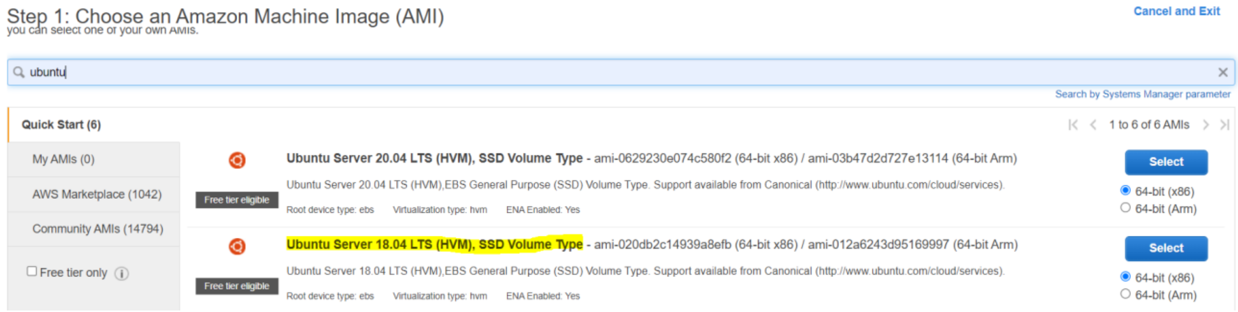
Jenkins-Server Installation:

1. On the AWS Management Console, click launch instance, and choose **Ubuntu Server 18.04 LTS (HVM)** AMI:



Step 1: Choose an Amazon Machine Image (AMI)

you can select one of your own AMIs.

Cancel and Exit

ubuntu

Search by Systems Manager parameter

Quick Start (6)

My AMIs (0)

AWS Marketplace (1042)

Community AMIs (14794)

□ Free tier only

1 to 6 of 6 AMIs

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0629230e074c580f2 (64-bit x86) / ami-03b47d2d727e13114 (64-bit Arm)

Free tier eligible

Ubuntu Server 20.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

● 64-bit (x86)
○ 64-bit (Arm)

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-020db2c14939a8efb (64-bit x86) / ami-012a6243d95169997 (64-bit Arm)

Free tier eligible

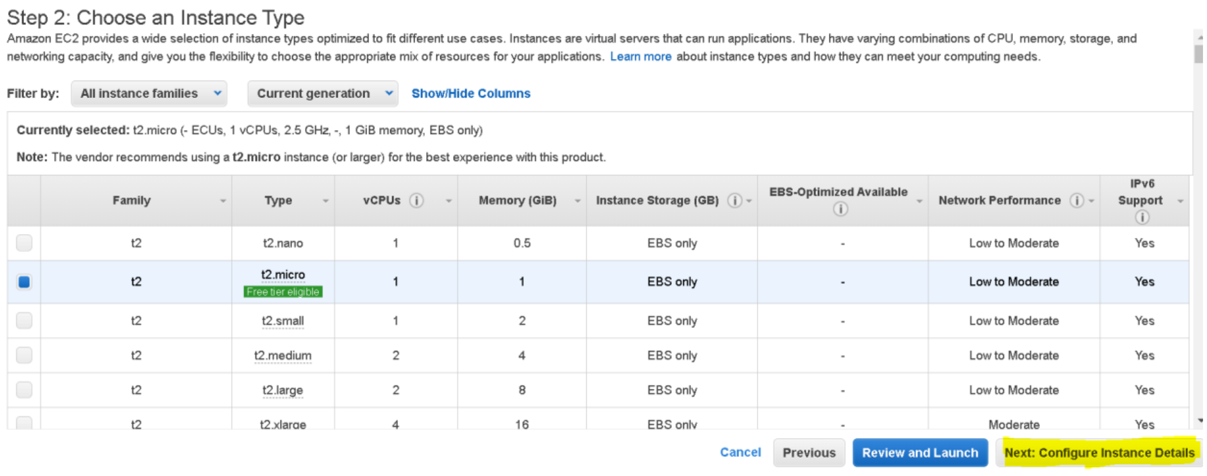
Ubuntu Server 18.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

● 64-bit (x86)
○ 64-bit (Arm)

2. Keep clicking "Next: Configure Instance Details":



Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Filter by: All instance families | Current generation | Show/Hide Columns

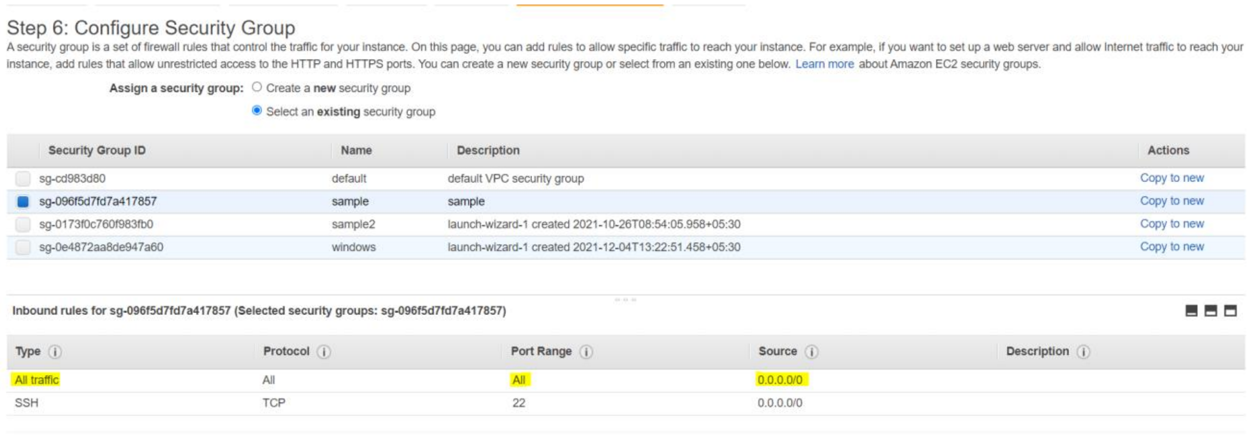
Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

Note: The vendor recommends using a **t2.micro** instance (or larger) for the best experience with this product.

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
□	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
■	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
□	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
□	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
□	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
□	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes

Cancel | Previous | Review and Launch | Next: Configure Instance Details

Note: Make sure All traffic is allowed on the Security Group inbound, refer screen shot below:



Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

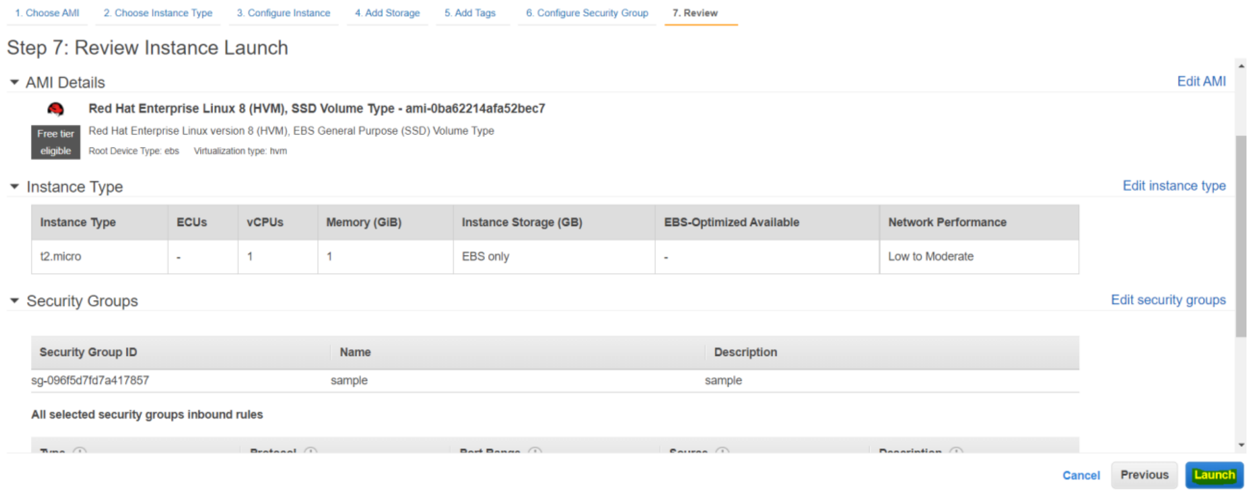
Assign a security group: ○ Create a **new** security group
● Select an **existing** security group

	Security Group ID	Name	Description	Actions
□	sg-cd983d80	default	default VPC security group	Copy to new
■	sg-096f5d7fd7a417857	sample	sample	Copy to new
□	sg-0173f0c760f983fb0	sample2	launch-wizard-1 created 2021-10-26T08:54:05.958+05:30	Copy to new
□	sg-0e4872aa8de947a60	windows	launch-wizard-1 created 2021-12-04T13:22:51.458+05:30	Copy to new

Inbound rules for sg-096f5d7fd7a417857 (Selected security groups: sg-096f5d7fd7a417857)

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
SSH	TCP	22	0.0.0.0/0	

3. Then click "Review and Launch" and then finally click "Launch":



Step 7: Review Instance Launch

AMI Details

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-0ba62214afa52bec7

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

Root Device Type: ebs   Virtualization type: hvm

Instance Type

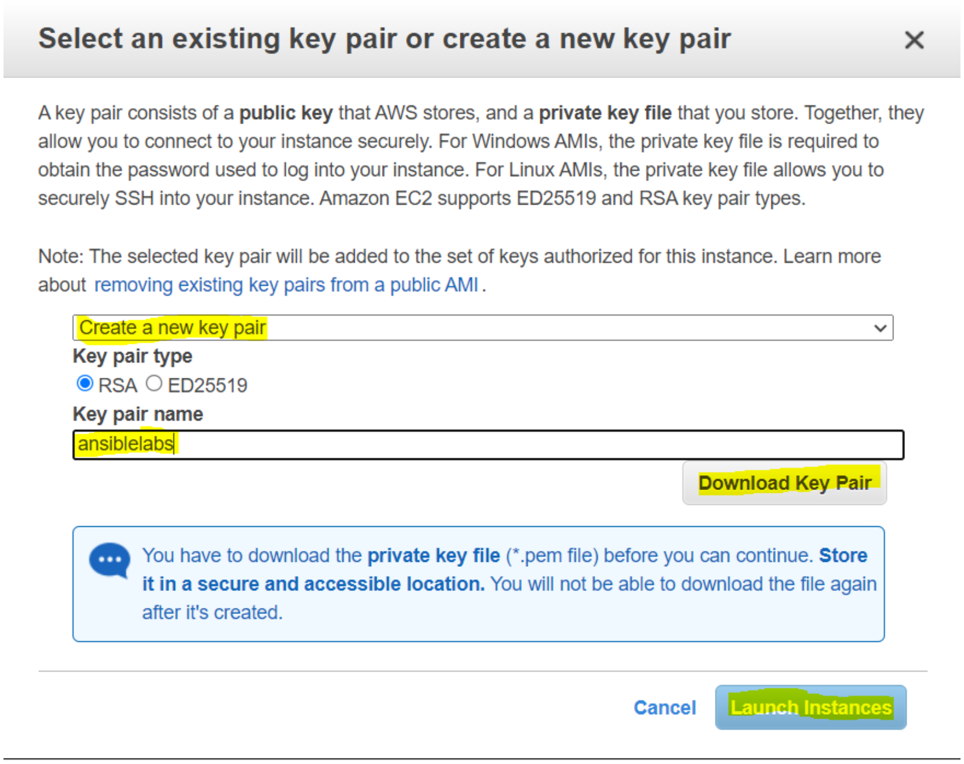
Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups

Security Group ID	Name	Description
sg-096f5d7fd7a417857	sample	sample

All selected security groups inbound rules

4. Create a New key pair and save the public key in your local system:



Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI .

Create a new key pair

Key pair type

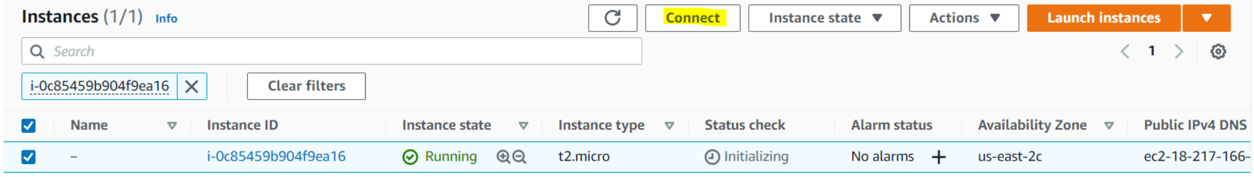
● RSA ○ ED25519

Key pair name

ansiblelabs

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

5. Then choose the instance and click on connect to SSH into the server:



Instances (1/1) Info

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
☑	–	i-0c85459b904f9ea16	Running	t2.micro	Initializing	No alarms	us-east-2c	ec2-18-217-166-

6. After you have logged in to the server, run the following commands in sequence.

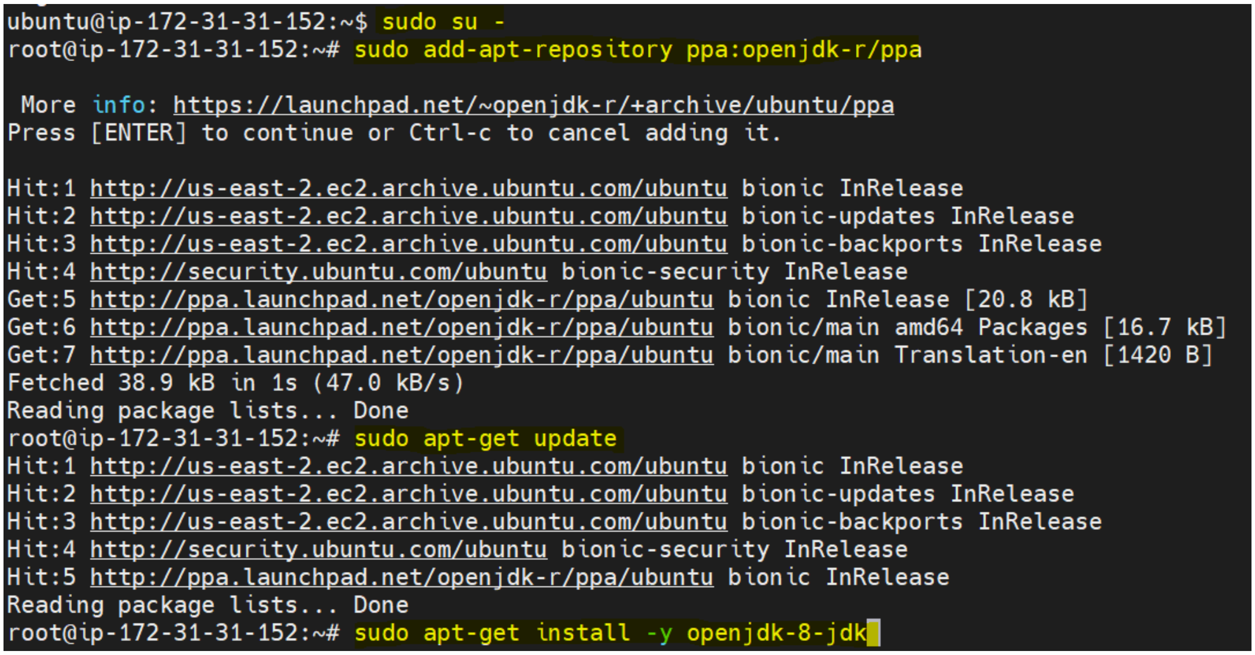
# Install Java 1.8

sudo su –

sudo add-apt-repository ppa:openjdk-r/ppa

sudo apt-get update

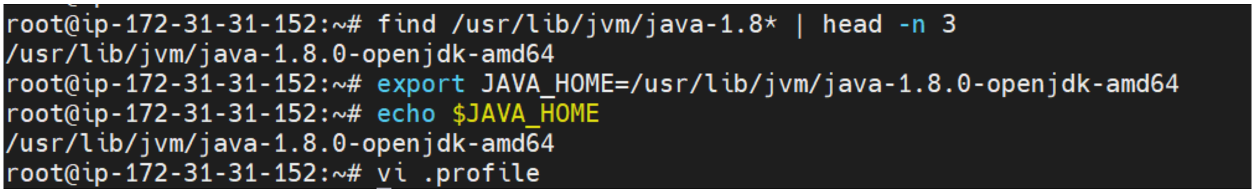
sudo apt-get install -y openjdk-8-jdk



```
ubuntu@ip-172-31-31-152:~$ sudo su -
root@ip-172-31-31-152:~# sudo add-apt-repository ppa:openjdk-r/ppa

 More info: https://launchpad.net/~openjdk-r/+archive/ubuntu/ppa
Press [ENTER] to continue or Ctrl-c to cancel adding it.

Hit:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu bionic-security InRelease
Get:5 http://ppa.launchpad.net/openjdk-r/ppa/ubuntu bionic InRelease [20.8 kB]
Get:6 http://ppa.launchpad.net/openjdk-r/ppa/ubuntu bionic/main amd64 Packages [16.7 kB]
Get:7 http://ppa.launchpad.net/openjdk-r/ppa/ubuntu bionic/main Translation-en [1420 B]
Fetched 38.9 kB in 1s (47.0 kB/s)
Reading package lists... Done
root@ip-172-31-31-152:~# sudo apt-get update
Hit:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu bionic-security InRelease
Hit:5 http://ppa.launchpad.net/openjdk-r/ppa/ubuntu bionic InRelease
Reading package lists... Done
root@ip-172-31-31-152:~# sudo apt-get install -y openjdk-8-jdk
```

#check the java path to be added to user profile

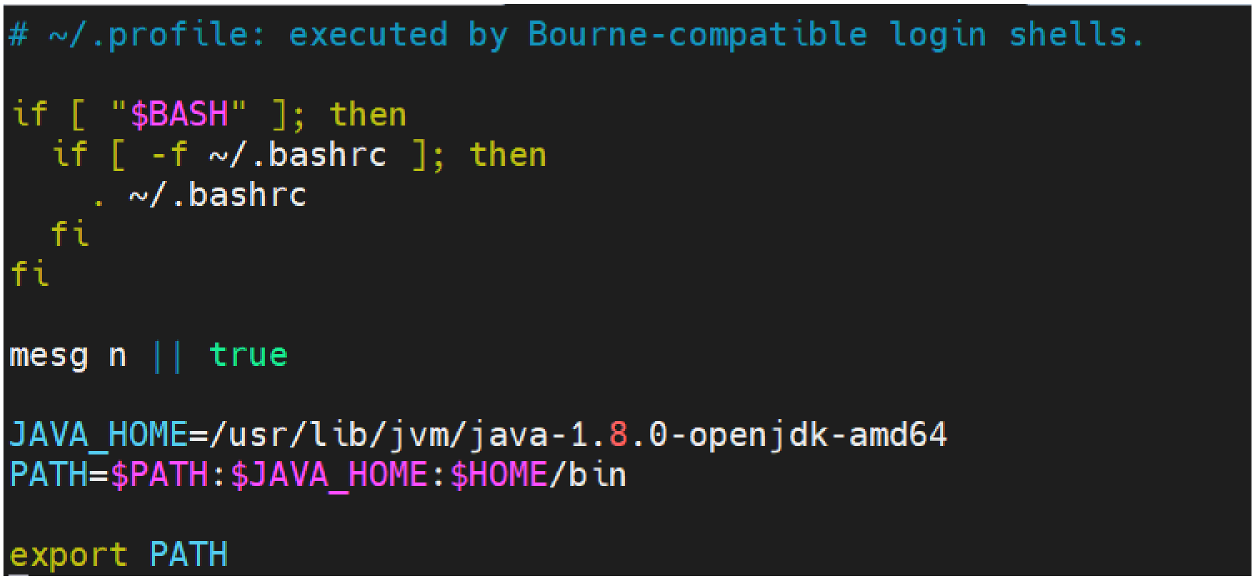
find /usr/lib/jvm/java-1.8* | head -n 3



```
root@ip-172-31-31-152:~# find /usr/lib/jvm/java-1.8* | head -n 3
/usr/lib/jvm/java-1.8.0-openjdk-amd64
root@ip-172-31-31-152:~# export JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64
root@ip-172-31-31-152:~# echo $JAVA_HOME
/usr/lib/jvm/java-1.8.0-openjdk-amd64
root@ip-172-31-31-152:~# vi .profile
```

#to make the change persistent across reboots

vi .profile



```
# ~/.profile: executed by Bourne-compatible login shells.

if [ "$BASH" ]; then
  if [ -f ~/.bashrc ]; then
    . ~/.bashrc
  fi
fi

mesg n || true

JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64
PATH=$PATH:$JAVA_HOME:$HOME/bin

export PATH
```

source .profile

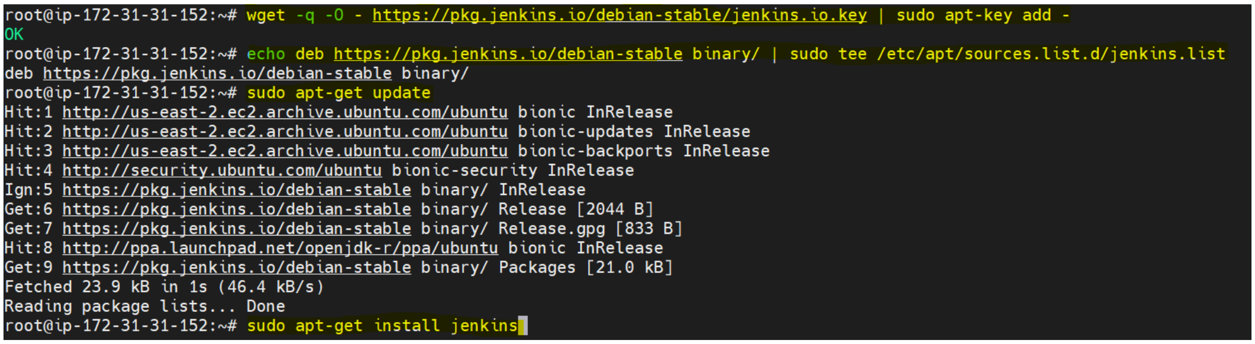
# install Jenkins

wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -

echo deb https://pkg.jenkins.io/debian-stable binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list

sudo apt-get update

sudo apt-get install jenkins

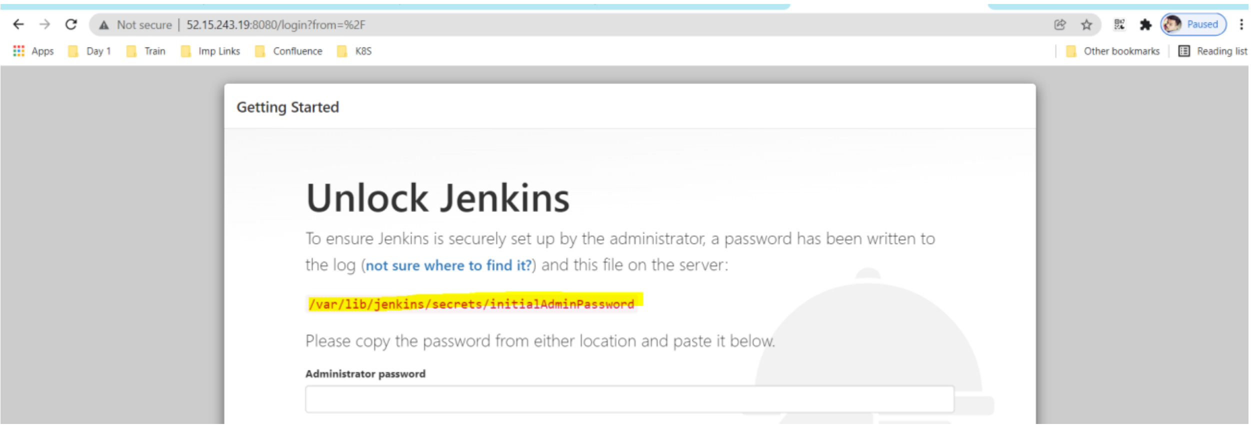


```
root@ip-172-31-31-152:~# wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -
OK
root@ip-172-31-31-152:~# echo deb https://pkg.jenkins.io/debian-stable binary/ | sudo tee /etc/apt/sources.list.d/jenkins.list
deb https://pkg.jenkins.io/debian-stable binary/
root@ip-172-31-31-152:~# sudo apt-get update
Hit:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Hit:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease
Hit:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu bionic-security InRelease
Ign:5 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:6 https://pkg.jenkins.io/debian-stable binary/ Release [2044 B]
Get:7 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Hit:8 http://ppa.launchpad.net/openjdk-r/ppa/ubuntu bionic InRelease
Get:9 https://pkg.jenkins.io/debian-stable binary/ Packages [21.0 kB]
Fetched 23.9 kB in 1s (46.4 kB/s)
Reading package lists... Done
root@ip-172-31-31-152:~# sudo apt-get install jenkins
```

Now, follow the below steps in sequence to setup Jenkins UI:-

- login to Jenkins UI: http://jenkins-server-public-ip:8080
  Note: Skip installing any plugins.

