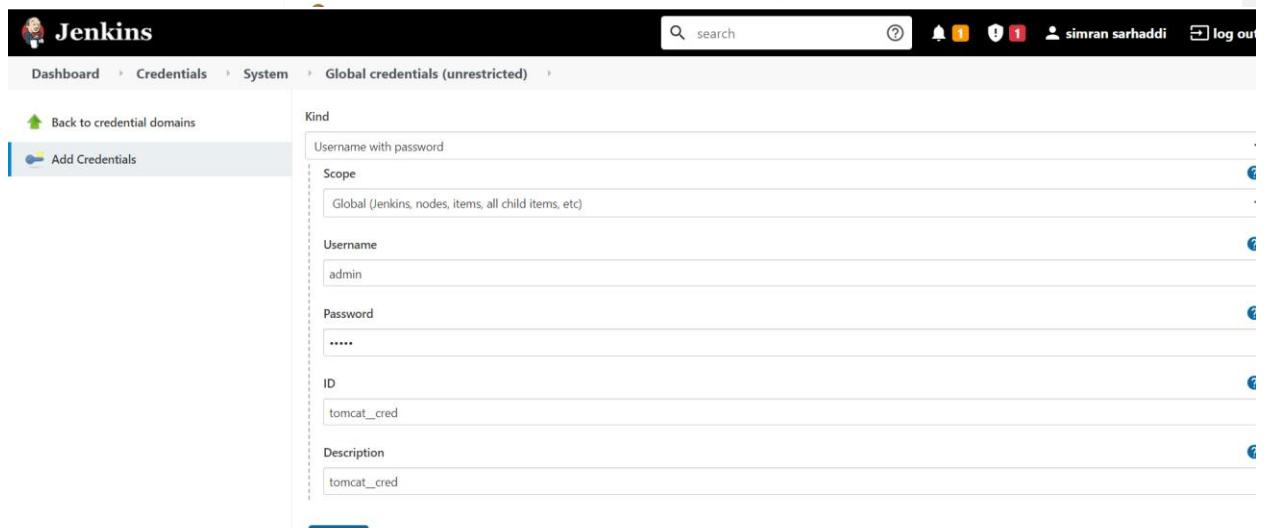
38. Now build manually once from build now option in Jenkins

The screenshot shows the Jenkins build details for 'Build #12 (Apr 18, 2021 11:52:51 AM)'. It includes sections for 'Status' (No changes), 'Git' (Revision: c68985f56b26dba41d3a7043f4d1fe205fcba86d, refs/remotes/origin/master), 'Test Result' (no failures), and 'Module Builds' (Maven Project 0.81 sec, Server 3.4 sec, Webapp 0.92 sec). There are also buttons for 'Keep this build forever', 'add description', and 'log out'.

39. Add the tomcat credentials in global credentials



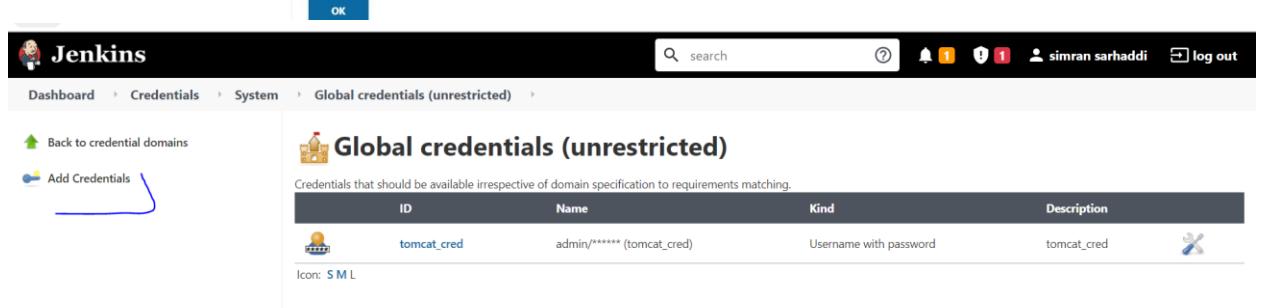
The screenshot shows the Jenkins System Configuration page. On the right side, there is a section titled "Manage Credentials" with the sub-instruction "Configure credentials". A blue bracket points from the top of this section down to the "Add Credentials" button on the left.