We need to show the password for the admin user to log in to our Jenkins web interface:



Getting Started

Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

`/var/lib/jenkins/secrets/initialAdminPassword`

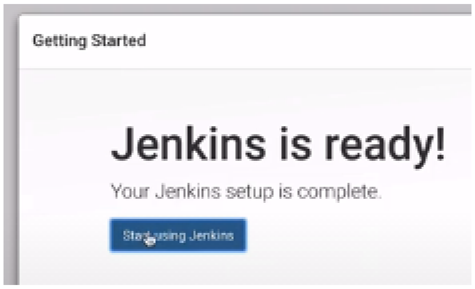
Please copy the password from either location and paste it below.

Administrator password

```
cat /var/lib/jenkins/secrets/initialAdminPassword
```

Copy the string that is output and paste it into the *Administrator password* field in your browser. Click **Continue**.

Click **Save and continue**. Next, click **Start using Jenkins**.



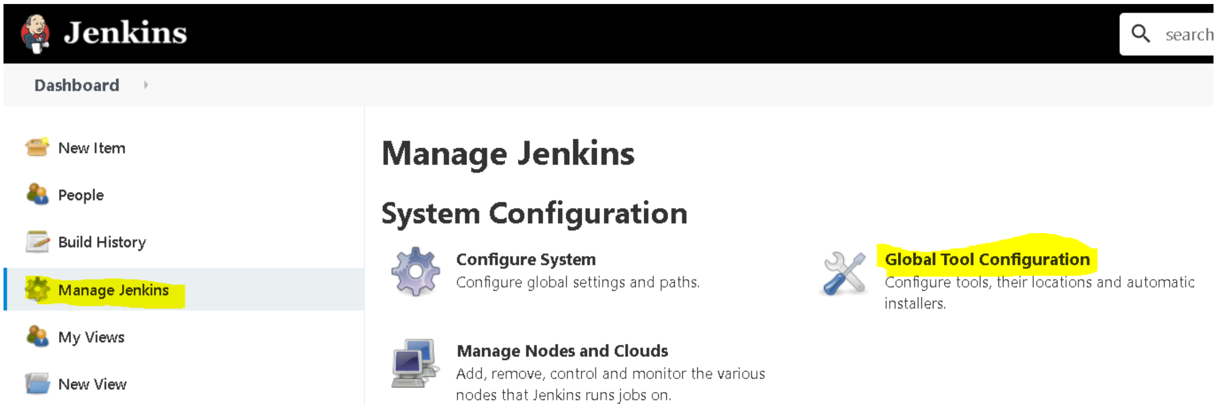
Getting Started

Jenkins is ready!

Your Jenkins setup is complete.

#Java configuration on the Jenkins UI

- Click on “Global Tool Configuration” under “Manage Jenkins”.



Manage Jenkins

System Configuration

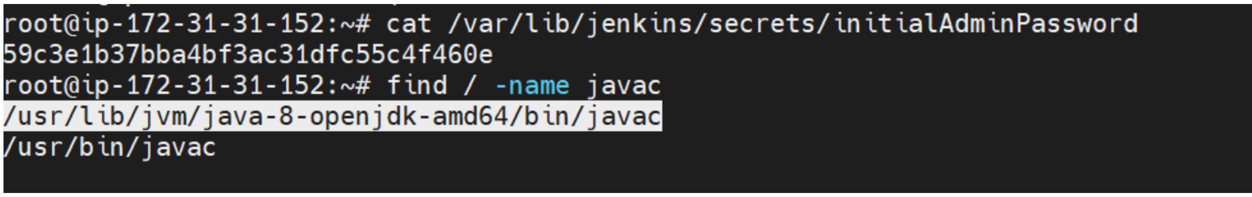
Configure System
Configure global settings and paths.

Global Tool Configuration
Configure tools, their locations and automatic installers.

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

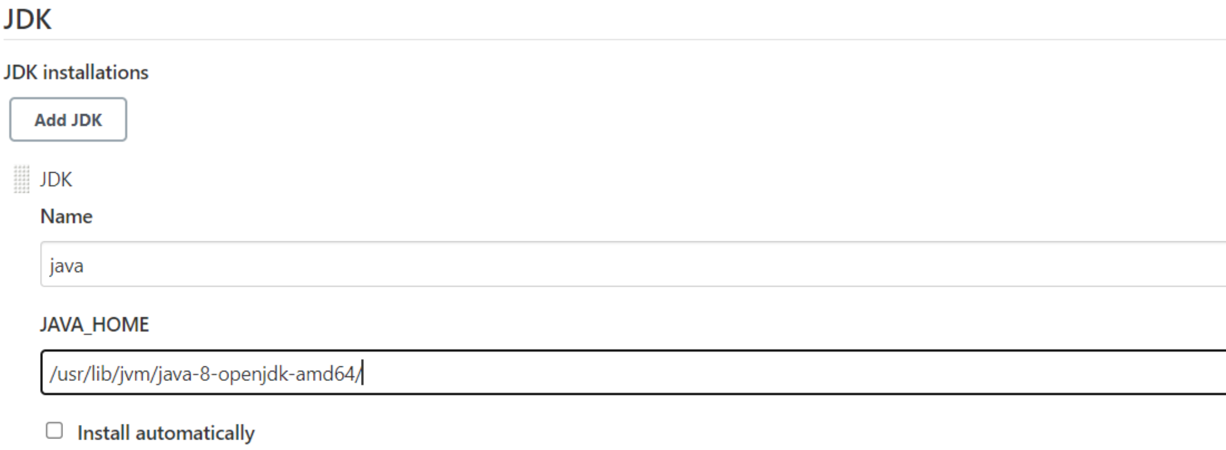
- Click on “Add JDK” and enter the details.
  For JAVA_HOME, run find / -name javac on the CLI

  CLI screen shot:



```
root@ip-172-31-31-152:~# cat /var/lib/jenkins/secrets/initialAdminPassword
59c3e1b37bba4bf3ac31dfc55c4f460e
root@ip-172-31-31-152:~# find / -name javac
/usr/lib/jvm/java-8-openjdk-amd64/bin/javac
/usr/bin/javac
```

Jenkins UI screen shot:



JDK

JDK installations

Add JDK

JDK

Name

java

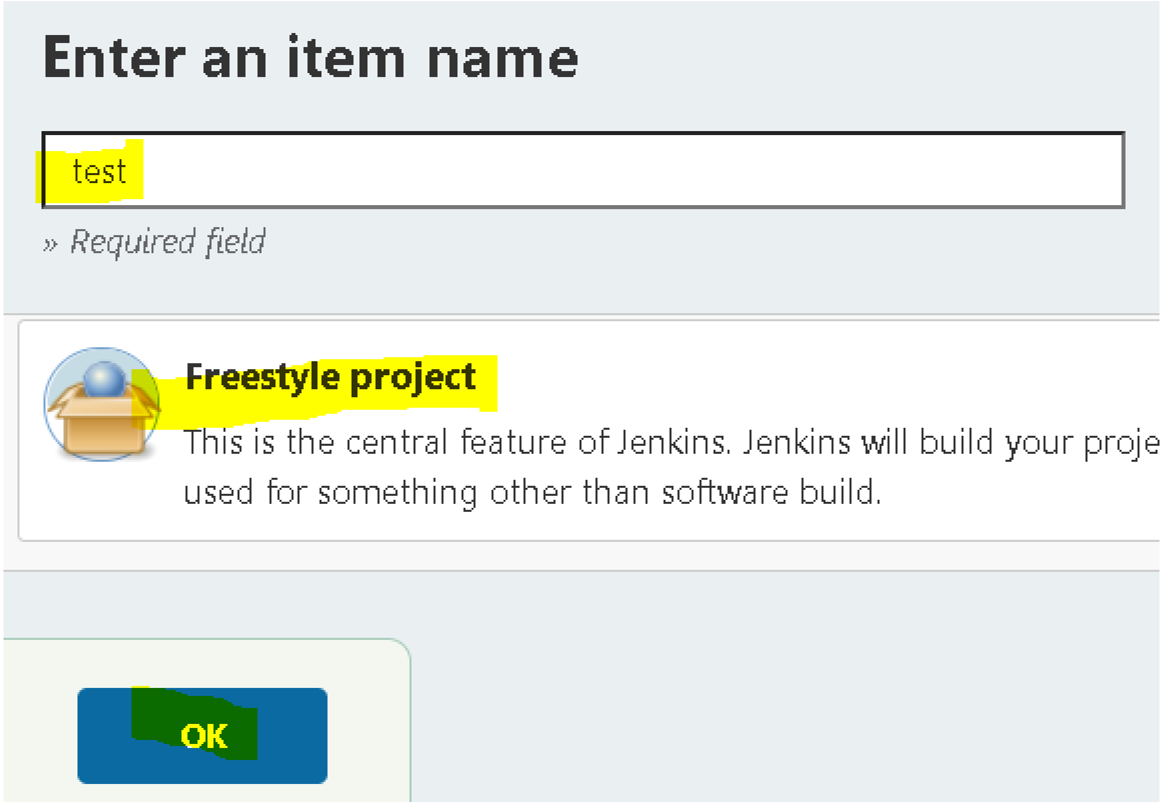
JAVA_HOME

/usr/lib/jvm/java-8-openjdk-amd64/

☐ Install automatically

- Click on apply.
- Now, we can test Jenkins functionality.

a. On the Jenkins UI, click “New Item”, enter a name “test”, choose “Freestyle Project” and click “ok”.



Enter an item name

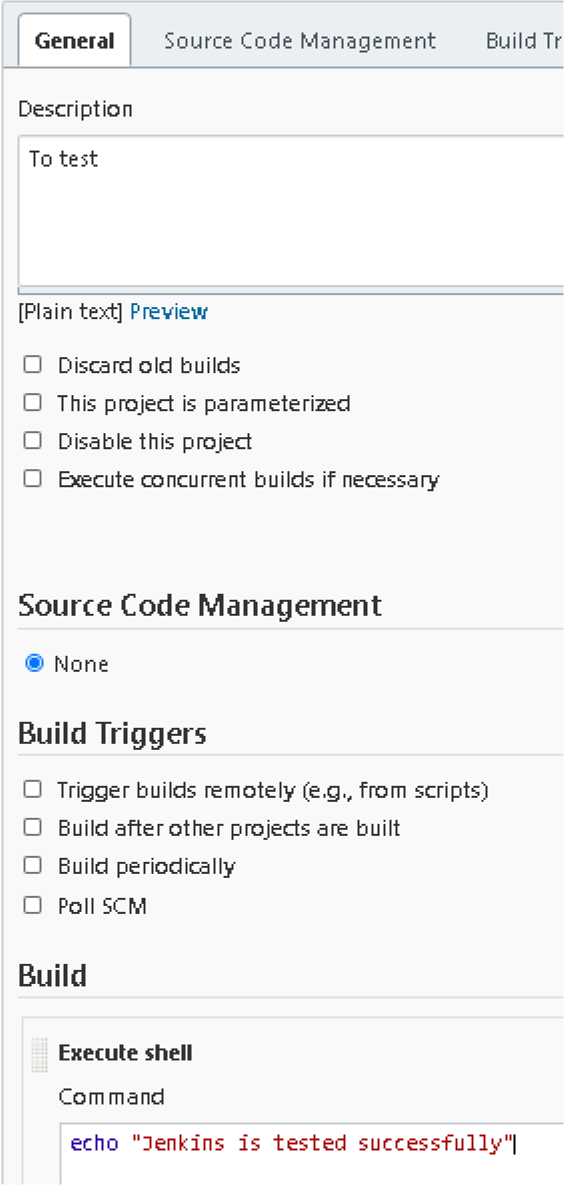
test

» Required field

Freestyle project

This is the central feature of Jenkins. Jenkins will build your proje used for something other than software build.

b. Enter the details as below.



Description

To test

[Plain text] Preview

☐ Discard old builds
☐ This project is parameterized
☐ Disable this project
☐ Execute concurrent builds if necessary

Source Code Management

● None

Build Triggers

☐ Trigger builds remotely (e.g., from scripts)
☐ Build after other projects are built
☐ Build periodically
☐ Poll SCM

Build

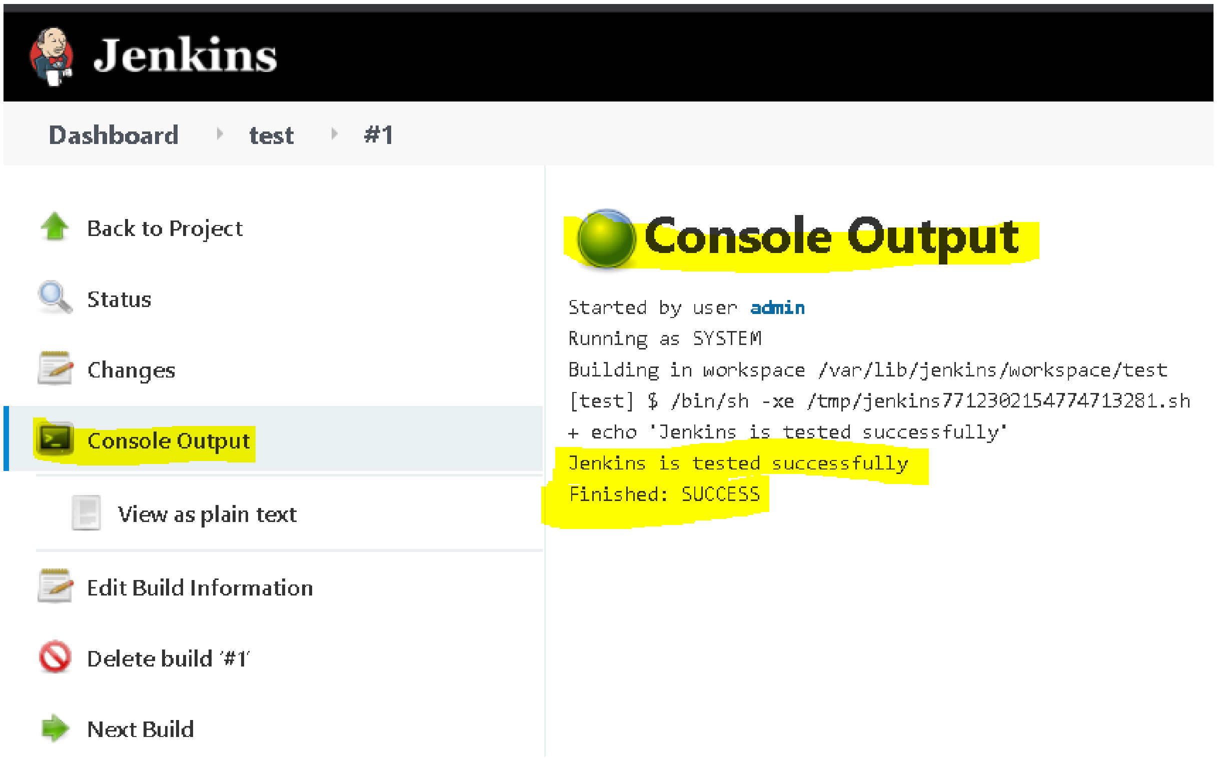
Execute shell

Command

```
echo "Jenkins is tested successfully"
```

c. Now go to home page and click on build to run the test job.

d. Check the console output if the job ran successfully.



```
Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/test
[test] $ /bin/sh -xe /tmp/jenkins7712302154774713281.sh
+ echo 'Jenkins is tested successfully'
Jenkins is tested successfully
Finished: SUCCESS
```

Configure Maven Build Tool on Jenkins server

cd /tmp ; wget https://www-eu.apache.org/dist/maven/maven-3/3.8.4/binaries/apache-maven-3.8.4-bin.tar.gz

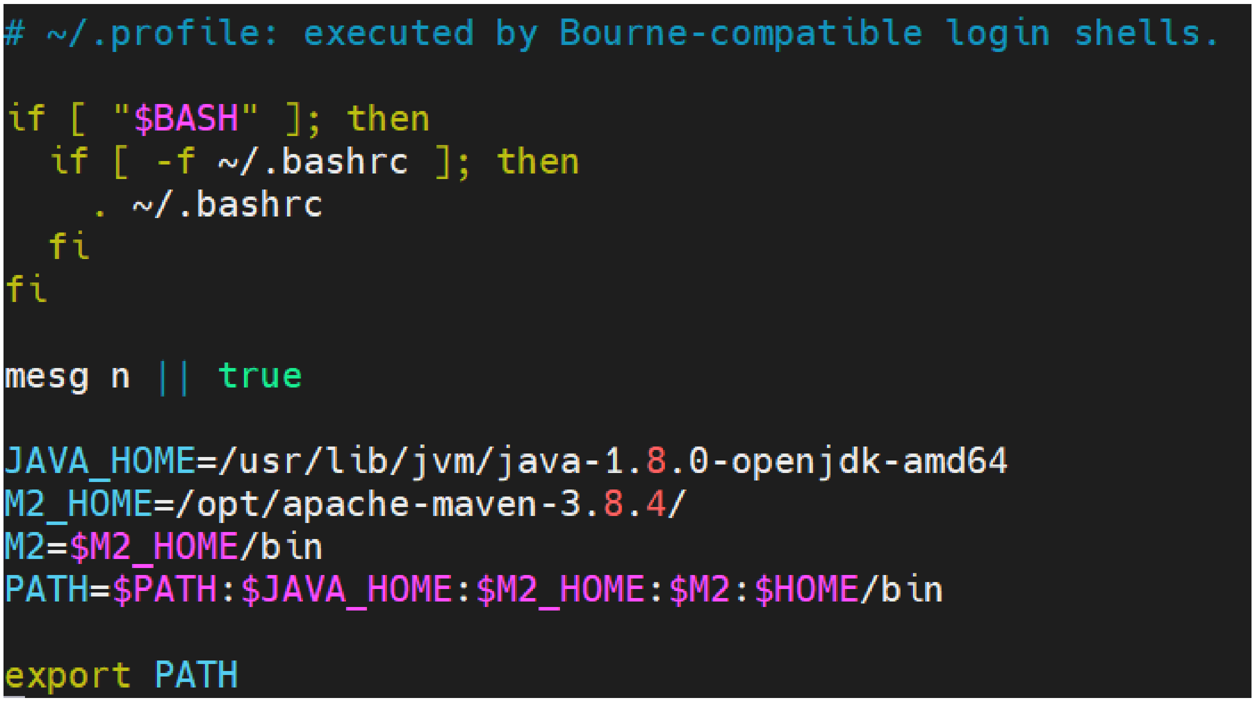
cd /tmp ; tar xzvf apache-maven-3.8.4-bin.tar.gz -C /opt

cd /opt/apache-maven-3.8.4/

pwd   *#copy the path*

vi /root/.profile

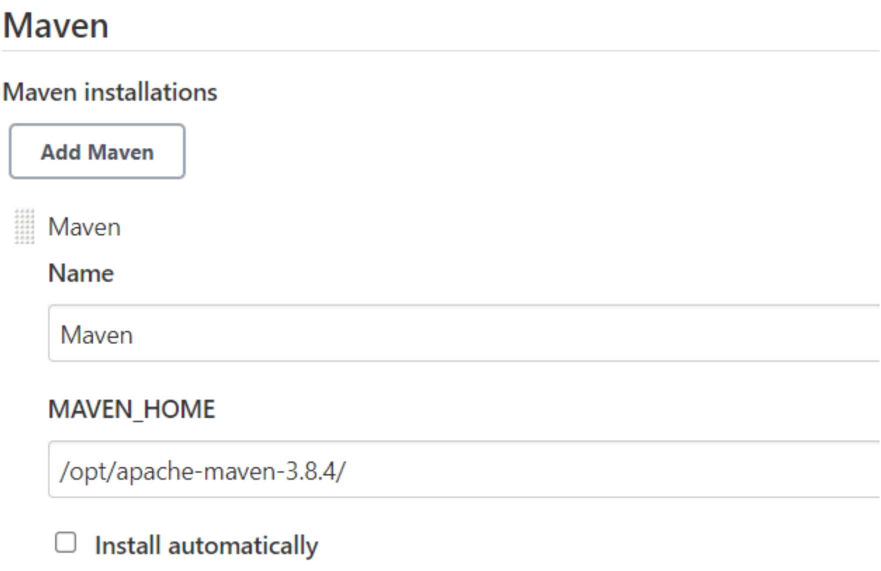
#make the following changes and save the file



```
# ~/.profile: executed by Bourne-compatible login shells.

if [ "$BASH" ]; then
  if [ -f ~/.bashrc ]; then
    . ~/.bashrc
  fi
fi

mesg n || true

JAVA_HOME=/usr/lib/jvm/java-1.8.0-openjdk-amd64
M2_HOME=/opt/apache-maven-3.8.4/
M2=$M2_HOME/bin
PATH=$PATH:$JAVA_HOME:$M2_HOME:$M2:$HOME/bin

export PATH
```

source /root/.bash_profile *#if this does not apply changes, then logout and log back in*

a. Now go back to the Jenkins console and click on: Manage Jenkins >> Manage Plugins.
b. Under Available plugins, search for “maven invoker”, then select it and choose “Install without restart”.
c. Under Available plugins, search for “maven integration plugin”, then select it and choose “Install without restart”.
d. Under Available plugins again, search for “github”, then select it and choose “Install without restart”.
e. Under Available plugins again, search for “deploy to container”, then select it and choose “Install without restart”.
f. Under Available plugins again, search for “publish over ssh”, then select it and choose “Install without restart”.
g. Now, go to: Manage Jenkins >> Global Tool Configuration, add maven configuration, apply and save:



Maven

Maven installations

Maven

Name

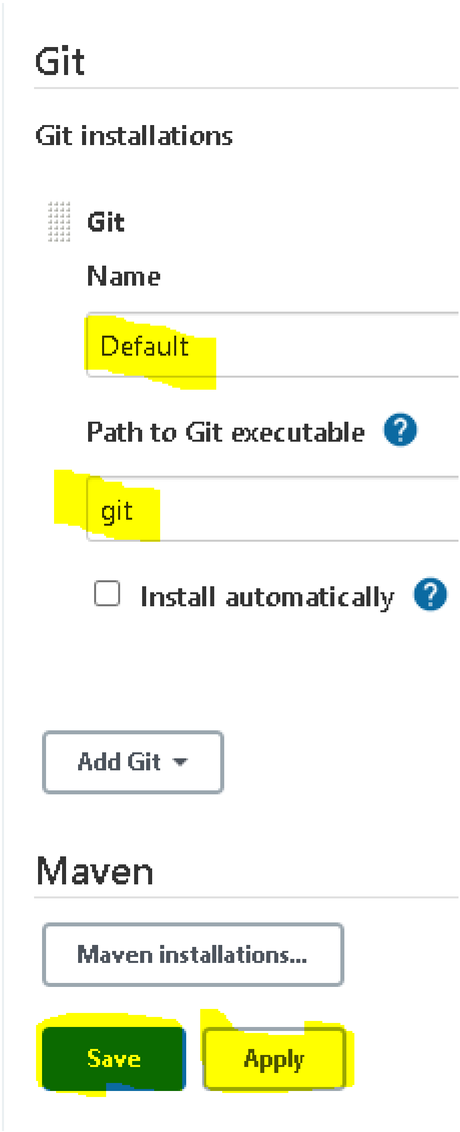
Maven

MAVEN_HOME

/opt/apache-maven-3.8.4/

☐ Install automatically

h. Now again, go to: Manage Jenkins >> Global Tool Configuration, verify git configuration as per screen shot below, apply and save:



Git

Git installations

Git

Name: Default

Path to Git executable: git

□ Install automatically

Maven

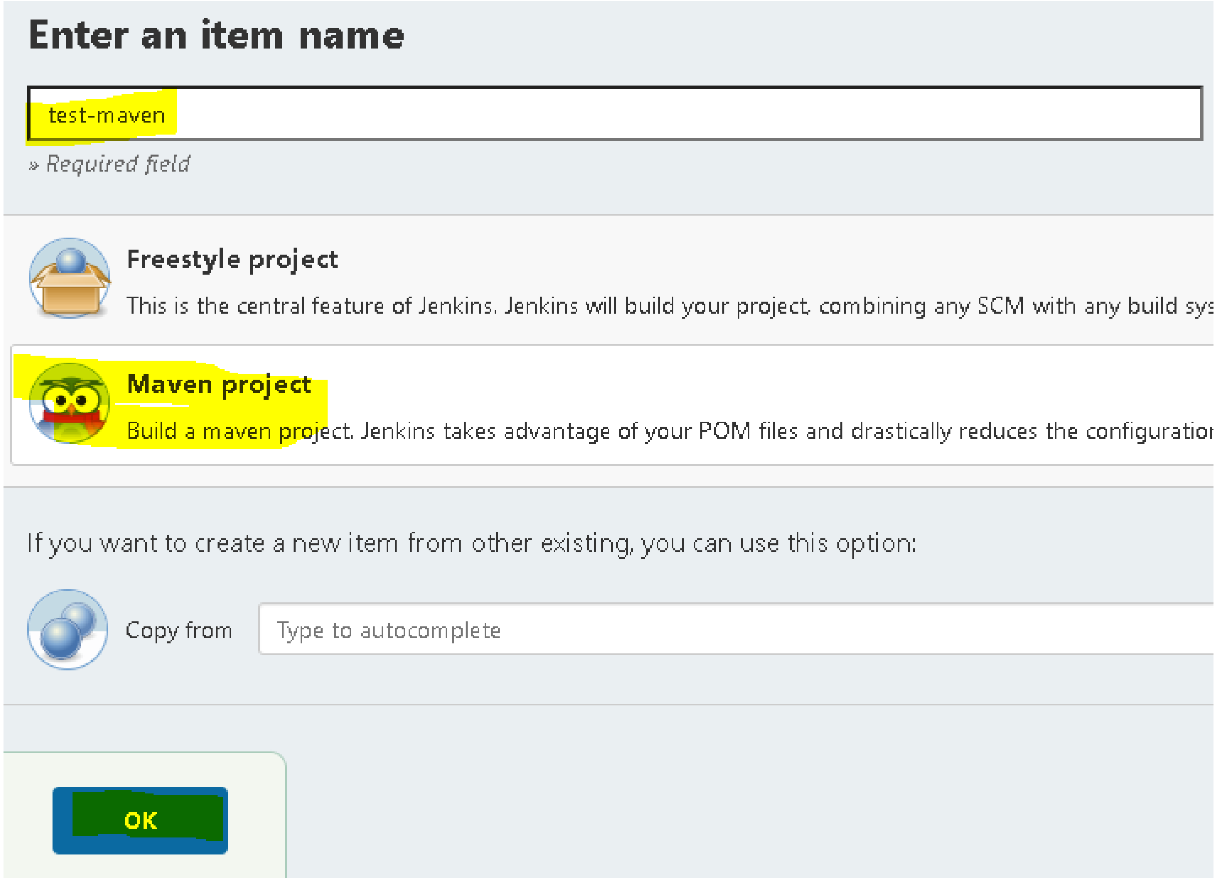
Configure git on Jenkins server

#On the CLI, run these commands

```
apt-get -y install git
```

Test your new Jenkins, Git, and Maven configuration

Click “new item” and follow the steps as per screen shots below:



Enter an item name

test-maven

» Required field

Freestyle project

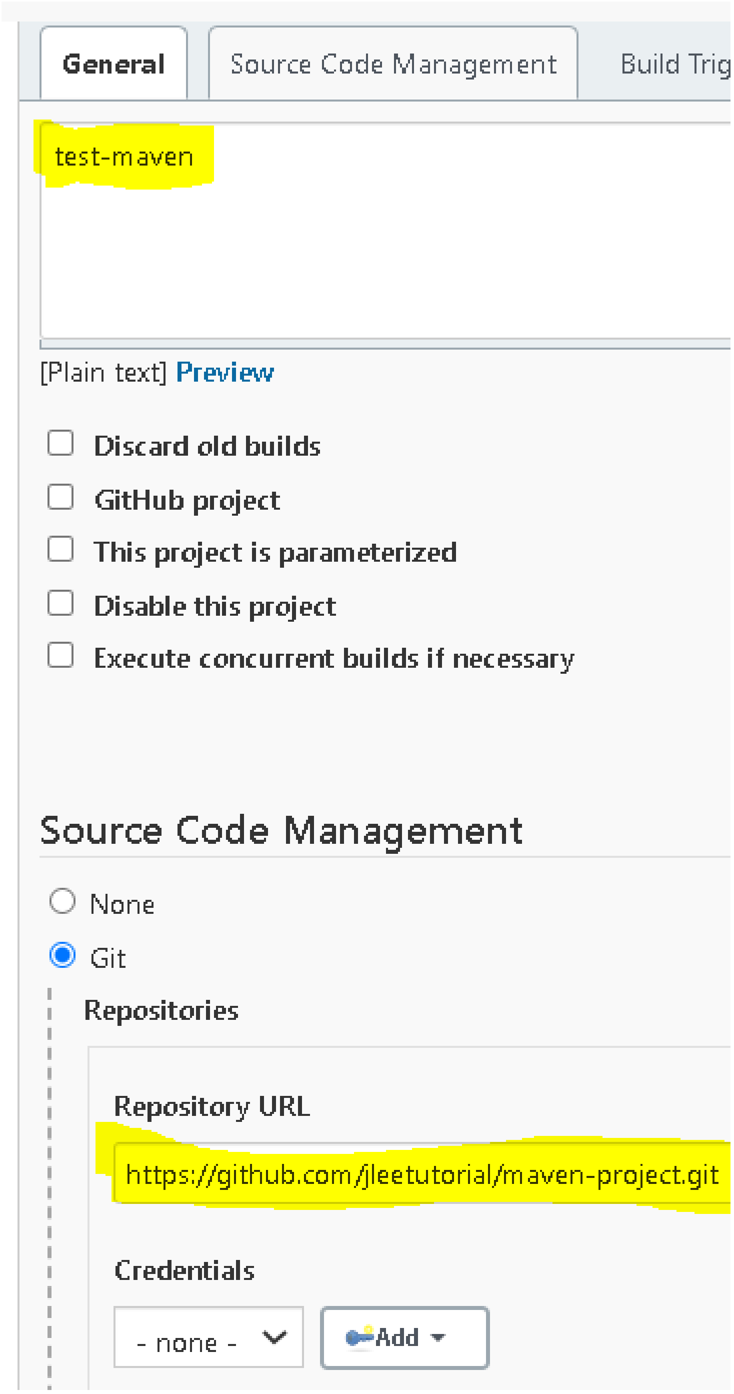
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build sys

Maven project

Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuratior

If you want to create a new item from other existing, you can use this option:

Copy from Type to autocomplete



test-maven

□ Discard old builds

□ GitHub project

□ This project is parameterized

□ Disable this project

□ Execute concurrent builds if necessary

Source Code Management

○ None

● Git

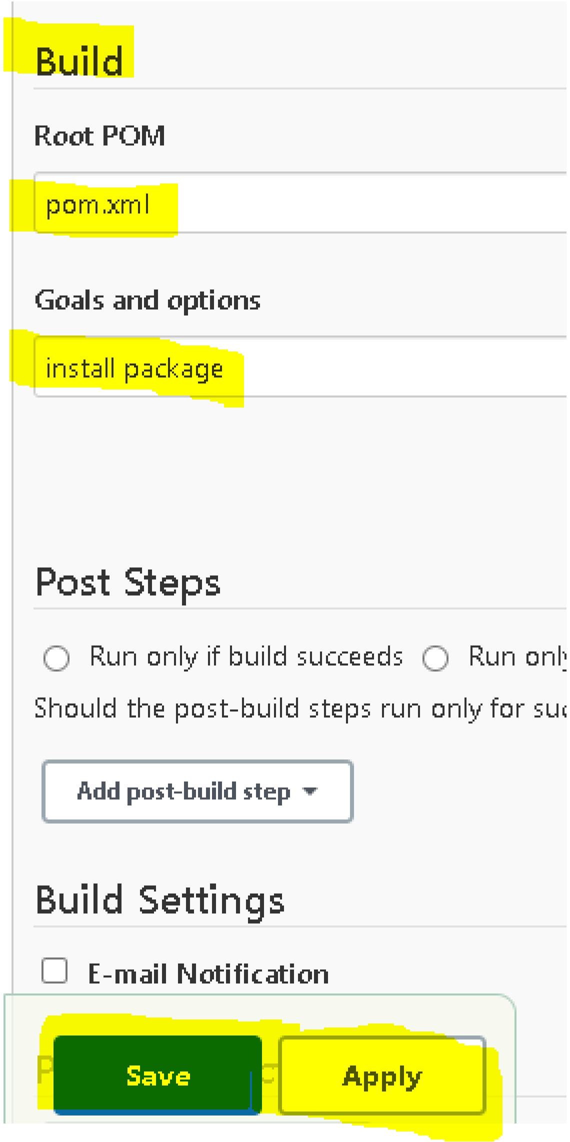
Repositories

Repository URL

https://github.com/jleetutorial/maven-project.git

Credentials

- none -



Build

Root POM

pom.xml

Goals and options

install package

Post Steps

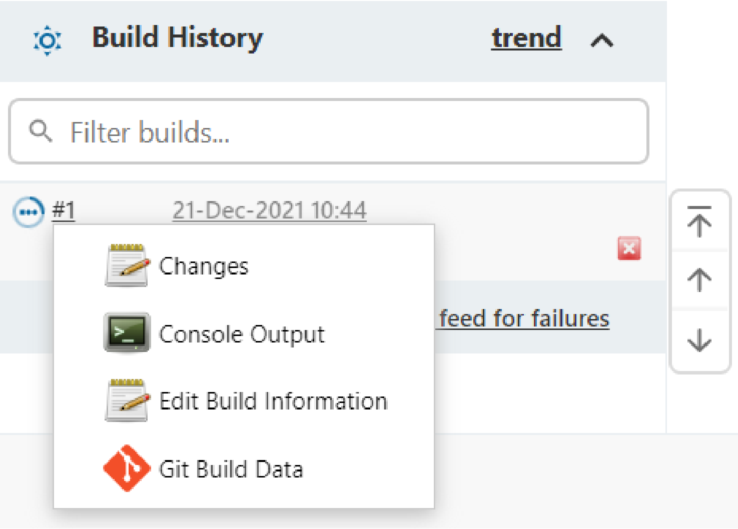
○ Run only if build succeeds ○ Run onl

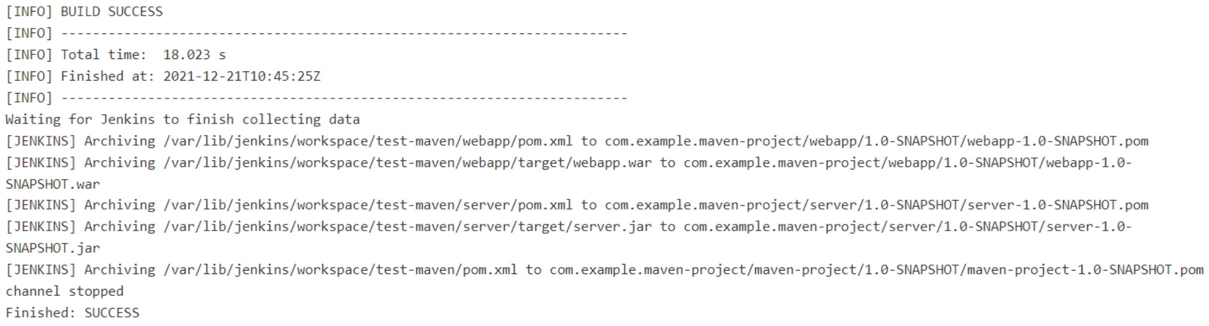
Should the post-build steps run only for suc

Build Settings

☐ E-mail Notification

Now, click on your project and go to “Console Output” and check for SUCCESS message at the end of the output.

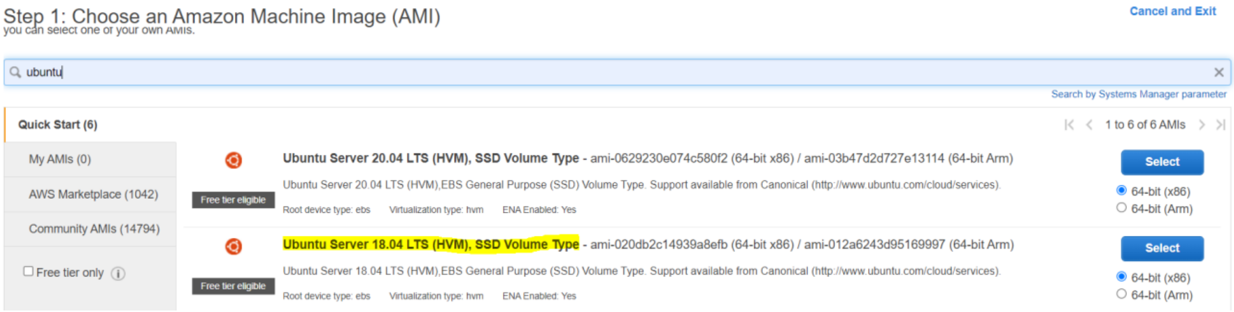




```
[INFO] BUILD SUCCESS
[INFO] ------------------------------------------------------------------------
[INFO] Total time:  18.023 s
[INFO] Finished at: 2021-12-21T10:45:25Z
[INFO] ------------------------------------------------------------------------
Waiting for Jenkins to finish collecting data
[JENKINS] Archiving /var/lib/jenkins/workspace/test-maven/webapp/pom.xml to com.example.maven-project/webapp/1.0-SNAPSHOT/webapp-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/test-maven/webapp/target/webapp.war to com.example.maven-project/webapp/1.0-SNAPSHOT/webapp-1.0-
SNAPSHOT.war
[JENKINS] Archiving /var/lib/jenkins/workspace/test-maven/server/pom.xml to com.example.maven-project/server/1.0-SNAPSHOT/server-1.0-SNAPSHOT.pom
[JENKINS] Archiving /var/lib/jenkins/workspace/test-maven/server/target/server.jar to com.example.maven-project/server/1.0-SNAPSHOT/server-1.0-
SNAPSHOT.jar
[JENKINS] Archiving /var/lib/jenkins/workspace/test-maven/pom.xml to com.example.maven-project/maven-project/1.0-SNAPSHOT/maven-project-1.0-SNAPSHOT.pom
channel stopped
Finished: SUCCESS
```

Configure webserver

1. On the AWS Management Console, click launch instance, and choose **Ubuntu Server 18.04 LTS (HVM)** AMI:



Step 1: Choose an Amazon Machine Image (AMI)
you can select one of your own AMIs.

Cancel and Exit

ubuntu

Search by Systems Manager parameter

Quick Start (6)

1 to 6 of 6 AMIs

My AMIs (0)

AWS Marketplace (1042)

Community AMIs (14794)

□ Free tier only

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0629230e074c580f2 (64-bit x86) / ami-03b47d2d727e13114 (64-bit Arm)

Free tier eligible

Ubuntu Server 20.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

● 64-bit (x86)
○ 64-bit (Arm)

Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-020db2c14939a8efb (64-bit x86) / ami-012a6243d95169997 (64-bit Arm)

Free tier eligible

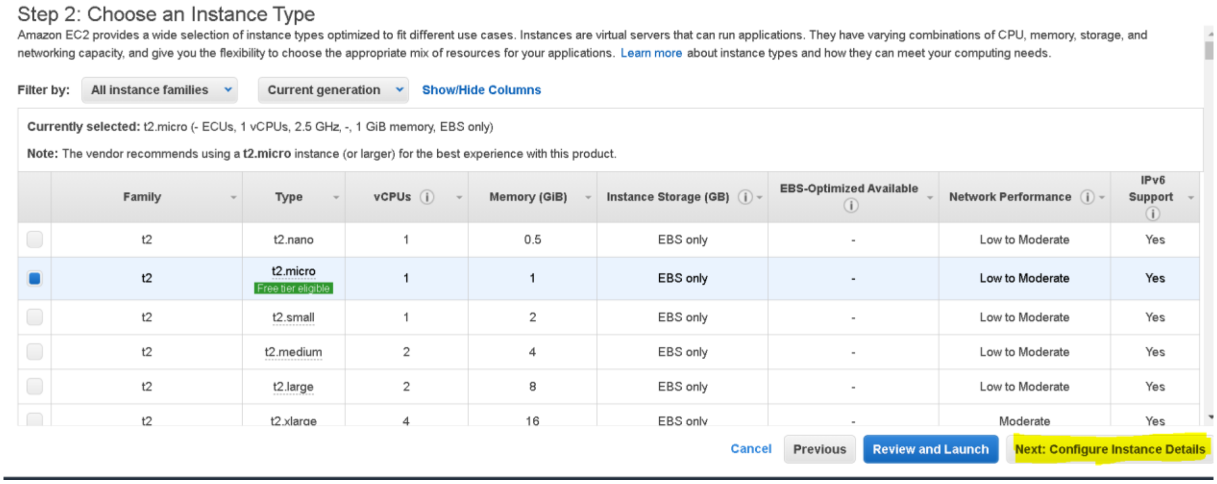
Ubuntu Server 18.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

● 64-bit (x86)
○ 64-bit (Arm)

2. Keep clicking “Next: Configure Instance Details”:



Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

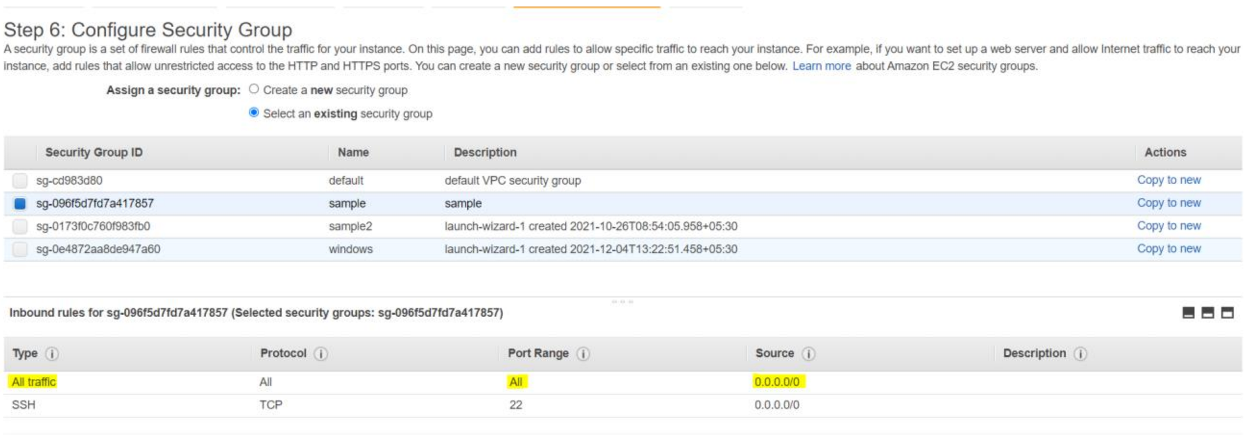
Filter by: All instance families | Current generation | Show/Hide Columns

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

Note: The vendor recommends using a **t2.micro** instance (or larger) for the best experience with this product.

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
☐	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
■	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
☐	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
☐	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
☐	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
☐	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes

Note: Make sure All traffic is allowed on the Security Group inbound, refer screen shot below:



Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

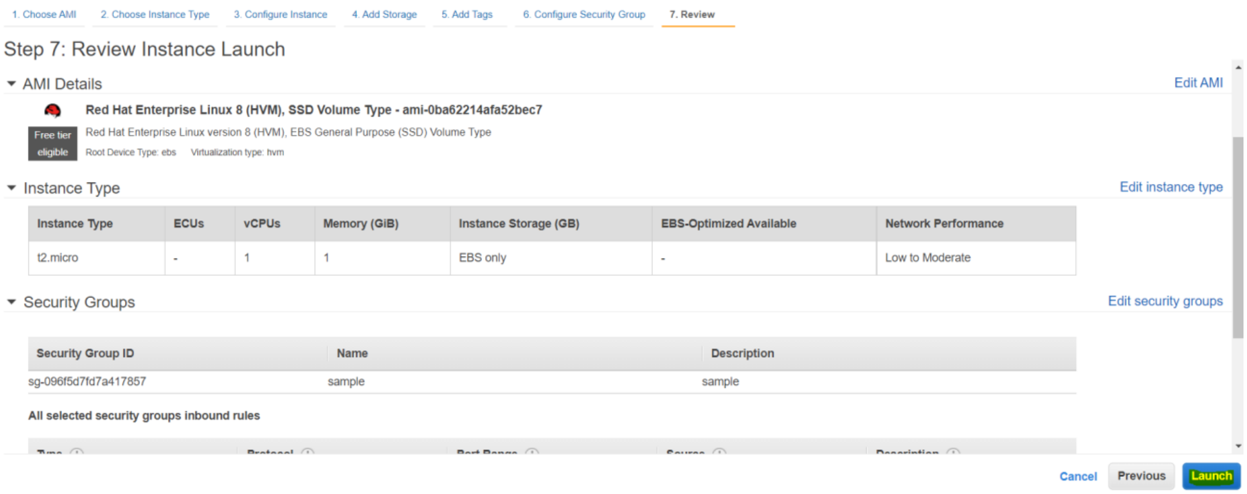
Assign a security group: ○ Create a **new** security group
● Select an **existing** security group

	Security Group ID	Name	Description	Actions
☐	sg-cd983d80	default	default VPC security group	Copy to new
■	sg-096f5d7fd7a417857	sample	sample	Copy to new
☐	sg-0173f0c760f983fb0	sample2	launch-wizard-1 created 2021-10-26T08:54:05.958+05:30	Copy to new
☐	sg-0e4872aa8de947a60	windows	launch-wizard-1 created 2021-12-04T13:22:51.458+05:30	Copy to new

Inbound rules for sg-096f5d7fd7a417857 (Selected security groups: sg-096f5d7fd7a417857)

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
SSH	TCP	22	0.0.0.0/0	

3. Then click “Review and Launch” and then finally click “Launch”:



Step 7: Review Instance Launch

▾ AMI Details — Edit AMI

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-0ba62214afa52bec7

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 — Edit instance type

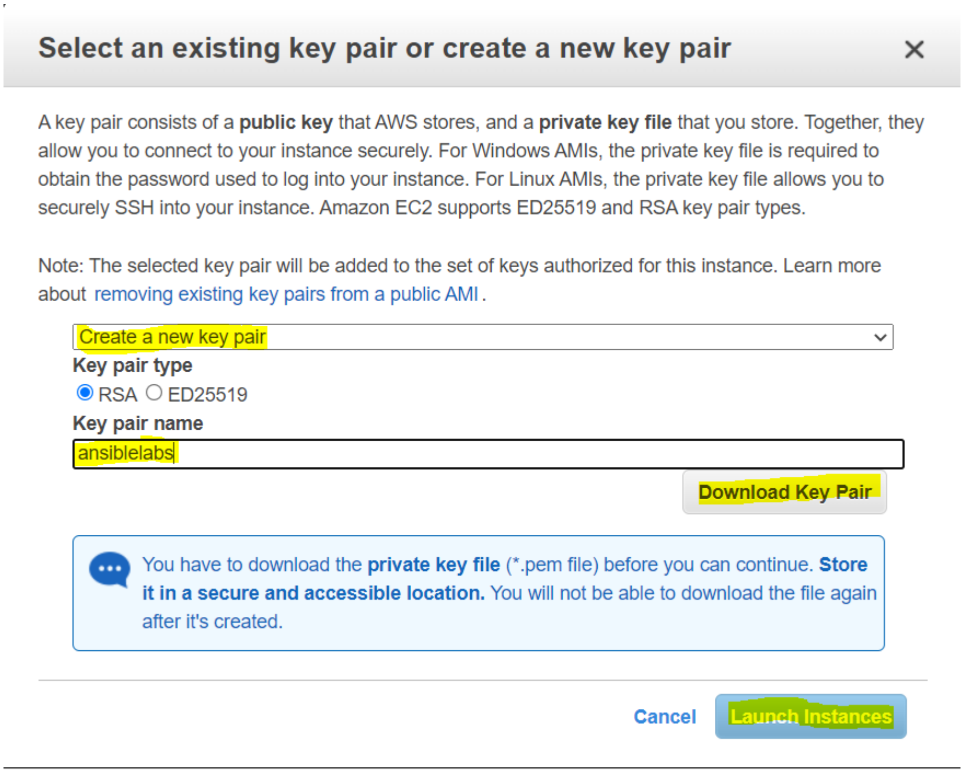
Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

▾ Security Groups — Edit security groups

Security Group ID	Name	Description
sg-096f5d7fd7a417857	sample	sample

All selected security groups inbound rules

4. Create a New key pair and save the public key in your local system:



Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI .

Create a new key pair

Key pair type

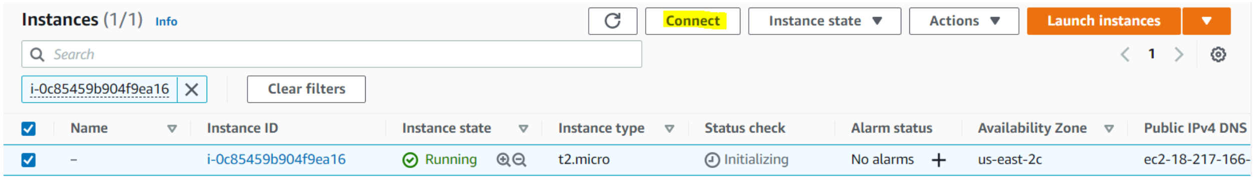
● RSA ○ ED25519

Key pair name

ansiblelabs

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

5. Then choose the instance and click on connect to SSH into the server:



i-0c85459b904f9ea16

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
☑	–	i-0c85459b904f9ea16	Running	t2.micro	Initializing	No alarms	us-east-2c	ec2-18-217-166-

1. After you have logged in to the server, run the following commands in sequence.

```
#become "root" user

sudo su –

# Install Java 1.8

sudo su –

sudo add-apt-repository ppa:openjdk-r/ppa

sudo apt-get update

sudo apt-get install -y openjdk-8-jdk

java –version

cd /opt
```

```
apt-get -y install wget
```

```
wget https://mirrors.estointernet.in/apache/tomcat/tomcat-8/v8.5.73/bin/apache-tomcat-8.5.73.tar.gz
```

```
tar -xvzf apache-tomcat-8.5.73.tar.gz
```

```
cd apache-tomcat-8.5.73
```

```
cd bin
```

```
chmod +x startup.sh
```

```
chmod +x shutdown.sh
```

```
echo $PATH  #to copy the command directory
```

```
ln -s /opt/apache-tomcat-8.5.73/bin/startup.sh /usr/local/bin/tomcatup
```

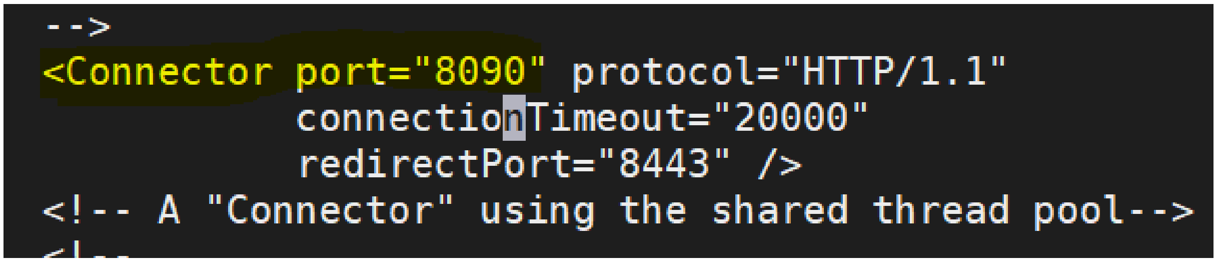
```
ln -s /opt/apache-tomcat-8.5.73/bin/shutdown.sh /usr/local/bin/tomcatdown
```

```
tomcatup
```

```
ps -ef | grep -i tomcat
```

```
vi /opt/apache-tomcat-8.5.73/conf/server.xml
```

#search for “Connector port” and change it to 8090



```
 -->
<Connector port="8090" protocol="HTTP/1.1"
           connectionTimeout="20000"
           redirectPort="8443" />
<!-- A "Connector" using the shared thread pool-->
<!--
```

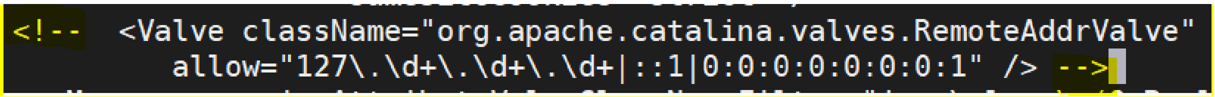
```
tomcatdown
```

```
tomcatup
```

#tomcat server is now accessible on: <public-ip-of-server:8090>

```
vi /opt/apache-tomcat-8.5.73/webapps/host-manager/META-INF/context.xml
```

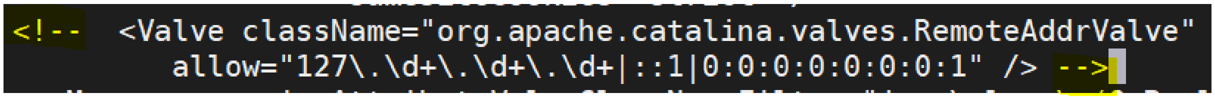
#<!-- and --> is used to comment lines in this file



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

```
vi /opt/apache-tomcat-8.5.73/webapps/manager/META-INF/context.xml
```

#<!-- and --> is used to comment lines in this file



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

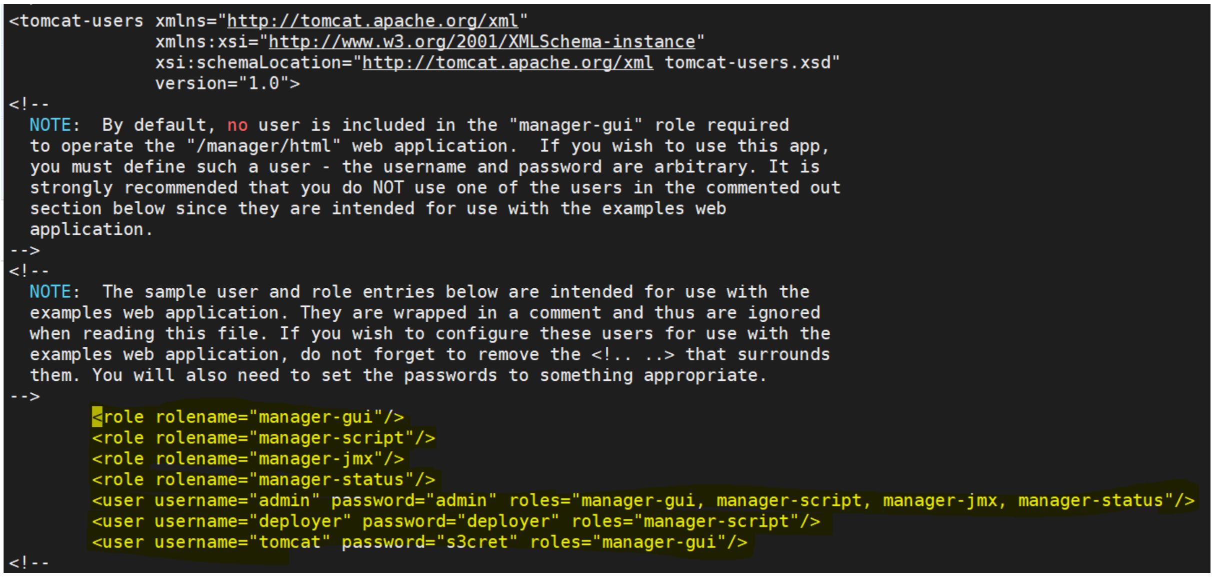
tomcatdown

tomcatup

#we need to add users and roles to login to tomcat server on the browser

vi /opt/apache-tomcat-8.5.73/conf/tomcat-users.xml

```
<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"/>
```

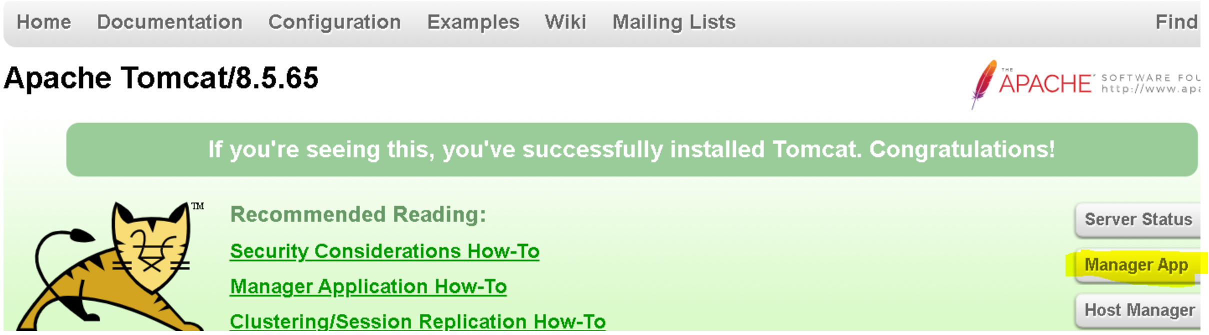


```
<tomcat-users xmlns="http://tomcat.apache.org/xml"
              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
              xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
              version="1.0">
<!--
  NOTE:  By default, no user is included in the "manager-gui" role 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.
-->
<!--
  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="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"/>
<!--
```

tomcatdown

tomcatup

#now, browse to <public-ip-of-web-server:8090> and click on “Manager App”



Apache Tomcat/8.5.65

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

Recommended Reading:

Security Considerations How-To

Manager Application How-To

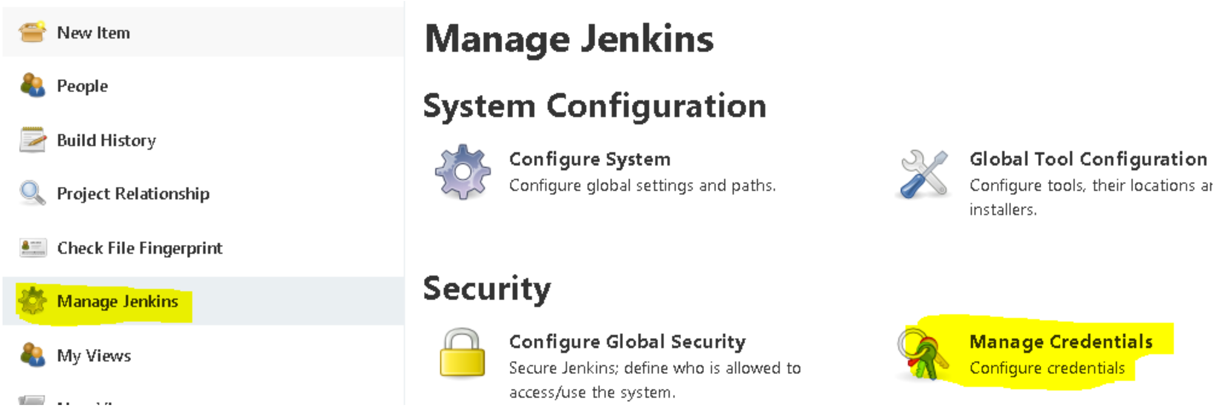
Clustering/Session Replication How-To

#use the below ID and password to login:

#username: tomcat

#password: s3cret

Now on the Jenkins UI, go to: Manage Jenkins > Manage Credentials.



Manage Jenkins

System Configuration

Configure System
Configure global settings and paths.

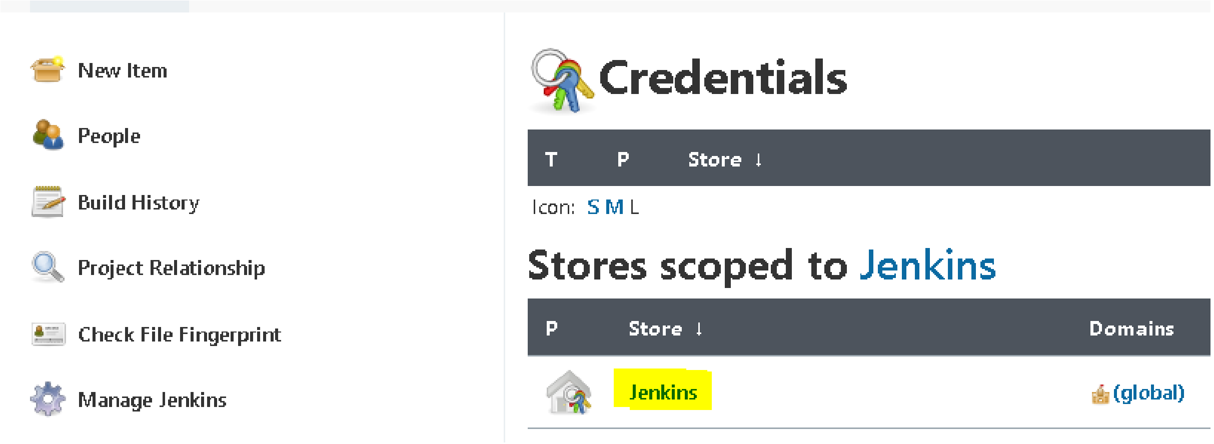
Global Tool Configuration
Configure tools, their locations ar
installers.

Security

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

Manage Credentials
Configure credentials

Click on Jenkins > Global Credentials > Add Credentials as shown below:



New Item

People

Build History

Project Relationship

Check File Fingerprint

Manage Jenkins

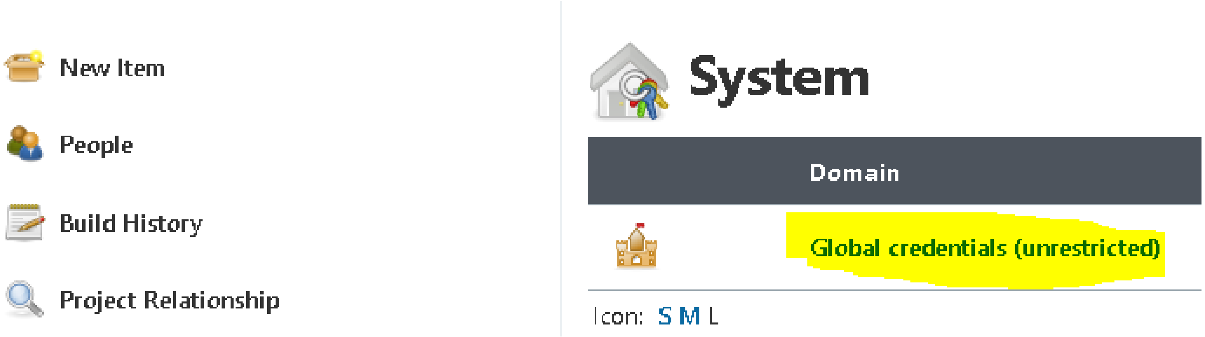
Credentials

T	P	Store ↓

Icon: S M L

Stores scoped to Jenkins

P	Store ↓	Domains
	Jenkins	(global)



New Item

People

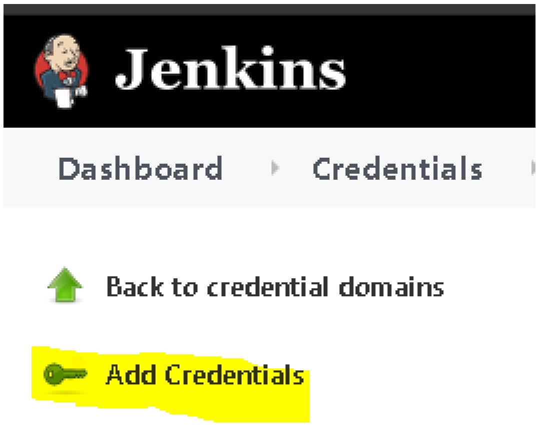
Build History

Project Relationship

System

	Domain
	Global credentials (unrestricted)

Icon: S M L



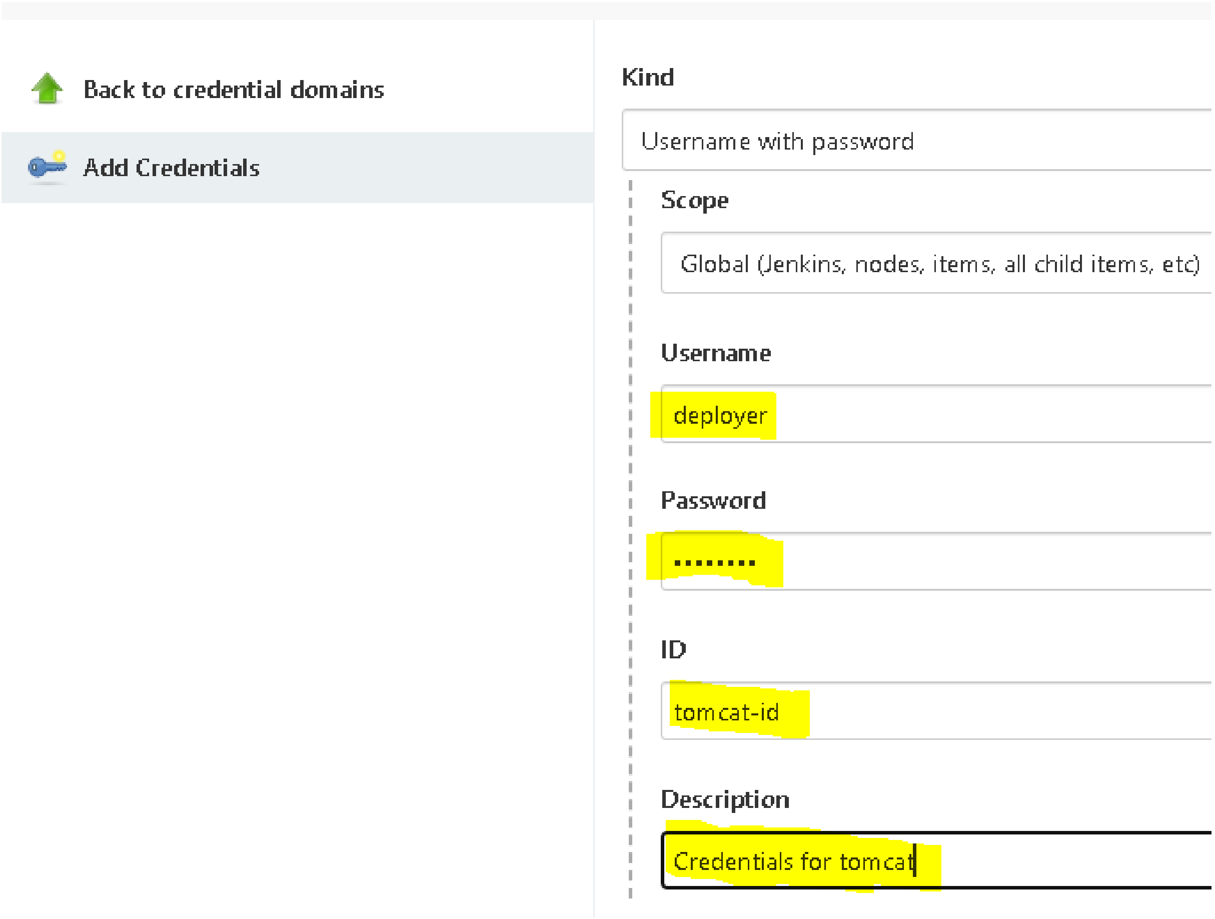
Jenkins

Dashboard ▸ Credentials ▸

Back to credential domains

Add Credentials

Now, under add credentials, add “deployer” as the username and password.



Kind

Username with password

Scope

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

Username

deployer

Password

••••••••

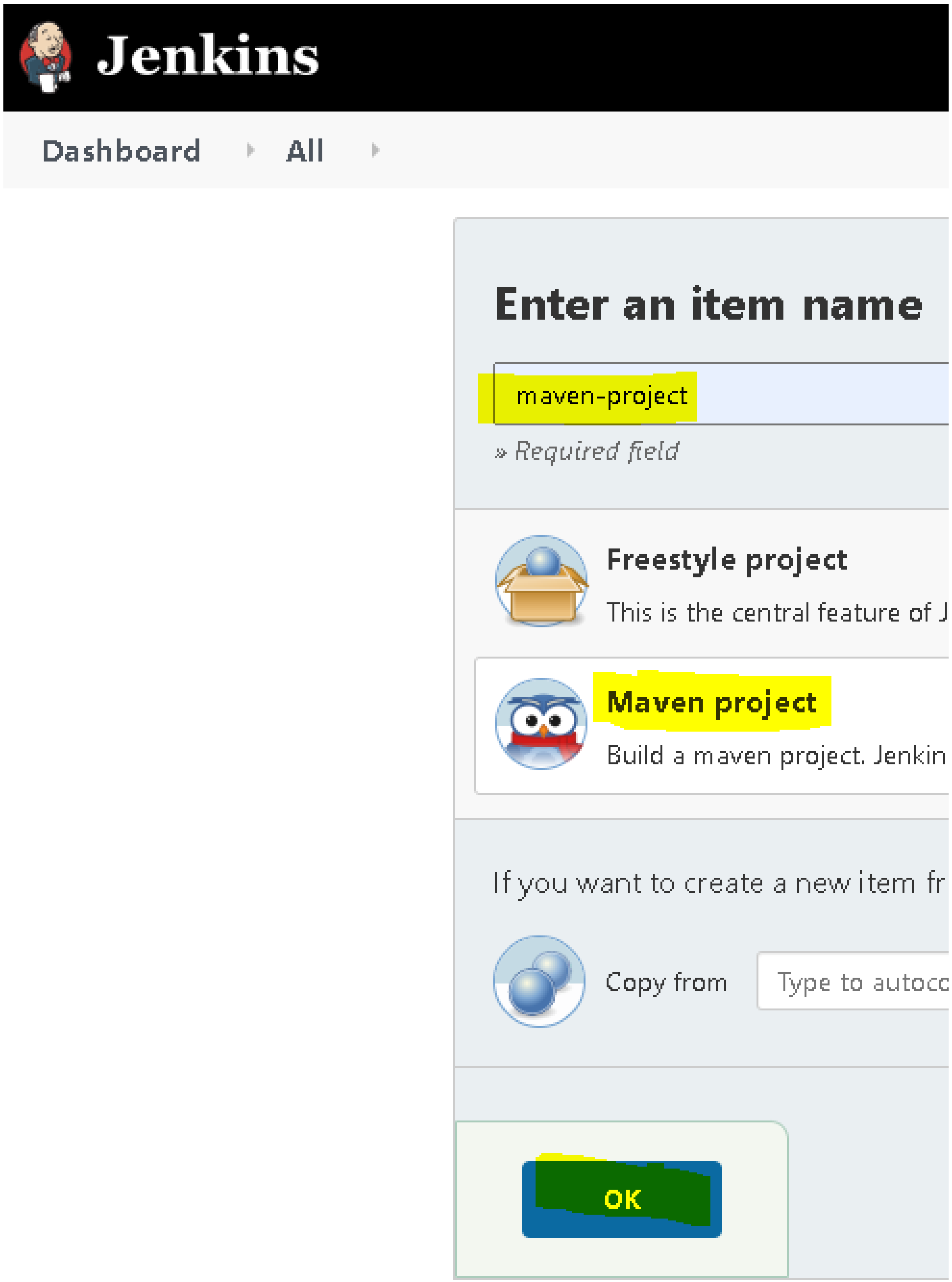
ID

tomcat-id

Description

Credentials for tomcat

Now, create a “New Item” called “maven-project” to test the configuration.



Jenkins

Dashboard ▸ All ▸

Enter an item name

maven-project

» Required field

Freestyle project

This is the central feature of J

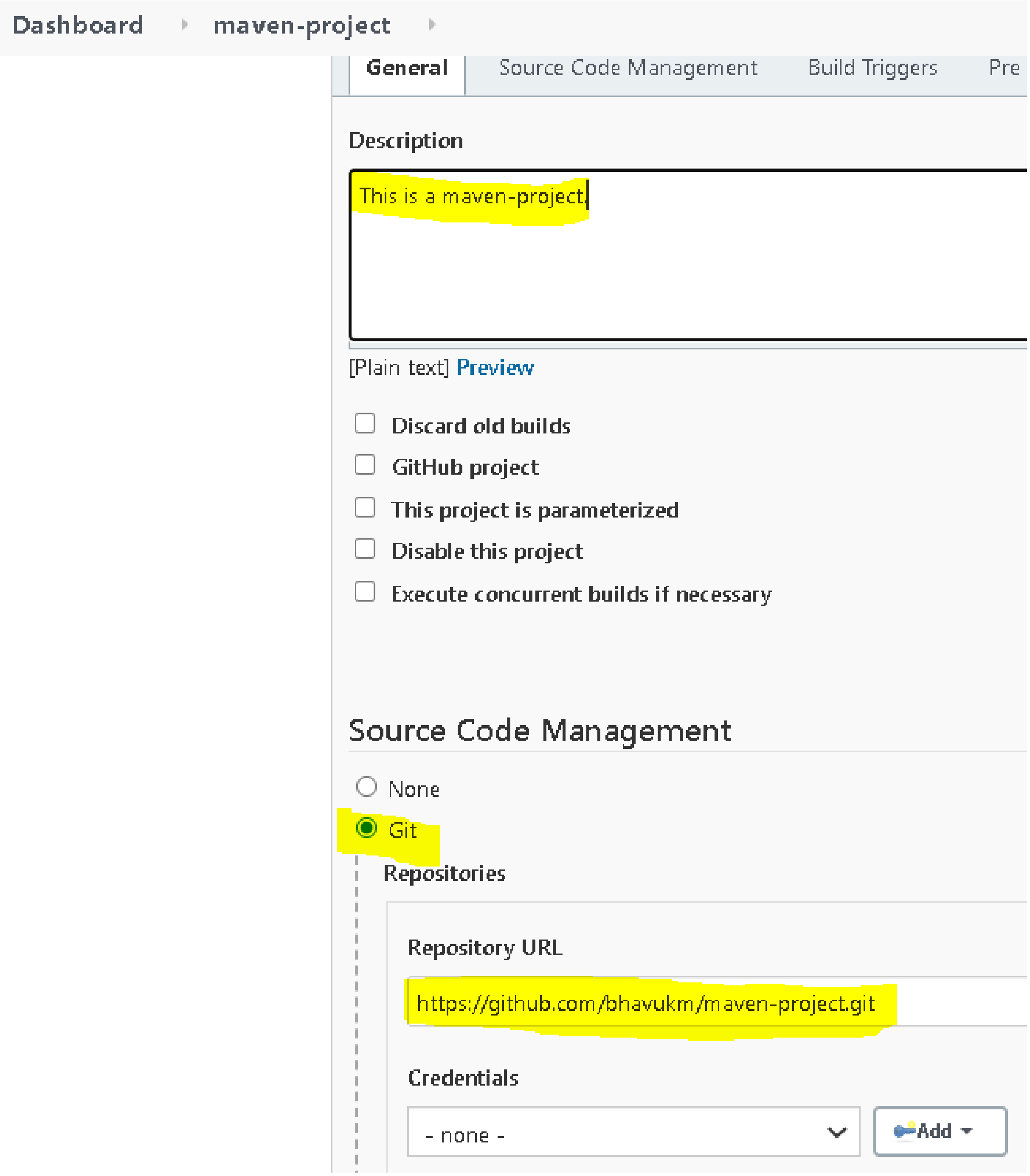
Maven project

Build a maven project. Jenkin

If you want to create a new item fr

Copy from Type to autoco

OK



Dashboard › maven-project ›

Description

This is a maven-project.