The screenshot shows the "Global credentials (unrestricted)" page. A new credential is being added with the following details:

Kind	Value
Username with password	admin
Scope	Global (Jenkins, nodes, items, all child items, etc)
Username	admin
Password	*****
ID	tomcat_cred
Description	tomcat_cred

An "OK" button is at the bottom of the form.



The screenshot shows the "Global credentials (unrestricted)" page again, now listing the newly added credential:

ID	Name	Kind	Description
tomcat_cred	admin/***** (tomcat_cred)	Username with password	tomcat_cred

An "OK" button is at the bottom of the page.

The screenshot shows the Jenkins Global credentials (unrestricted) page. It displays a table with one row. The columns are ID, Name, Kind, and Description. The ID is 'tomcat_cred', the Name is 'admin/***** (tomcat_cred)', the Kind is 'Username with password', and the Description is 'tomcat_cred'. There are buttons for 'S' (Edit), 'M' (View), and 'L' (Delete).

ID	Name	Kind	Description
tomcat_cred	admin/***** (tomcat_cred)	Username with password	tomcat_cred

40. Install deploy to container plugin in Jenkins and then set that as post steps in configure

The screenshot shows the Jenkins Plugin Manager page. The search bar contains 'deploy'. The 'Installed' tab is selected. A table lists three plugins: 'Credentials' (version 2.3.15), 'Deploy to container Plugin' (version 1.16), and 'Structs Plugin' (version 1.22). The 'Deploy to container Plugin' row has a blue bracket around it.

Enabled	Name	Version	Previously installed version	Uninstall
<input checked="" type="checkbox"/>	Credentials	2.3.15		Uninstall
<input checked="" type="checkbox"/>	Deploy to container Plugin	1.16		Uninstall
<input checked="" type="checkbox"/>	Structs Plugin	1.22		Uninstall

Set the war plugin in configure step of project in Jenkins

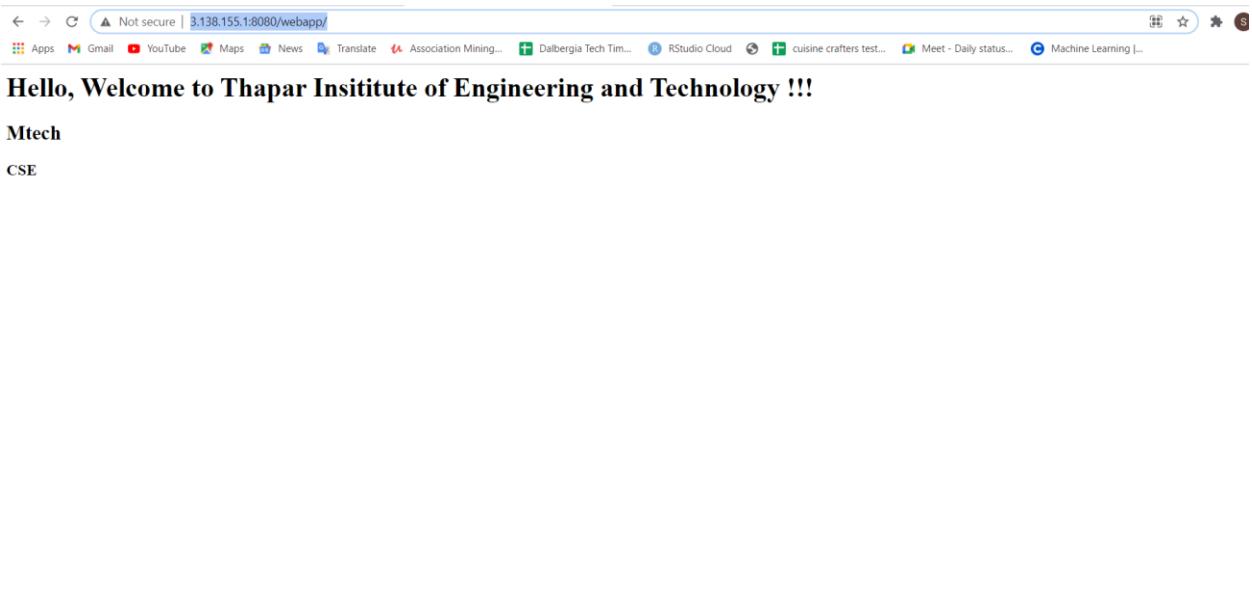
The screenshot shows the Jenkins project configuration page for 'Thapar_Project'. The 'Post Steps' tab is selected. Under 'Post-build Actions', there is a section for 'Deploy war/ear to a container'. A blue bracket highlights the 'WAR/EAR files' field, which contains the value '*/*.war'. The 'Containers' dropdown is also visible.