[Plain text] Preview

□ Discard old builds
□ GitHub project
□ This project is parameterized
□ Disable this project
□ Execute concurrent builds if necessary

Source Code Management

○ None
● Git

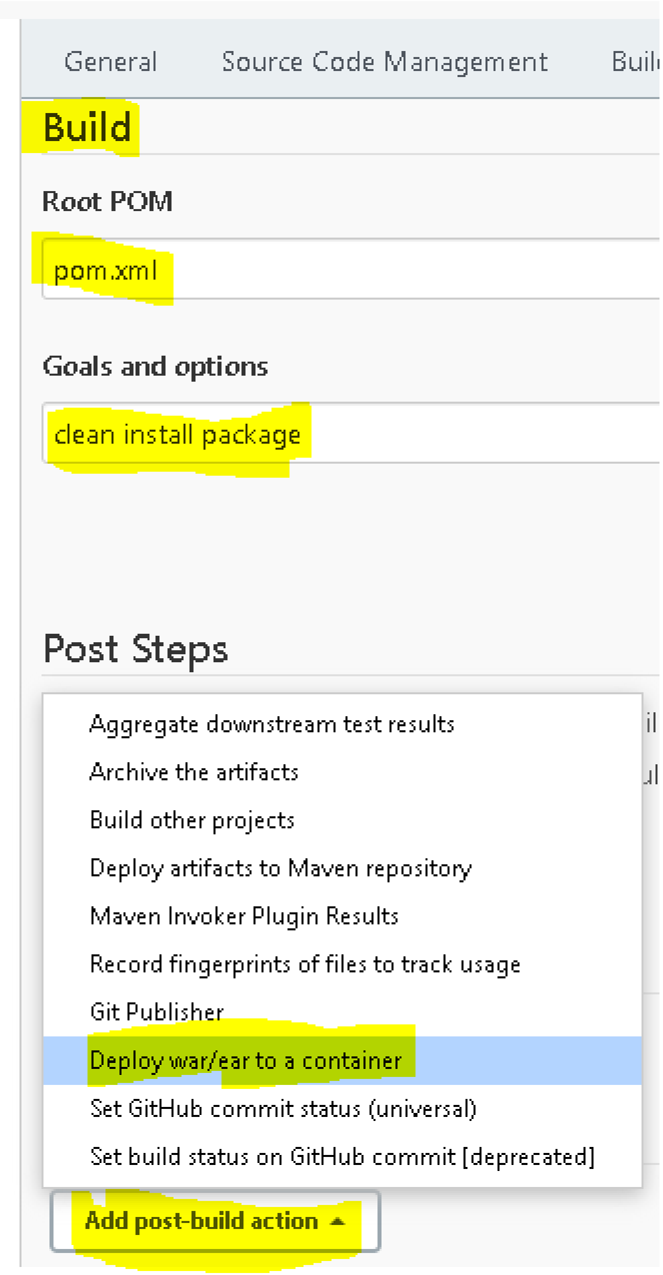
Repositories

Repository URL

https://github.com/bhavukm/maven-project.git

Credentials

- none -


General
Source Code Management
Buil

Build

Root POM

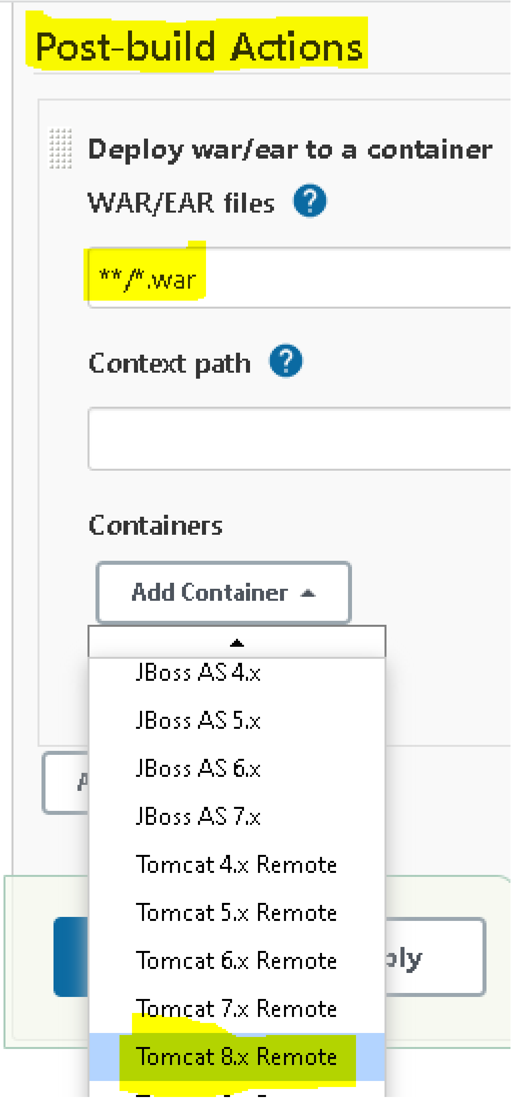
pom.xml

Goals and options

clean install package

Post Steps

Aggregate downstream test results
Archive the artifacts
Build other projects
Deploy artifacts to Maven repository
Maven Invoker Plugin Results
Record fingerprints of files to track usage
Git Publisher
Deploy war/ear to a container
Set GitHub commit status (universal)
Set build status on GitHub commit [deprecated]
Add post-build action ▲



Post-build Actions

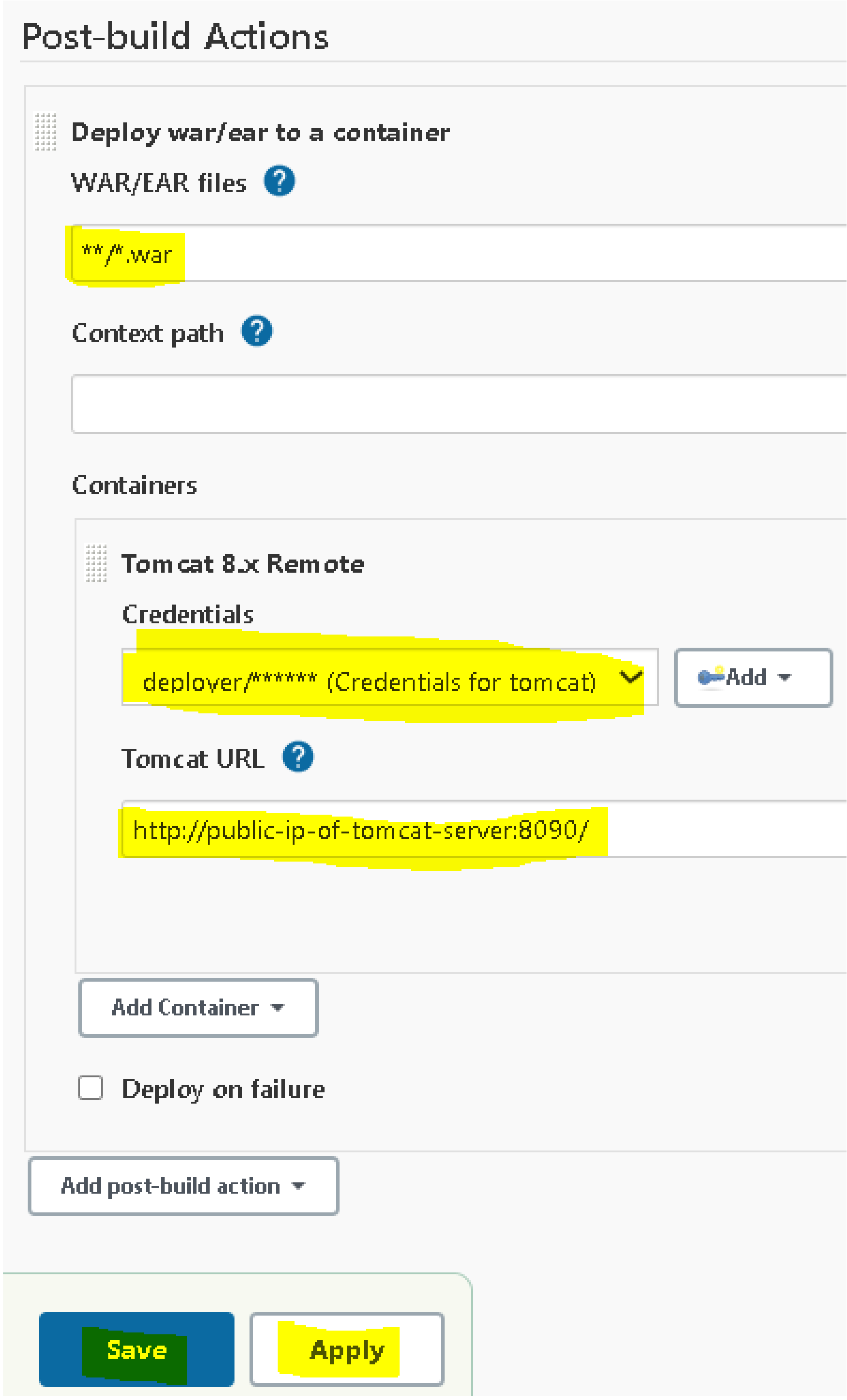
Deploy war/ear to a container

WAR/EAR files

**/*.war

Context path

Containers



Post-build Actions

Deploy war/ear to a container

WAR/EAR files

**/*.war

Context path

Containers

Tomcat 8.x Remote

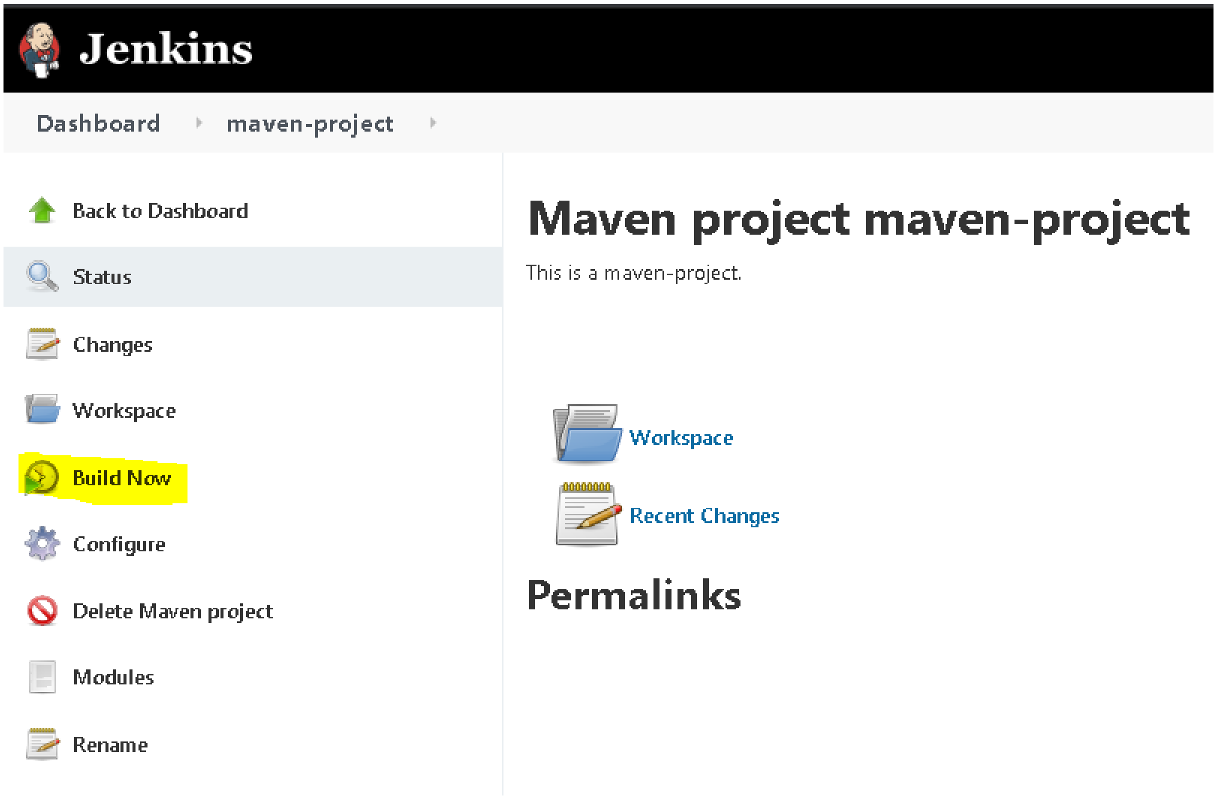
Credentials

deplover/****** (Credentials for tomcat)

Tomcat URL

http://public-ip-of-tomcat-server:8090/

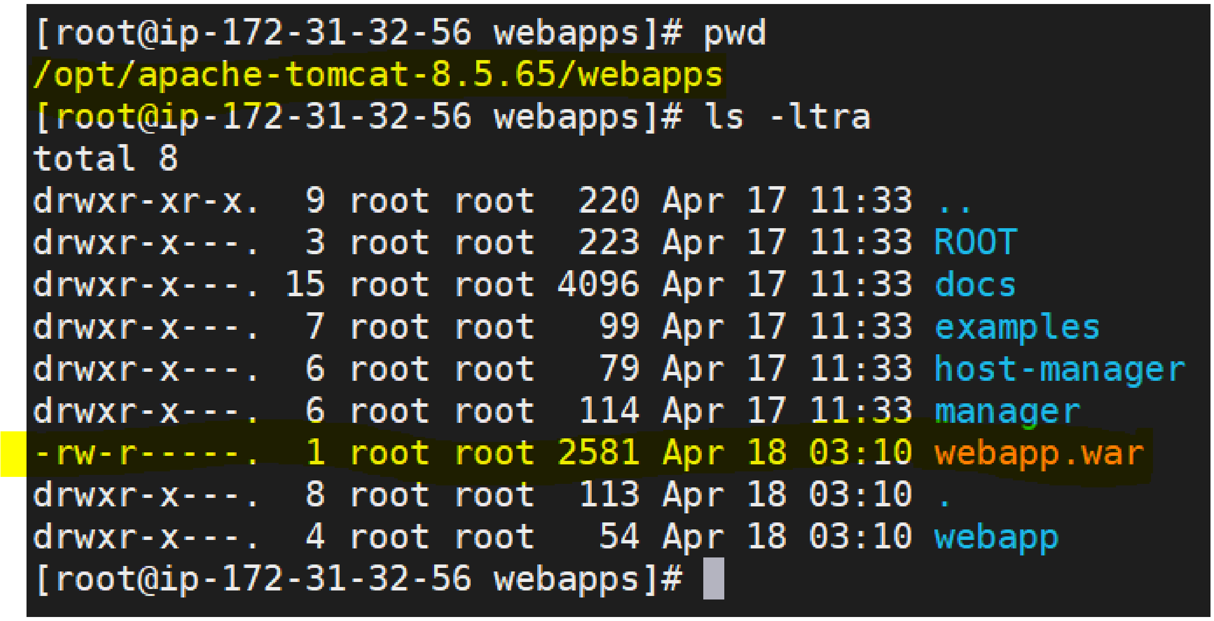
□ Deploy on failure



Maven project maven-project

This is a maven-project.

On the Tomcat server CLI, you can find the compiled “webapp.war” file.

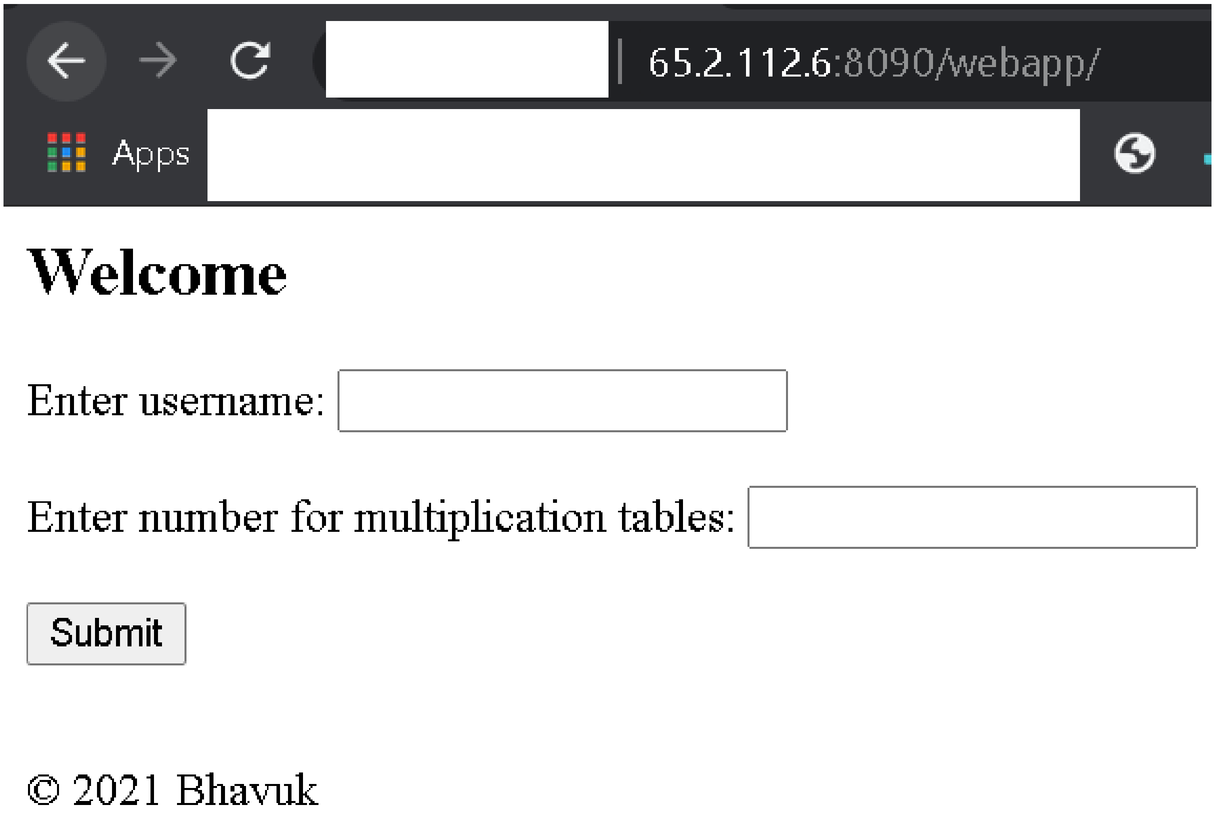


```
[root@ip-172-31-32-56 webapps]# pwd
/opt/apache-tomcat-8.5.65/webapps
[root@ip-172-31-32-56 webapps]# ls -ltra
total 8
drwxr-xr-x.  9 root root  220 Apr 17 11:33 ..
drwxr-x---.  3 root root  223 Apr 17 11:33 ROOT
drwxr-x---. 15 root root 4096 Apr 17 11:33 docs
drwxr-x---.  7 root root   99 Apr 17 11:33 examples
drwxr-x---.  6 root root   79 Apr 17 11:33 host-manager
drwxr-x---.  6 root root  114 Apr 17 11:33 manager
-rw-r-----.  1 root root 2581 Apr 18 03:10 webapp.war
drwxr-x---.  8 root root  113 Apr 18 03:10 .
drwxr-x---.  4 root root   54 Apr 18 03:10 webapp
[root@ip-172-31-32-56 webapps]#
```

To access the web application, use the following URL on your browser:

http://public-ip-of-tomcat-server:8090/webapp

Reference screen shot:



Welcome

Enter username:

Enter number for multiplication tables:

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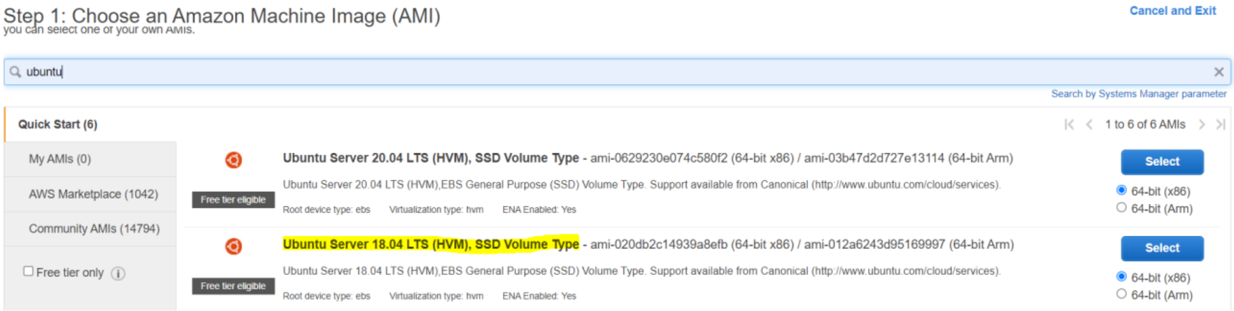
Configuring Ansible servers (Master and Slave)

Ansible-master configuration:

7. On the AWS Management Console, click launch instance, and choose **Ubuntu Server 18.04 LTS (HVM)** AMI:



Step 1: Choose an Amazon Machine Image (AMI)

you can select one of your own AMIs.

Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-0629230e074c580f2 (64-bit x86) / ami-03b47d2d727e13114 (64-bit Arm)

Ubuntu Server 20.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

● 64-bit (x86) ○ 64-bit (Arm)

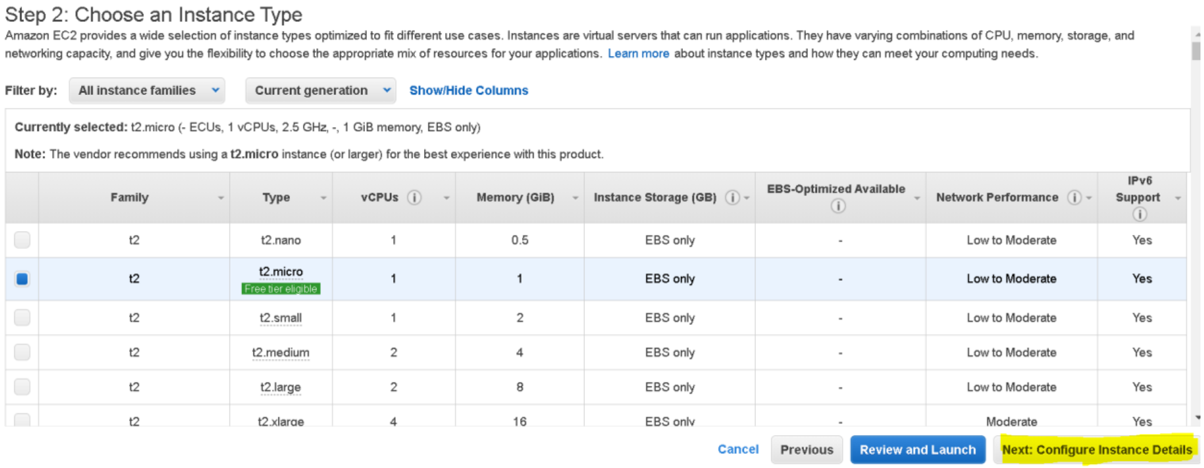
Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-020db2c14939a8efb (64-bit x86) / ami-012a6243d95169997 (64-bit Arm)

Ubuntu Server 18.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

● 64-bit (x86) ○ 64-bit (Arm)

8. Keep clicking “Next: Configure Instance Details”:



Step 2: Choose an Instance Type

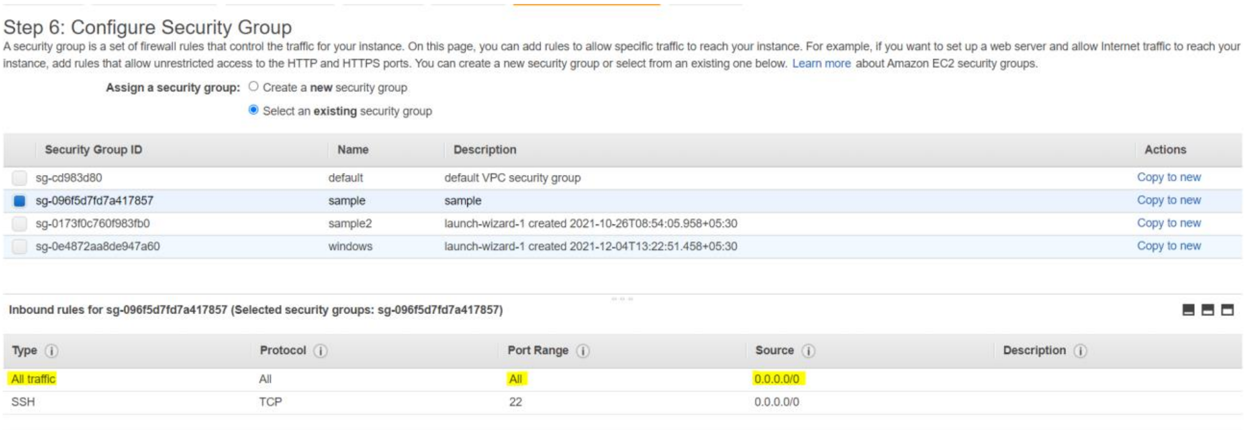
Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

Note: The vendor recommends using a **t2.micro** instance (or larger) for the best experience with this product.

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
□	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
■	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
□	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
□	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
□	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
□	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes

Note: Make sure All traffic is allowed on the Security Group inbound, refer screen shot below:



Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. Learn more about Amazon EC2 security groups.