41. Add the tomcat server (the version should be same as installed above. Ver 8) and select the credentials which we had added in global credentials and give the path of Tomcat server :ip followed by port number

42. Then again build using build manually using build now in jenkins. The war file will be created .Once war file is created successfully it can be simply deployed to server

```
[root@ip-172-31-20-217 bin]# cd ..
[root@ip-172-31-20-217 apache-tomcat-8.5.65]# cd ..
[root@ip-172-31-20-217 opt]# cd apache-tomcat-8.5.65
[root@ip-172-31-20-217 apache-tomcat-8.5.65]# ls
bin           CONTRIBUTING.md  logs          RELEASE-NOTES  webapps
BUILDING.txt  lib              NOTICE        RUNNING.txt   work
conf          LICENSE         README.md    temp
[root@ip-172-31-20-217 apache-tomcat-8.5.65]# cd webapps
[root@ip-172-31-20-217 webapps]# ls
docs  examples  host-manager  manager  ROOT
[root@ip-172-31-20-217 webapps]# ls
docs  examples  host-manager  manager  ROOT
[root@ip-172-31-20-217 webapps]# ls
docs  examples  host-manager  manager  ROOT  webapp  webapp.war
[root@ip-172-31-20-217 webapps]# |
```

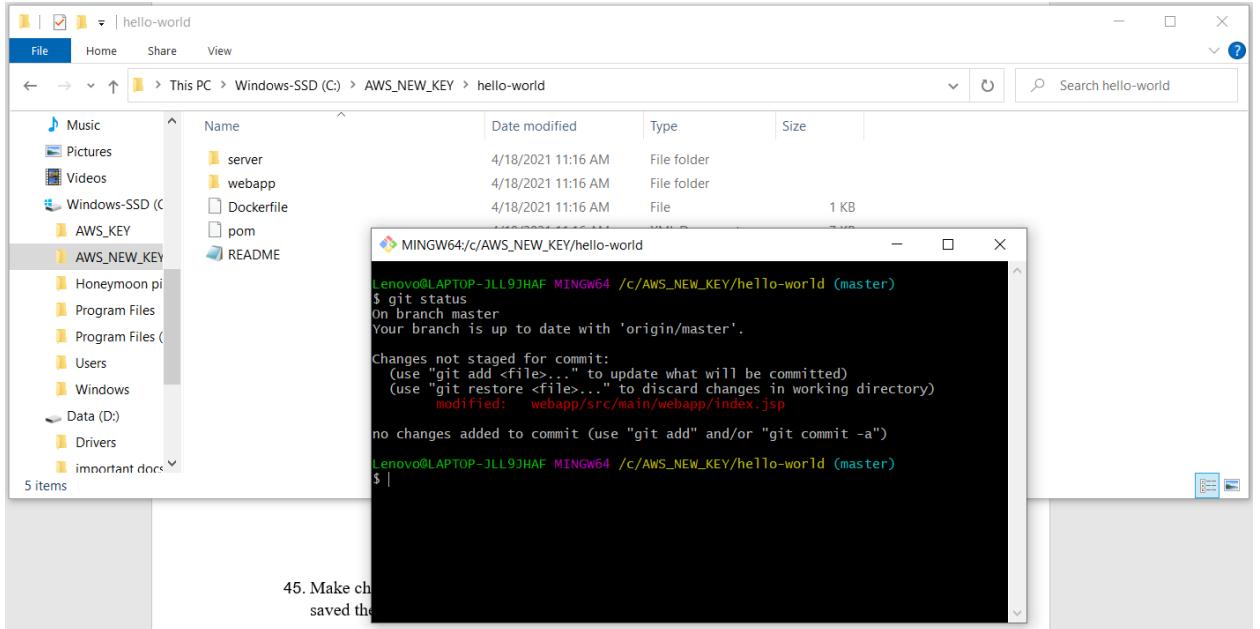
43. Now enter <http://3.138.155.1:8080/webapp/> in browser. Below screen will come up.



44. Set the time we want that build should start automatically when code is changed. We are setting here 1 min. We can set this in Jenkins> project >configure>build triggers>poll SCM.

The screenshot shows the Jenkins configuration interface for a project named 'Thapar_Project'. The 'Build Triggers' tab is selected. Under 'Additional Behaviours', there is an 'Add' button. The 'Build Triggers' section contains several options: 'Build whenever a SNAPSHOT dependency is built' (checked), 'Schedule build when some upstream has no successful builds' (unchecked), 'Trigger builds remotely (e.g., from scripts)' (unchecked), 'Build after other projects are built' (unchecked), 'Build periodically' (unchecked), 'GitHub hook trigger for GITScm polling' (unchecked), and 'Poll SCM' (checked). The 'Schedule' field contains the cron expression */1 * * * *. A yellow warning message at the bottom states: '⚠️ Do you really mean "every minute" when you say "*/1 * * * *"? Perhaps you meant "H * * * *" to poll once per hour'. It also notes that the build would last have run at Sunday, April 18, 2021 12:21:55 PM IST and would next run at Sunday, April 18, 2021 12:21:55 PM IST.

45. Make changes in the code and commit changes using git. Go to the folder where we had saved the project and click git bash here



45. Make changes
saved the

```
MINGW64:/c/AWS_NEW_KEY/hello-world

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY/hello-world (master)
$ git push -u origin master
Everything up-to-date
Branch 'master' set up to track remote branch 'master' from 'origin'.

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY/hello-world (master)
$ git add .

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY/hello-world (master)
$ git commit -m "changed code"
[master 6e8af1d] changed code
 1 file changed, 1 insertion(+), 1 deletion(-)

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY/hello-world (master)
$ git push -u origin master
error: src refspec u does not match any
error: failed to push some refs to '-'

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY/hello-world (master)
$ git push -u origin master
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (7/7), 539 bytes | 539.00 KiB/s, done.
Total 7 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/simran21-91/hello-world.git
  0740b78..6e8af1d master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

Lenovo@LAPTOP-JLL9JHAF MINGW64 /c/AWS_NEW_KEY/hello-world (master)
$ |
```

46. After making changes and committing those, build is triggered automatically after 1 min and is successful

The screenshot shows the Jenkins dashboard for the 'Thapar_Project'. On the left, a sidebar lists various project management options like Changes, Workspace, and Build Now. The main area displays a 'Build History' section with a table of recent builds, starting from #12 up to #16. Each build row includes a status icon, the build number, the date and time, and a 'Details' link. To the right of the build history is a 'Test Result Trend' chart showing the count of failed, skipped, and passed tests over time. Below the chart, a 'Permalinks' section provides links to the latest test results. At the bottom of the page, the Jenkins navigation bar is visible, along with the user's profile information.

Dashboard > Thapar_Project >

Changes
Workspace
Build Now
Configure
Delete Maven project
Modules
Git Polling Log
Rename

Build History trend ^

#	Date	Build Number	Status
1	Apr 18, 2021 12:51 PM	#16	Success
2	Apr 18, 2021 12:20 PM	#15	Success
3	Apr 18, 2021 12:20 PM	#14	Success
4	Apr 18, 2021 12:17 PM	#13	Success
5	Apr 18, 2021 11:52 AM	#12	Success

Test Result Trend

Disabled Project

Recent Changes
Latest Test Result (no failures)
Latest Test Result (no failures)

Permalinks

- Last build (#15), 7 min 50 sec ago
- Last stable build (#15), 7 min 50 sec ago
- Last successful build (#15), 7 min 50 sec ago
- Last completed build (#15), 7 min 50 sec ago

Build #16 (Apr 18, 2021 12:51:06 PM)

Keep this build forever

Started 1 min 10 sec ago
Took 14 sec

Changes
Started by an SCM change
Revision: 0740b78a2593a2a0af80c0698470356771f01bed
refs/remotes/origin/master
Test Result (no failures)

Module Builds

Module	Time
Maven Project	0.88 sec
Server	3.4 sec
Webapp	1.2 sec

Back to Project
Status
Changes
Console Output
Edit Build Information
Delete build '#16'
Polling Log
Git Build Data
Redeploy Artifacts
Test Result
See Fingerprints
Previous Build

Apps Gmail YouTube Maps News Translate Association Mining... Dalbergia Tech Tim... RStudio Cloud cuisine crafters test... Meet - Daily status... Machine Learning J...

search simran sarhaddi log out

47. Launch .138.155.1:8080/webapp/ in browser .Change in code are reflecting