Assign a security group: ○ Create a **new** security group

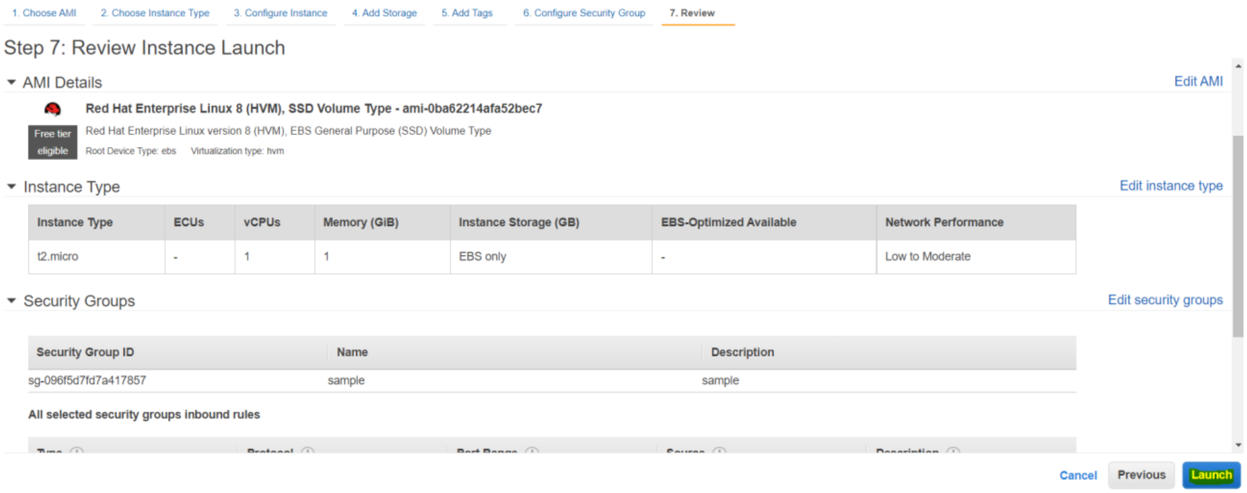
● Select an **existing** security group

	Security Group ID	Name	Description	Actions
□	sg-cd983d80	default	default VPC security group	Copy to new
■	sg-096f5d7fd7a417857	sample	sample	Copy to new
□	sg-0173f0c760f983fb0	sample2	launch-wizard-1 created 2021-10-26T08:54:05.958+05:30	Copy to new
□	sg-0e4872aa8de947a60	windows	launch-wizard-1 created 2021-12-04T13:22:51.458+05:30	Copy to new

Inbound rules for sg-096f5d7fd7a417857 (Selected security groups: sg-096f5d7fd7a417857)

Type	Protocol	Port Range	Source	Description
All traffic	All	All	0.0.0.0/0	
SSH	TCP	22	0.0.0.0/0	

9. Then click “Review and Launch” and then finally click “Launch”:



Step 7: Review Instance Launch

AMI Details

Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-0ba62214afa52bec7

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

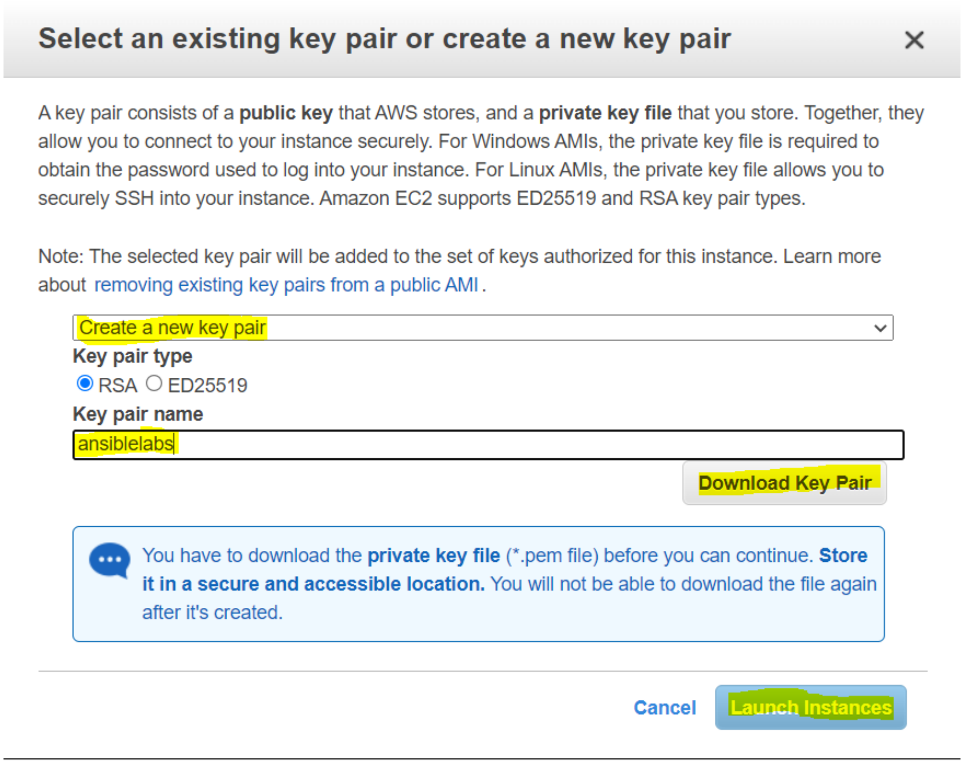
Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups

Security Group ID	Name	Description
sg-096f5d7fd7a417857	sample	sample

All selected security groups inbound rules

10. Create a New key pair and save the public key in your local system:



Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI .

Create a new key pair

Key pair type

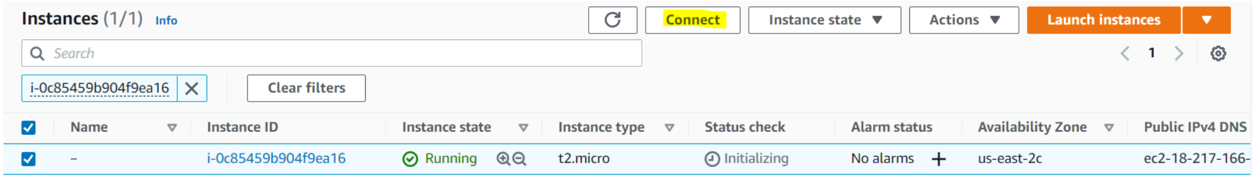
● RSA ○ ED25519

Key pair name

ansiblelabs

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

11. Then choose the instance and click on connect to SSH into the server:



i-0c85459b904f9ea16

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
☑	–	i-0c85459b904f9ea16	Running	t2.micro	Initializing	No alarms	us-east-2c	ec2-18-217-166-

After you have logged in to the servers, run the following commands in sequence.

#On Ansible-Master and Ansible-Slave (we are taking Tomcat-Webserver as Ansible-Slave)

#become “root” user

```
sudo su -
```

#update all packages on the server

```
sudo apt-get update
```

#On Ansible-Master

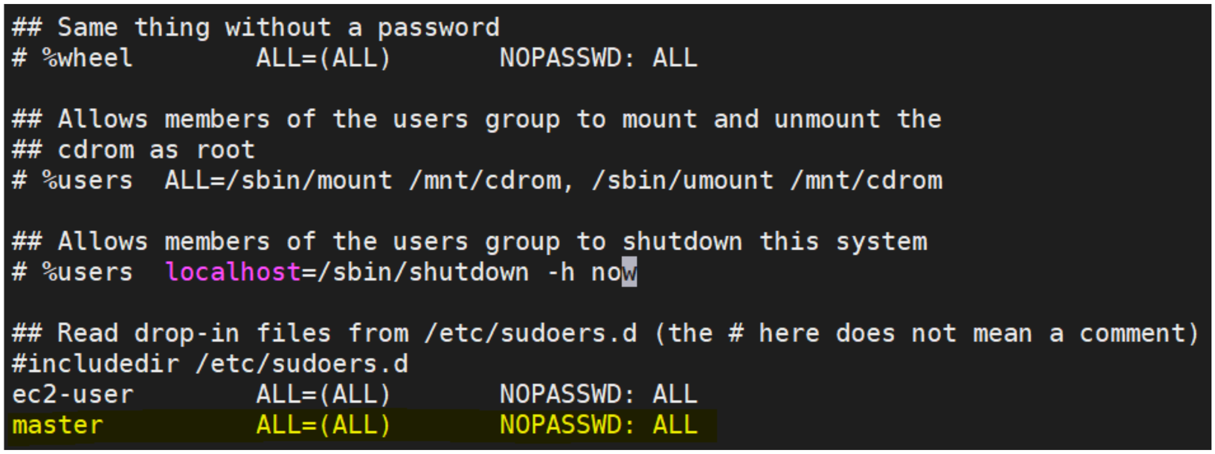
```
sudo apt-get install software-properties-common

sudo apt-add-repository --yes --update ppa:ansible/ansible

sudo apt-get install ansible

ansible --version
```

#On Ansible-Master and Ansible-Slave

```
useradd master

passwd master

master

mkdir /home/master

chown -R master:master /home/master

vi /etc/sudoers
```

#scroll to the end of the file (shift + G) and type:

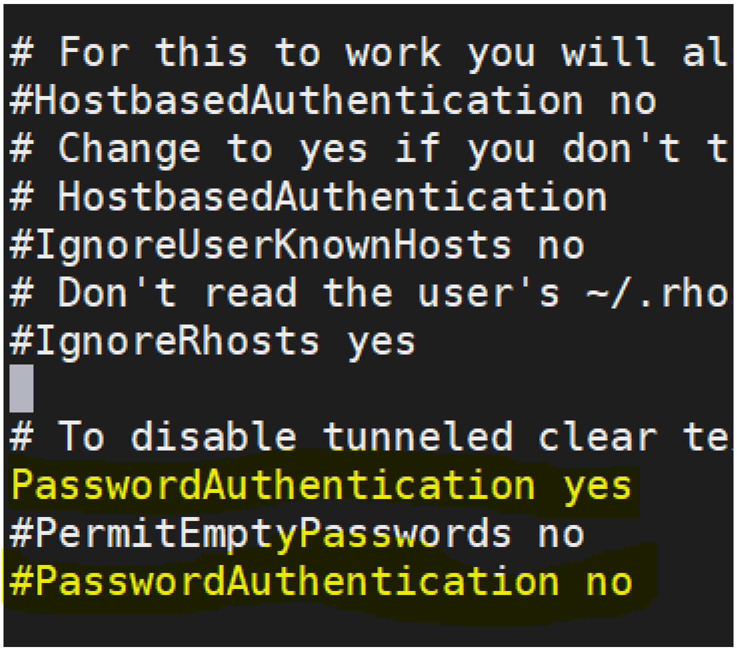
```
master          ALL=(ALL)       NOPASSWD: ALL
```



```
## Same thing without a password
# %wheel        ALL=(ALL)       NOPASSWD: ALL

## Allows members of the users group to mount and unmount the
## cdrom as root
# %users  ALL=/sbin/mount /mnt/cdrom, /sbin/umount /mnt/cdrom

## Allows members of the users group to shutdown this system
# %users  localhost=/sbin/shutdown -h now

## Read drop-in files from /etc/sudoers.d (the # here does not mean a comment)
#includedir /etc/sudoers.d
ec2-user        ALL=(ALL)       NOPASSWD: ALL
master          ALL=(ALL)       NOPASSWD: ALL
```

#enable Password Authentication

vi /etc/ssh/sshd_config



```
# For this to work you will al
#HostbasedAuthentication no
# Change to yes if you don't t
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rho
#IgnoreRhosts yes

# To disable tunneled clear te
PasswordAuthentication yes
#PermitEmptyPasswords no
#PasswordAuthentication no
```

```
systemctl restart sshd
```

#now, login as user “master” on Ansible-server

```
su - master
```

```
ssh-keygen #keep pressing enter until the prompt ($) comes back
```

```
ssh-copy-id <private-ip-address-of-Ansible-slave>
```

```
ssh <private-ip-address-of-Ansible-slave>  #to test password-less authentication after copying the keys
```

#to add any slave machines as host on Ansible-server, login as “root” on Ansible-server, then run the following commands

```
chown master:master /etc/ansible/hosts
```

```
vi /etc/Ansible/hosts
```

#delete all the lines using “dd” and then enter slave-machine’s private ip, save and quit

#to test if Ansible-server is able to ping Ansible-slave

```
ansible all -m ping -u master --ask-pass
```

#make sure you are still logged in as “root” user on Ansible-server

```
mkdir /opt/playbooks
```

```
chown -R master:master /opt/playbooks
```

#login as “master” user

```
su - master
```

```
vi /opt/playbooks/copyfile.yml
```

```
---
- hosts: all
  become: true
  tasks:
    - name: copy war file
        copy:
          src: /opt/playbooks/webapp/target/webapp.war
          dest: /opt/apache-tomcat-8.5.73/webapp
```

vi /opt/playbooks/debian.yaml

```
- name: Install curl package
  ansible.builtin.apt:
    name: "curl"
    state: present
```

vi /opt/playbooks/redhat.yaml

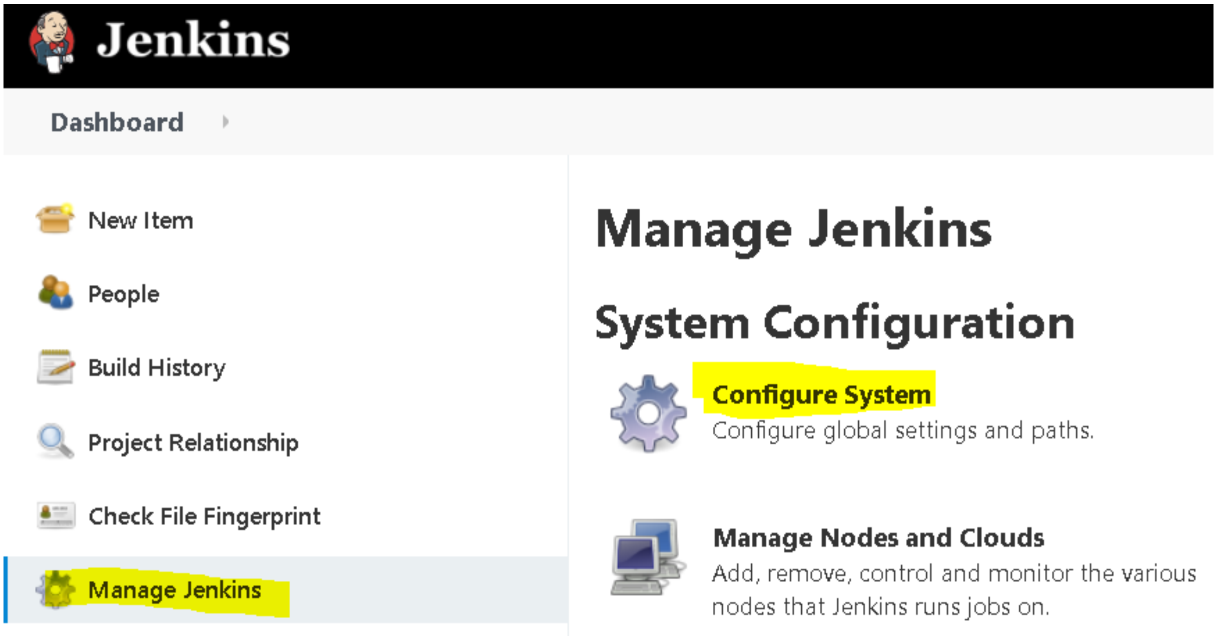
```
- name: Install curl package
  ansible.builtin.yum:
    name: "curl"
    state: present
```

vi /opt/playbooks/ansible-role.yaml

```
---
- hosts: all
  become: true
  tasks:
    - name: Install "curl" to test the website from CLI on Redhat
      import_tasks: redhat.yaml
      when: ansible_facts['os_family']|lower == 'redhat'

    - name: Install "curl" to test the website from CLI on Debian
      import_tasks: debian.yaml
      when: ansible_facts['os_family']|lower == 'debian'
```

#Configure final Infrastructure for CI (Continuous Integration)

On the Jenkins UI, click on: Manage Jenkins > Configure System.



Manage Jenkins

System Configuration

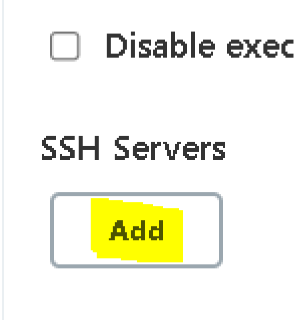
Configure System
Configure global settings and paths.

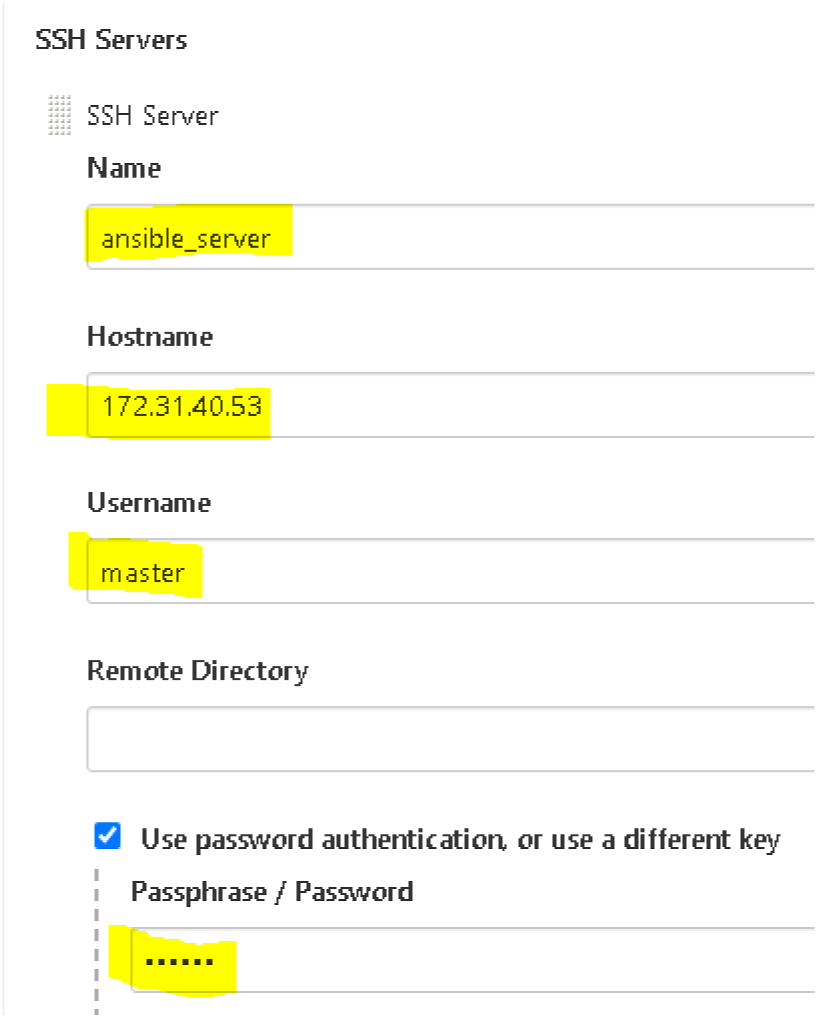
Manage Nodes and Clouds
Add, remove, control and monitor the various nodes that Jenkins runs jobs on.

scroll to the end until “SSH Servers” section, add servers (Ansible and Tomcat) using the following details:

Name: Ansible_server ; Hostname: private-ip-address-of-Ansible-Server ; Username: master ; Password: password-you-set-for-master-user

Name: Tomcat ; Hostname: private-ip-address-of-Tomcat-Server ; Username: master ; Password: password-you-set-for-master-user





SSH Servers

SSH Server

Name

ansible_server

Hostname

172.31.40.53

Username

master

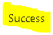
Remote Directory

☑ Use password authentication, or use a different key

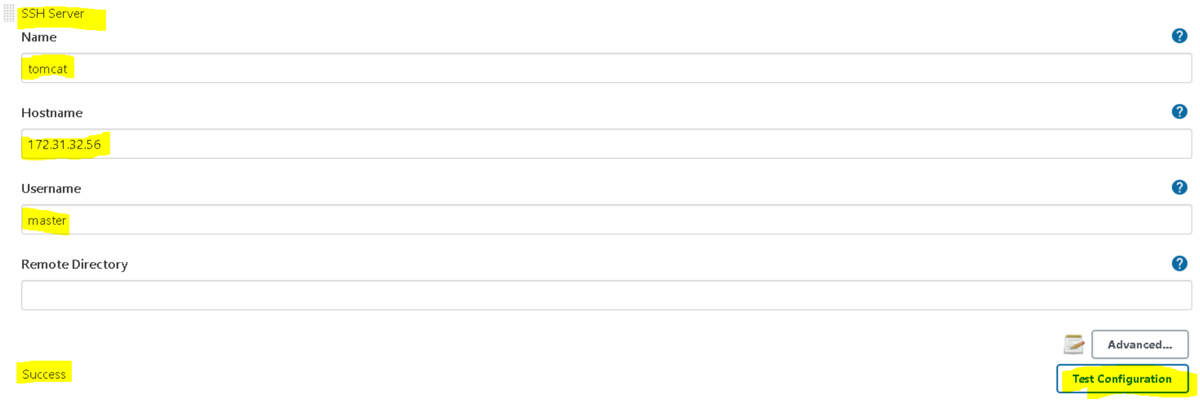
Passphrase / Password

••••••

Now, click on “Test Configuration” and look for “Success” message. Then click on “Apply” and “Save”.



Success



SSH Server

Name

tomcat

Hostname

172.31.32.56

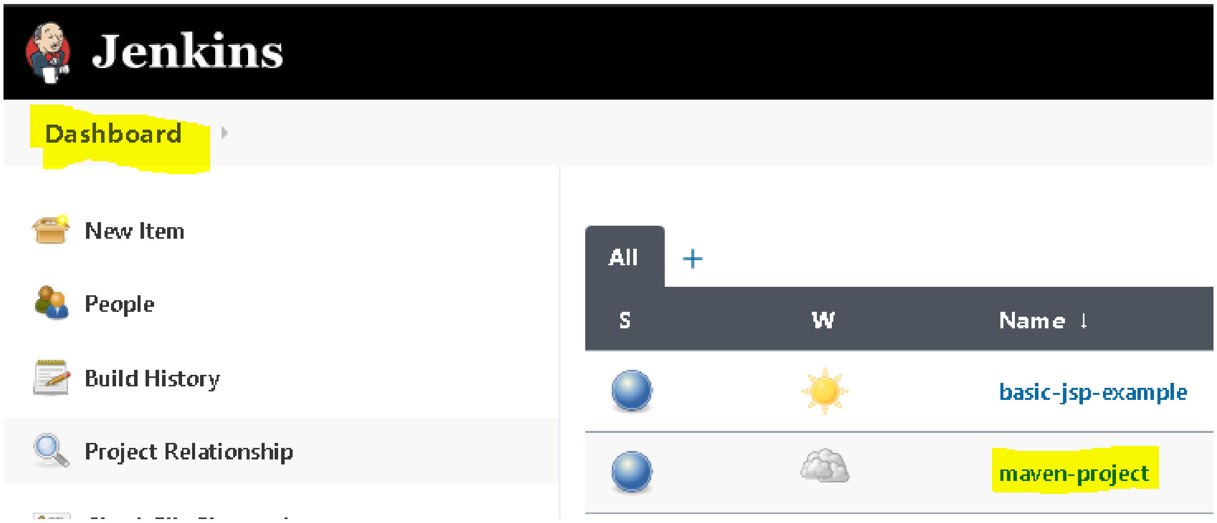
Username

master

Remote Directory

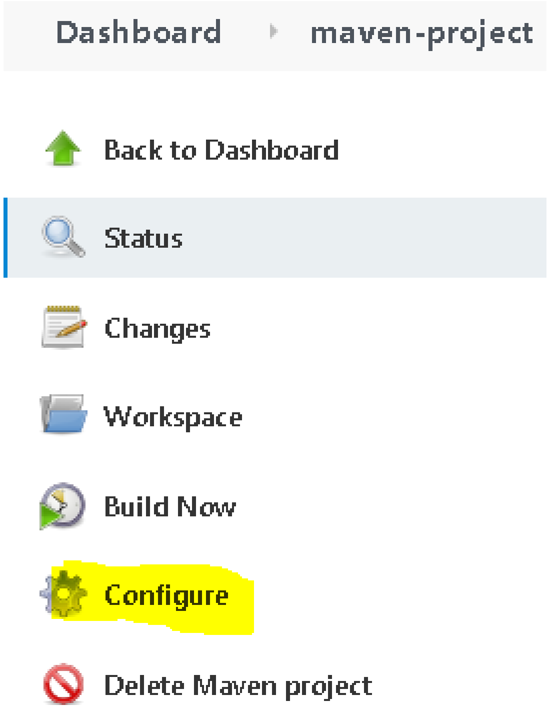
Success

Click on “Dashboard” and then “maven-project” job.

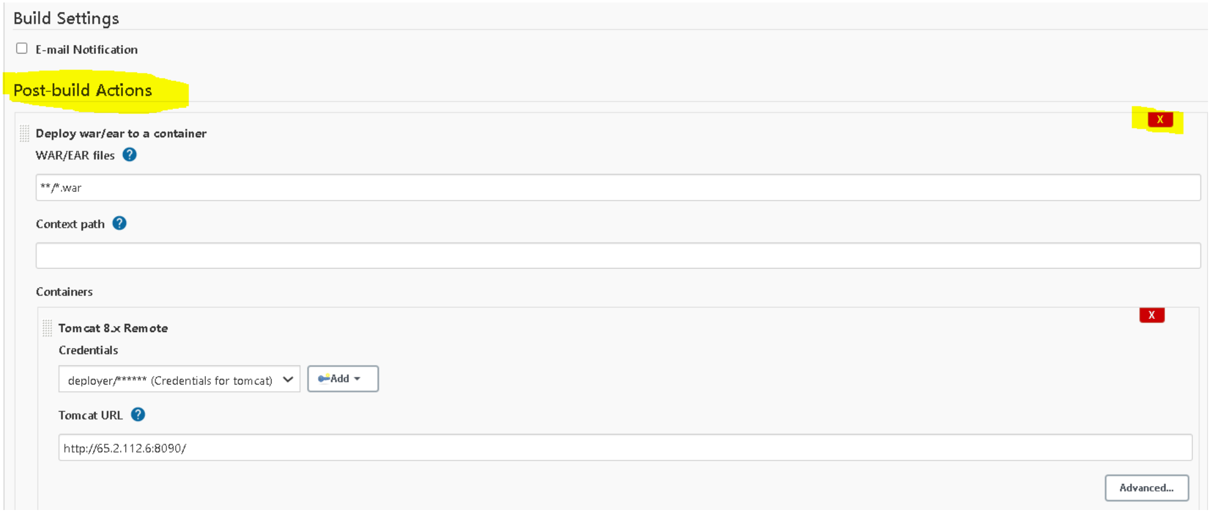


S	W	Name ↓
●	☀	basic-jsp-example
●	☁	maven-project

Then, configure.



Remove “Post-Build Actions”, click on red-cross.



Build Settings

□ E-mail Notification

Post-build Actions

Deploy war/ear to a container

WAR/EAR files: `**/*.war`

Context path:

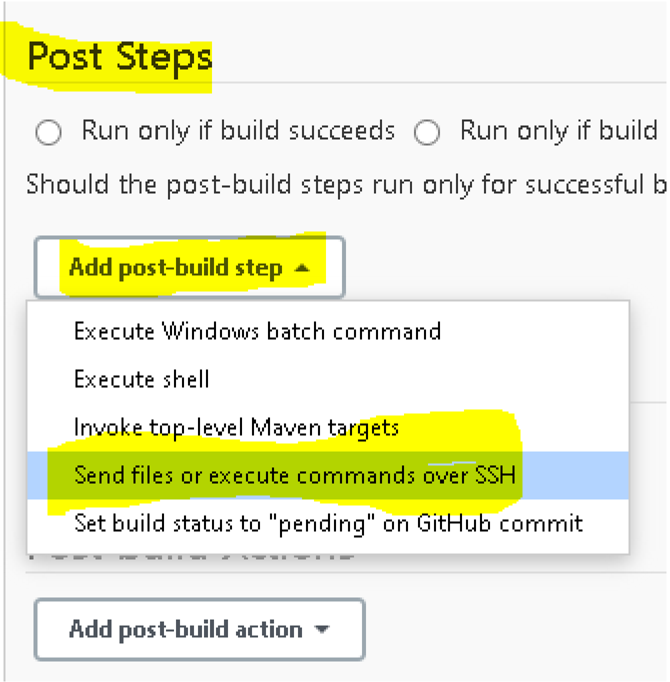
Containers

Tomcat 8.x Remote

Credentials: deployer/****** (Credentials for tomcat)

Tomcat URL: http://65.2.112.6:8090/

Choose post-build actions as follows:

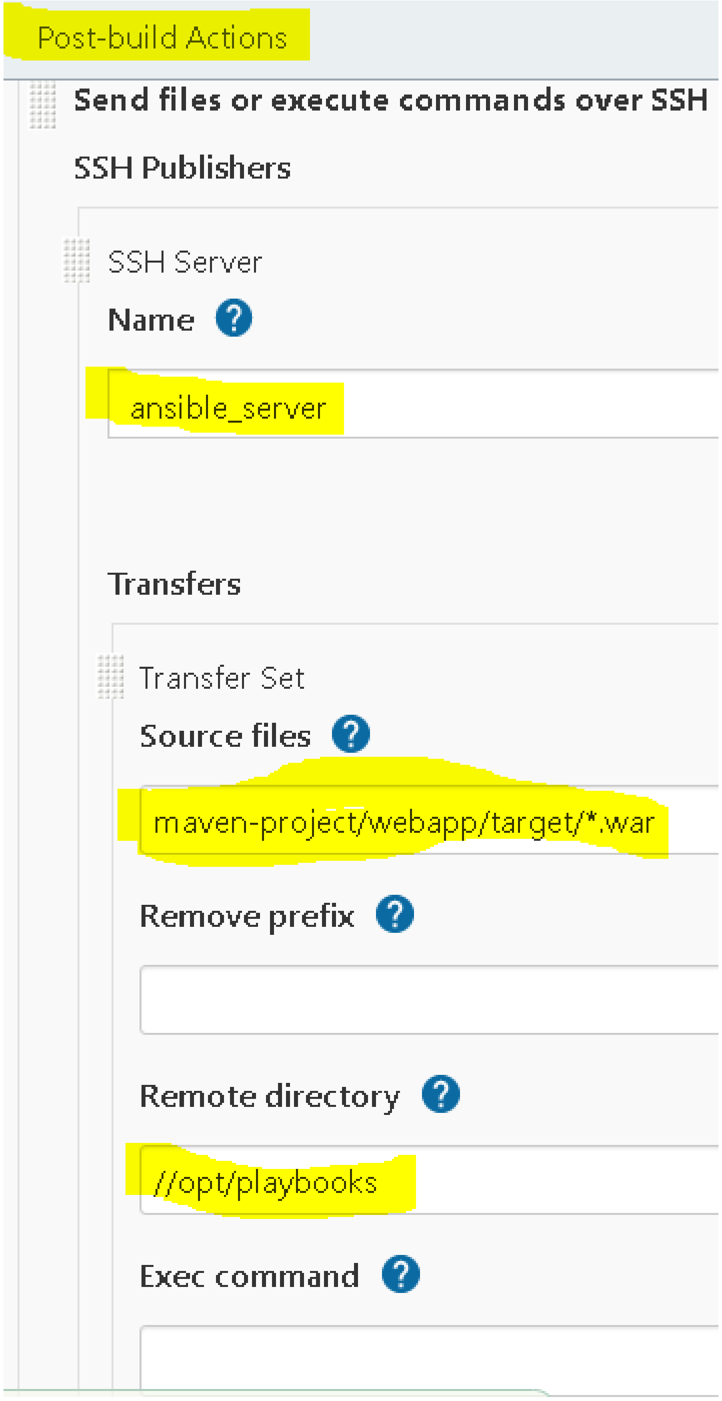


Post Steps

○ Run only if build succeeds ○ Run only if build

Should the post-build steps run only for successful b

Add post-build step ▲
Execute Windows batch command
Execute shell
Invoke top-level Maven targets
Send files or execute commands over SSH
Set build status to "pending" on GitHub commit
Add post-build action ▼



Post-build Actions

Send files or execute commands over SSH

SSH Publishers

SSH Server

Name ?

ansible_server

Transfers

Transfer Set

Source files ?

maven-project/webapp/target/*.war

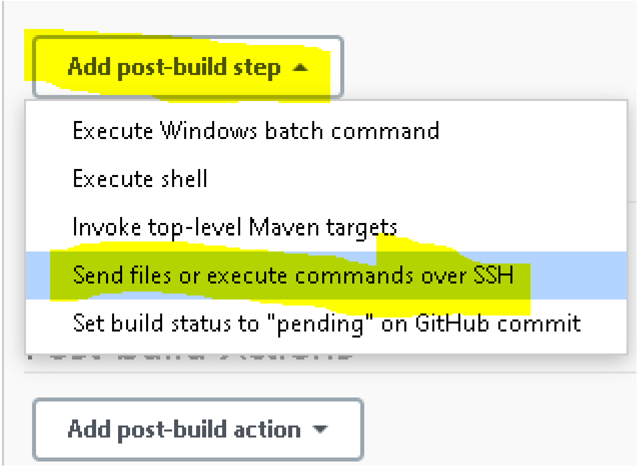
Remove prefix ?

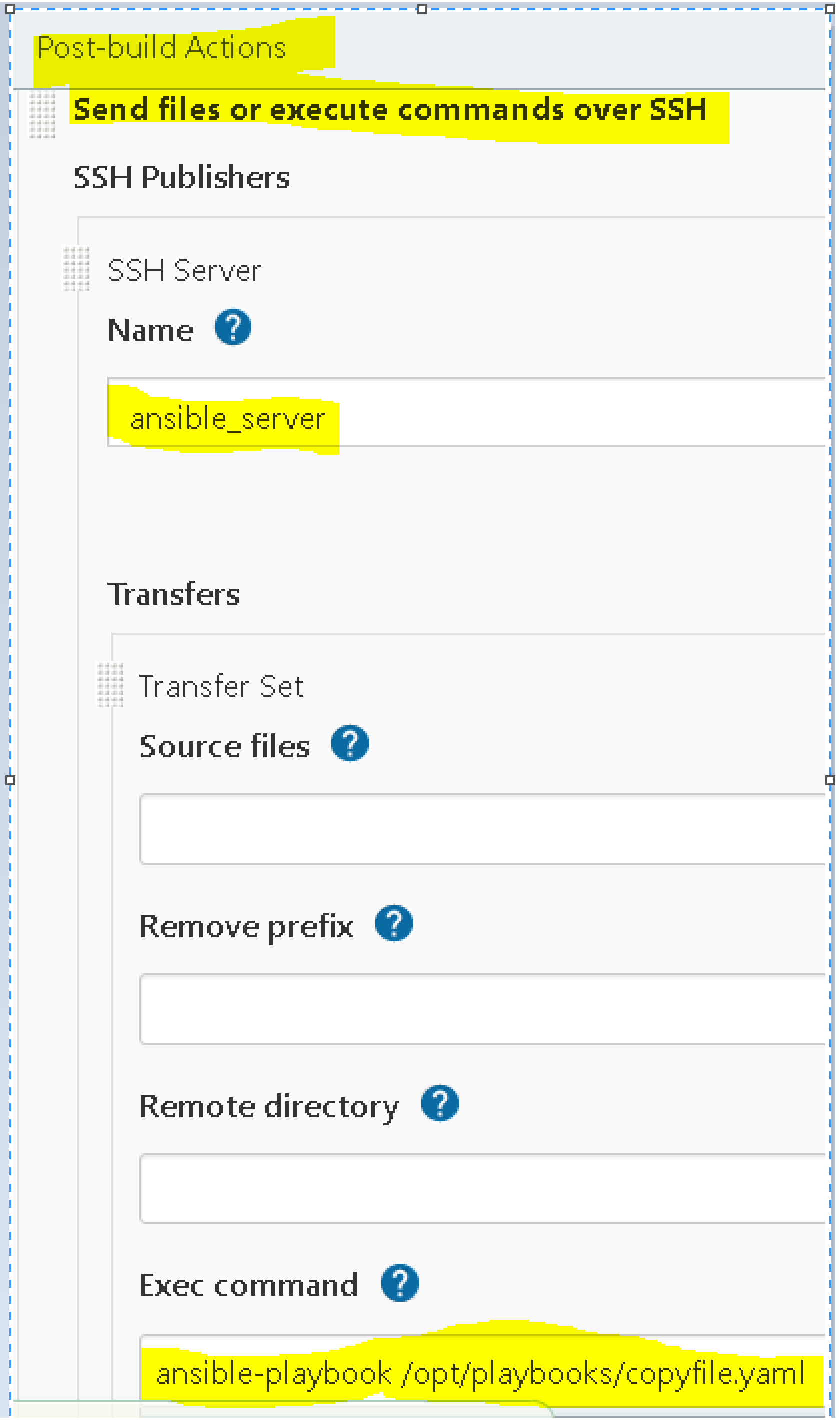
Remote directory ?

//opt/playbooks

Exec command ?

Add another post-build step as follows.


Add post-build step
Execute Windows batch command
Execute shell
Invoke top-level Maven targets
Send files or execute commands over SSH
Set build status to "pending" on GitHub commit
Add post-build action



Post-build Actions

Send files or execute commands over SSH

SSH Publishers

SSH Server

Name

ansible_server

Transfers

Transfer Set

Source files

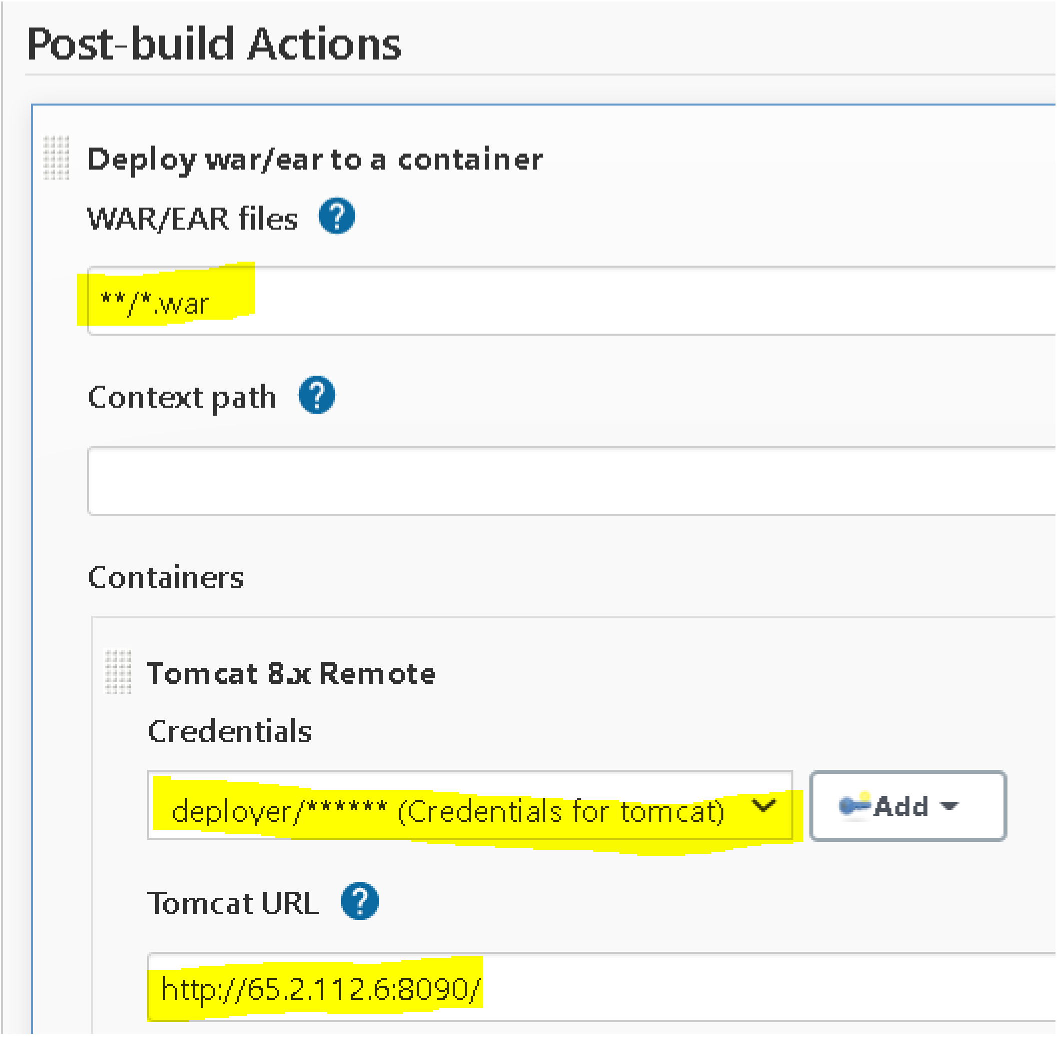
Remove prefix

Remote directory

Exec command

ansible-playbook /opt/playbooks/copyfile.yaml

Add one more Post-Build step to configure Tomcat server



Post-build Actions

Deploy war/ear to a container

WAR/EAR files: **/*.war

Context path:

Containers

Tomcat 8.x Remote

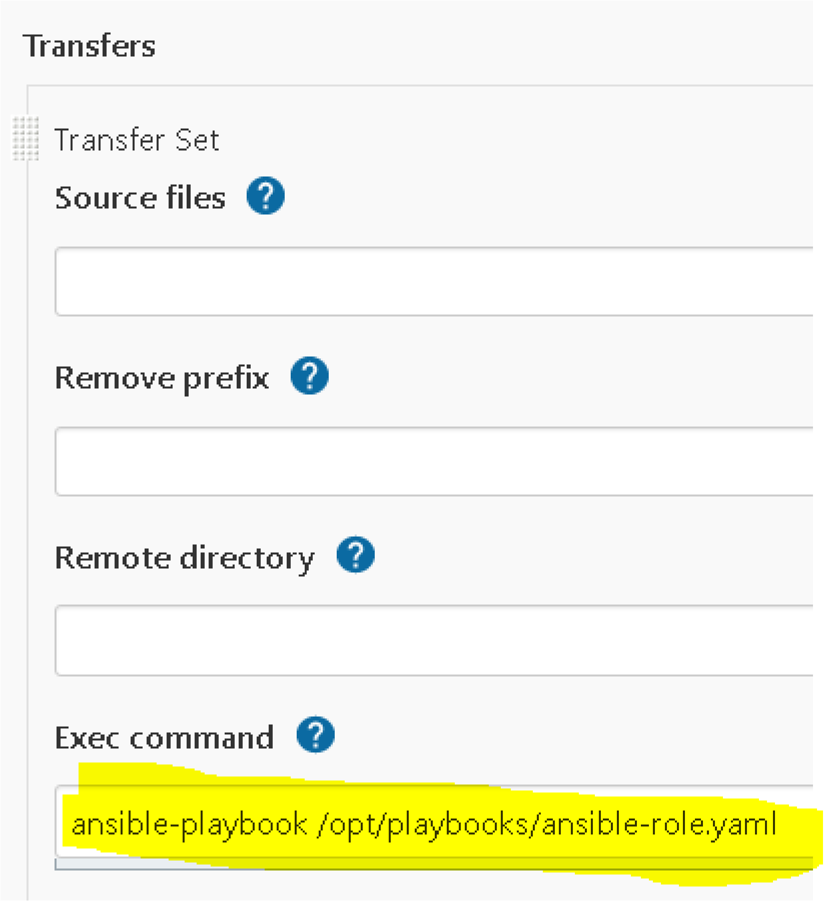
Credentials: deployer/****** (Credentials for tomcat)

Tomcat URL: http://65.2.112.6:8090/

Add another post-build step to work with Ansible roles. We will install curl package on the Ansible server to test if we are able to reach Apache webserver using the command:

curl http://public-ip-of-apache-webserver:8090

Note: This Ansible role will identify the OS of the server and accordingly run the appropriate command to install “curl” package.



Transfers

Transfer Set

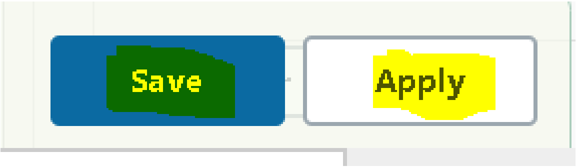
Source files

Remove prefix

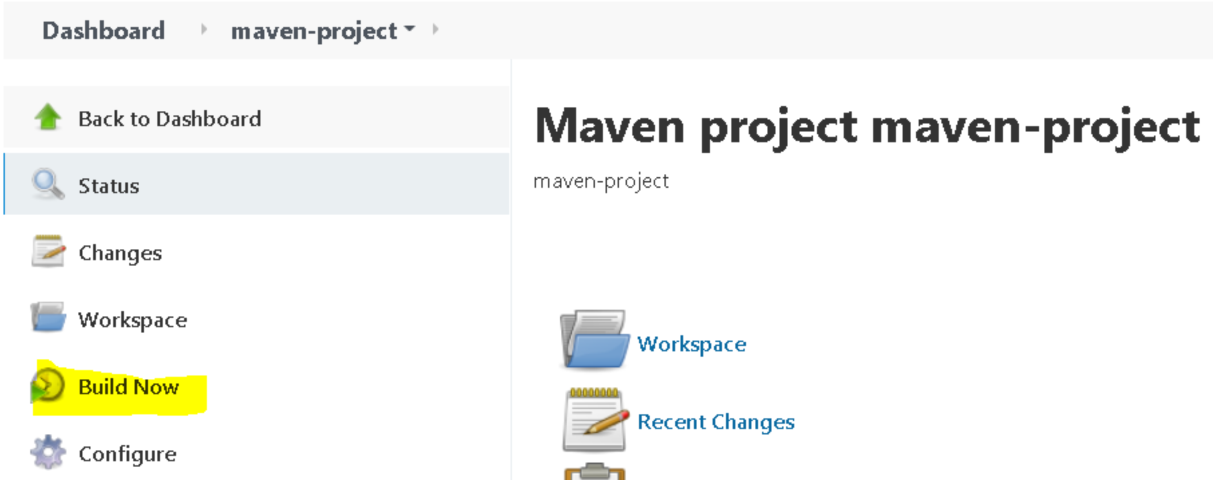
Remote directory

Exec command

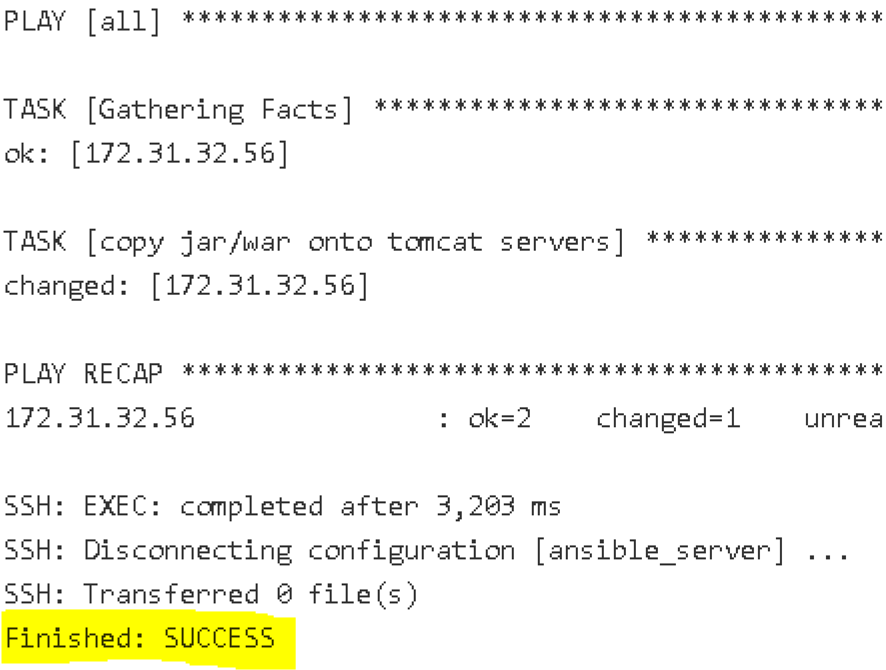
```
ansible-playbook /opt/playbooks/ansible-role.yaml
```



Build the job now to test your new configuration.



check the console output for ‘SUCCESS” message.



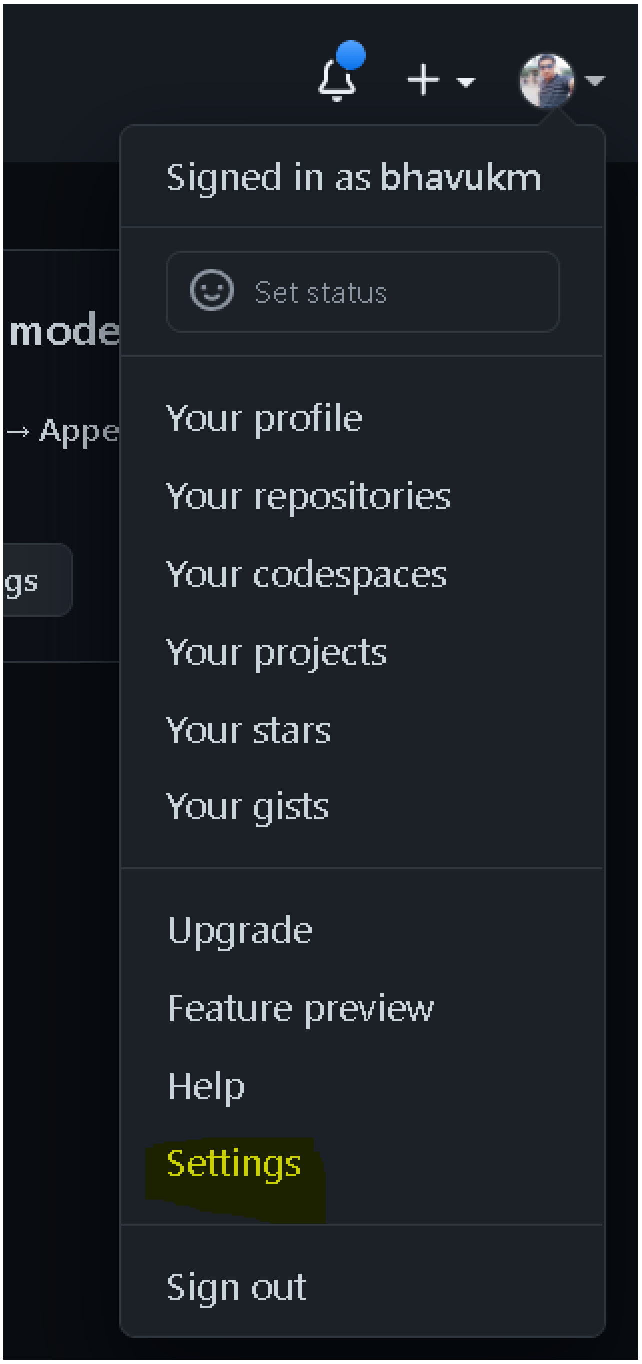
```
PLAY [all] ********************************************

TASK [Gathering Facts] ********************************
ok: [172.31.32.56]

TASK [copy jar/war onto tomcat servers] ***************
changed: [172.31.32.56]

PLAY RECAP ********************************************
172.31.32.56               : ok=2    changed=1    unrea

SSH: EXEC: completed after 3,203 ms
SSH: Disconnecting configuration [ansible_server] ...
SSH: Transferred 0 file(s)
Finished: SUCCESS
```

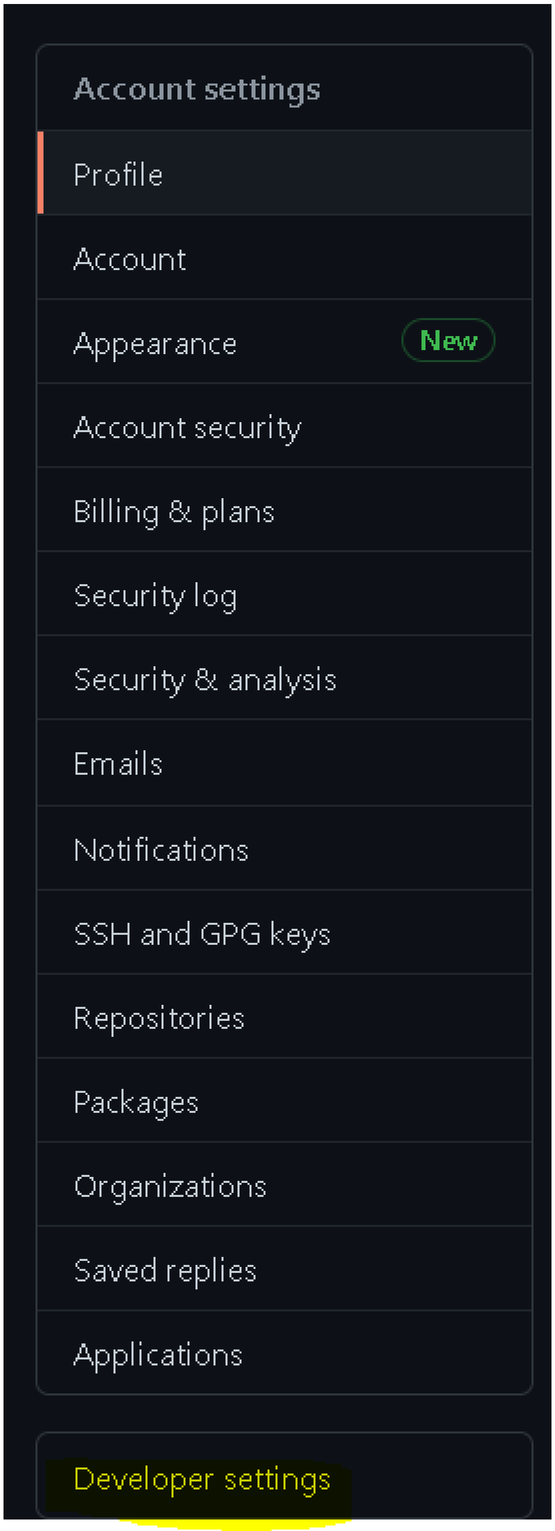
Configuring Webhooks in Jenkins for CI (Continuous Integration)

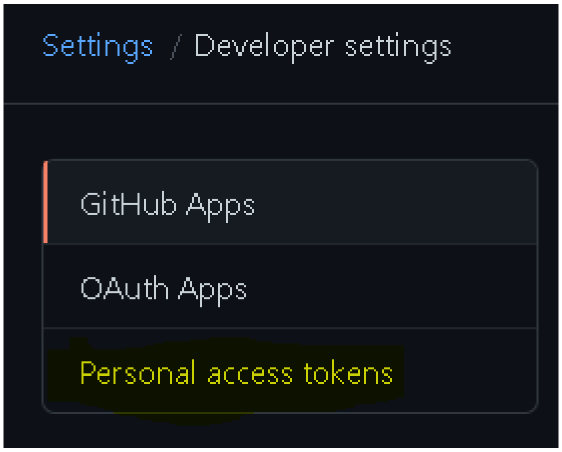
Note: make sure you have forked the below github repo, before generating GitHub token

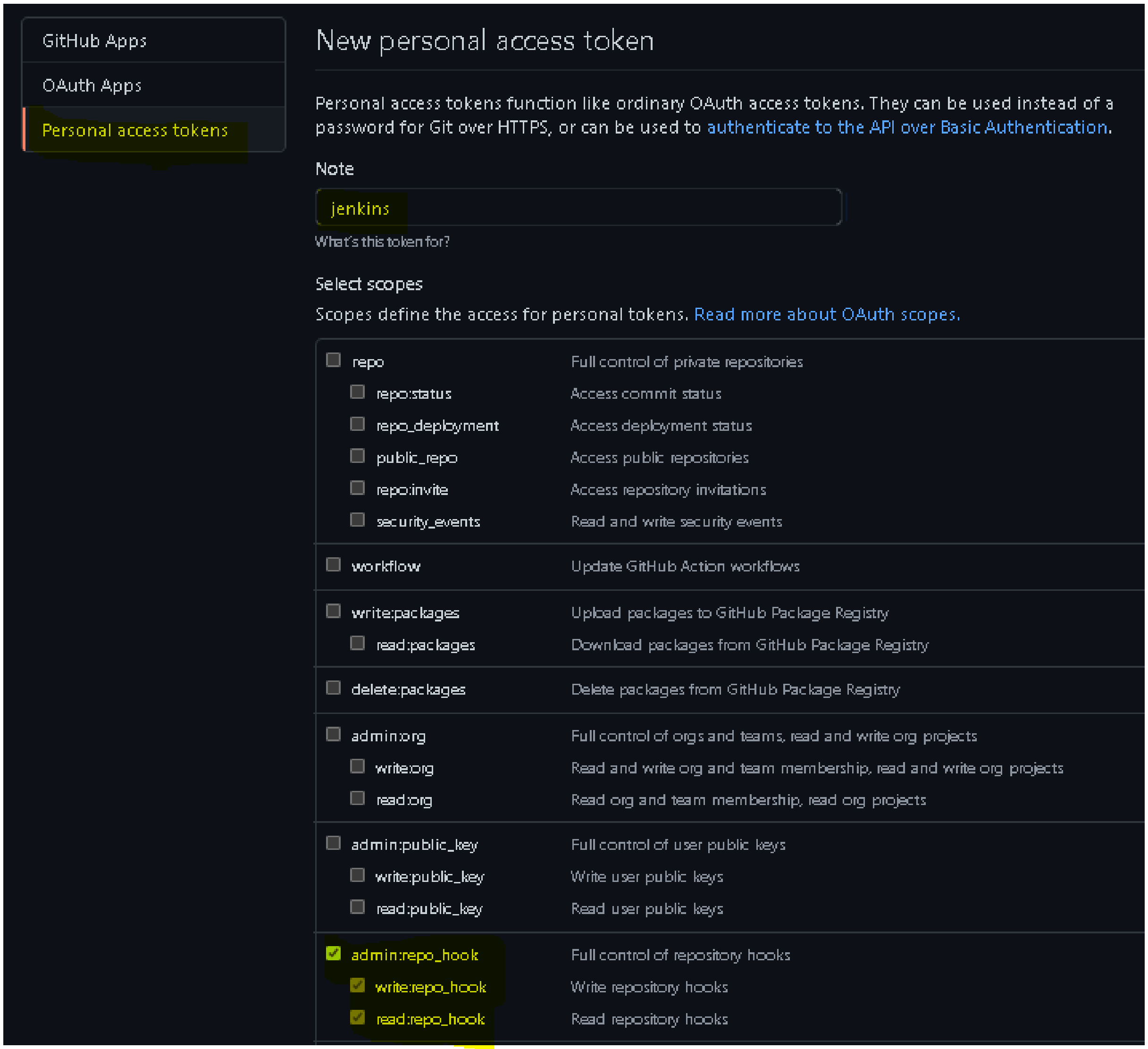
https://github.com/bhavukm/maven-project.git

Login to github.com and follow the screen shots below:


Signed in as bhavukm
Set status
Your profile
Your repositories
Your codespaces
Your projects
Your stars
Your gists
Upgrade
Feature preview
Help
Settings
Sign out


Account settings
Profile
Account
Appearance
New
Account security
Billing & plans
Security log
Security & analysis
Emails
Notifications
SSH and GPG keys
Repositories
Packages
Organizations
Saved replies
Applications
Developer settings





New personal access token

Personal access tokens function like ordinary OAuth access tokens. They can be used instead of a password for Git over HTTPS, or can be used to authenticate to the API over Basic Authentication.

Note

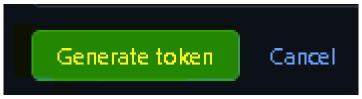
jenkins

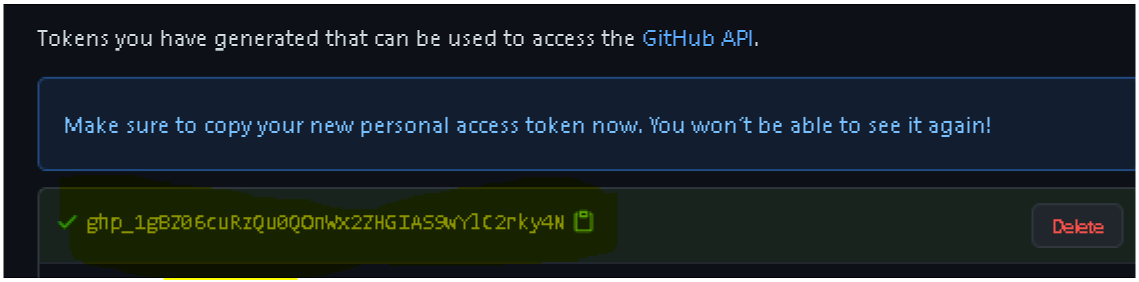
What's this token for?

Select scopes

Scopes define the access for personal tokens. Read more about OAuth scopes.

☐ repo	Full control of private repositories
☐ repo:status	Access commit status
☐ repo_deployment	Access deployment status
☐ public_repo	Access public repositories
☐ repo:invite	Access repository invitations
☐ security_events	Read and write security events
☐ workflow	Update GitHub Action workflows
☐ write:packages	Upload packages to GitHub Package Registry
☐ read:packages	Download packages from GitHub Package Registry
☐ delete:packages	Delete packages from GitHub Package Registry
☐ admin:org	Full control of orgs and teams, read and write org projects
☐ write:org	Read and write org and team membership, read and write org projects
☐ read:org	Read org and team membership, read org projects
☐ admin:public_key	Full control of user public keys
☐ write:public_key	Write user public keys
☐ read:public_key	Read user public keys
☑ admin:repo_hook	Full control of repository hooks
☑ write:repo_hook	Write repository hooks
☑ read:repo_hook	Read repository hooks



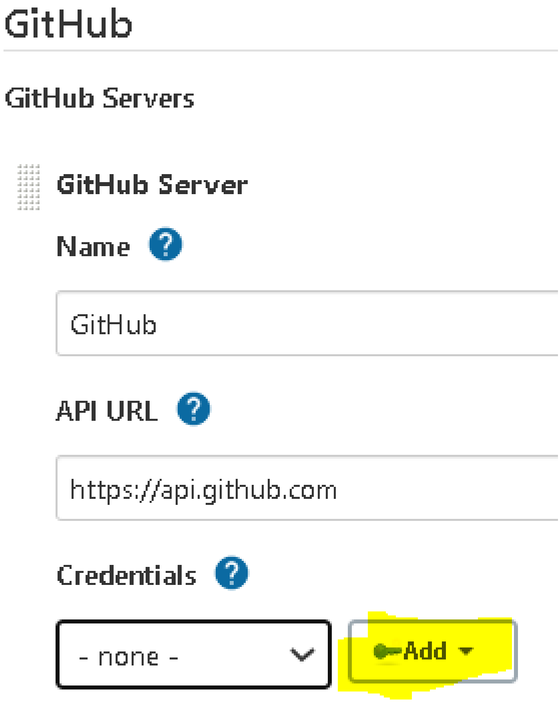


Tokens you have generated that can be used to access the GitHub API.

Make sure to copy your new personal access token now. You won't be able to see it again!

✓ ghp_1gBZ06cuRzQu0QOnWx2ZHGIAS9wY1C2rky4N

Now, go to: Manage Jenkins > Configure System and follow the screen shots below:



GitHub

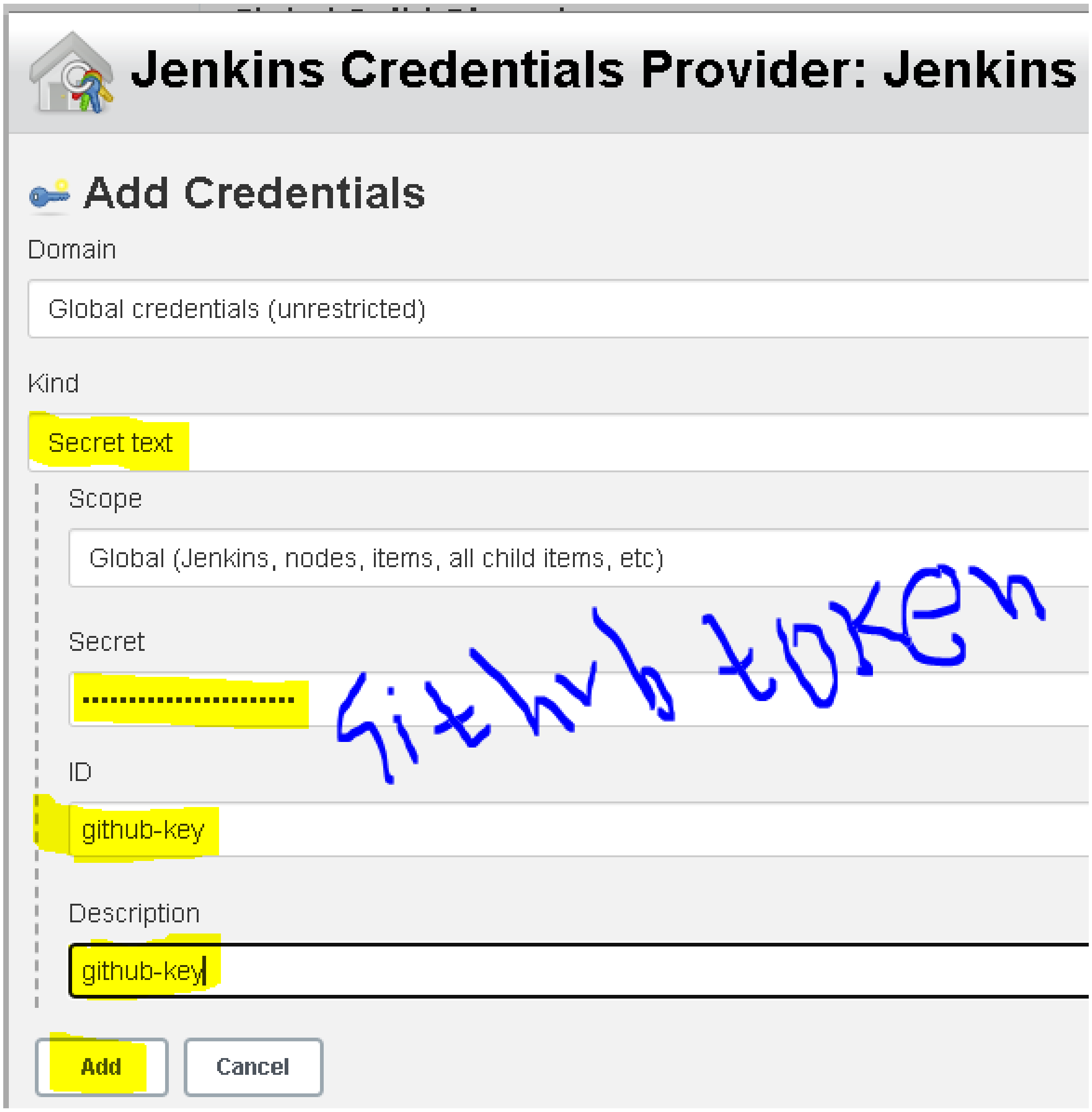
GitHub Servers

GitHub Server

Name: GitHub

API URL: https://api.github.com

Credentials: - none -



Jenkins Credentials Provider: Jenkins

Add Credentials

Domain

Global credentials (unrestricted)

Kind

Secret text

Scope

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

Secret

••••••••••••••••••••••••

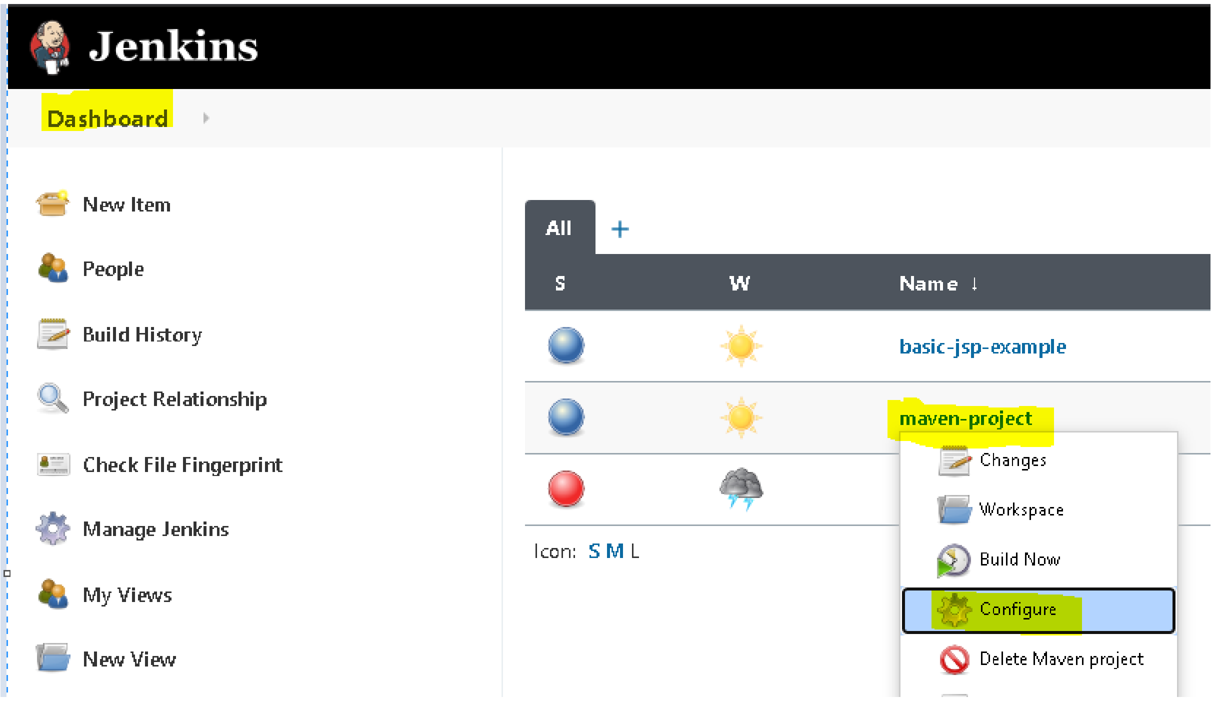
github token

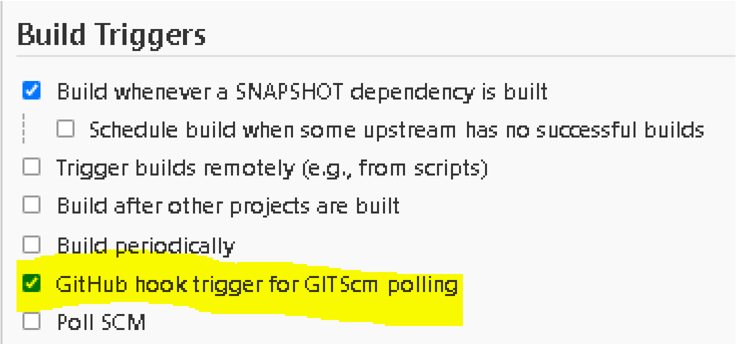
ID

github-key

Description

github-key





Build Triggers

☑ Build whenever a SNAPSHOT dependency is built

☐ Schedule build when some upstream has no successful builds

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

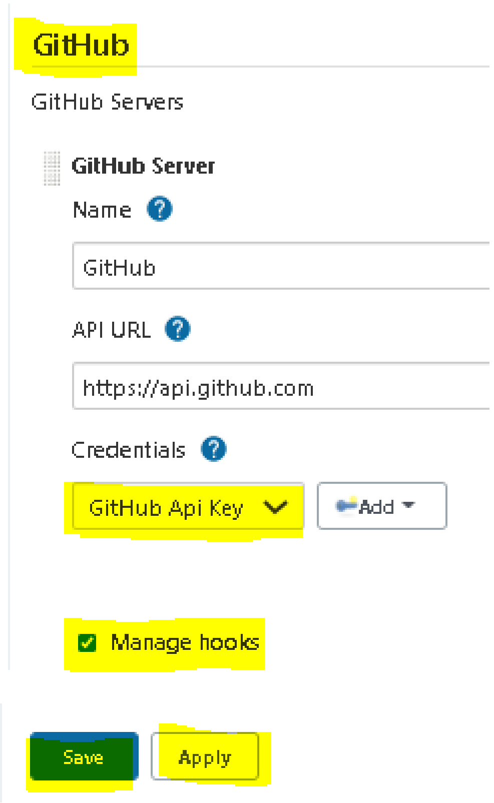
☐ Build after other projects are built

☐ Build periodically

☑ GitHub hook trigger for GITScm polling

☐ Poll SCM

Now, again go to: Manage Jenkins > Configure System and follow screen shots:



GitHub

GitHub Servers

GitHub Server

Name

GitHub

API URL

https://api.github.com

Credentials

GitHub Api Key

☑ Manage hooks

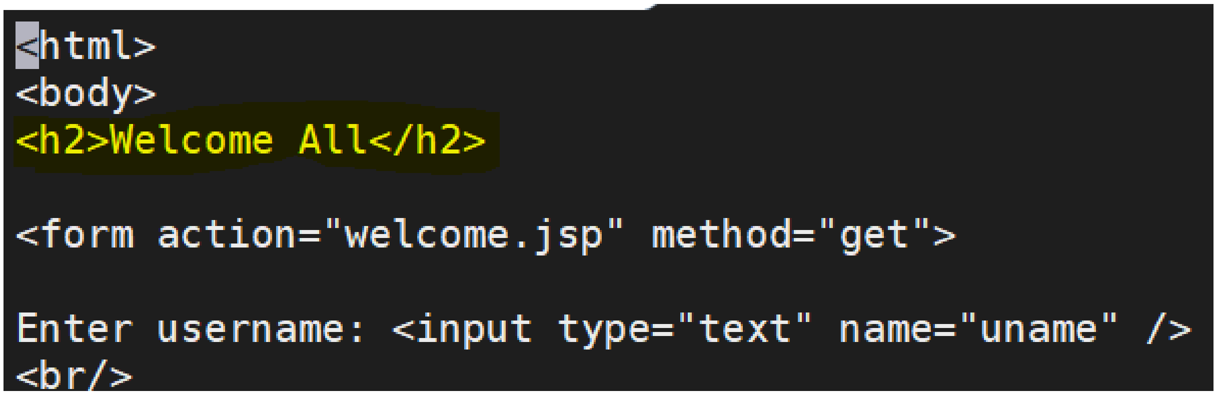
Now, we will test our final CI Configuration:

SSH to your Jenkins server (user: ubuntu) and run commands as given below:

git clone https://github.com/bhavukm/maven-project.git # please use your own forked git repo

vi maven-project/webapp/src/main/webapp/index.jsp

make any text change in <h2> as below and save and exit:



```
<html>
<body>
<h2>Welcome All</h2>

<form action="welcome.jsp" method="get">

Enter username: <input type="text" name="uname" />
<br/>
```

git init

git add .

```
git commit -m "testing CI"

git remote add repo https://github.com/bhavukm/maven-project.git #use your repo URL

git push repo # enter your GitHub username and password
```

Now go to Jenkins UI and check for Automated build in the queue.

After the build finishes successfully, go to:

http://public-ip-of-tomcat-server:8090/webapp

and check for updated website page.