

Jenkins

Pre Requesties:

1.Ec2 Machine, 2.Java 3.Jenkins

1. Create EC2 for Jenkins

Ubuntu server :16.04-SSD Volume, AllTCP
Login into “ ubuntu ” , switched as “ root ”

| Name | Instance ID | Instance state | Instance type | Status check |
|-----------|---------------------|----------------|---------------|-------------------|
| GIT | i-01ad49be82842... | Stopped | t2.micro | - |
| Terraform | i-0064012e1e57a... | Stopped | t2.micro | - |
| Jenkins | i-051ceea56d960c... | Running | t2.micro | 2/2 checks passed |

Instance details

| | | |
|---|--|------------------------|
| Platform | AMI ID | Monitoring |
| Ubuntu (Inferred) | ami-0b8cd500f483d09ee | disabled |
| Platform details | AMI name | Termination protection |
| Linux/UNIX | ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server-20201014 | Disabled |
| Launch time | AMI location | Lifecycle |
| Tue Feb 16 2021 22:39:51 GMT+0530 (India Standard Time) (23 minutes) | 099720109477/ubuntu/images/hvm-ssd/ubuntu-xenial-16.04-amd64-server- | normal |

```

Login as: ubuntu
Authenticating with public key "imported-ssh-key"
Welcome to Ubuntu 16.04.7 LTS (GNU/Linux 4.4.0-1117-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

0 packages can be updated.
0 updates are security updates.

```

2. JAVA installation in Ubuntu machine

Switch user : root

```
ubuntu@ip-172-31-45-183:~$ sudo su -
root@ip-172-31-45-183:~# java -version
The program 'java' can be found in the following packages:
 * default-jre
 * gcj-5-jre-headless
 * openjdk-8-jre-headless
 * gcj-4.8-jre-headless
 * gcj-4.9-jre-headless
 * openjdk-9-jre-headless
Try: apt install <selected package>
```

Java Installation commands

- 1) sudo add-apt-repository ppa:webupd8team/java
- 2) sudo apt-get update
- 3) sudo apt install openjdk-8-jdk

```
root@ip-172-31-45-183:~# java -version
openjdk version "1.8.0_282"
OpenJDK Runtime Environment (build 1.8.0_282-8u282-b08-0ubuntu1~16.04-b08)
OpenJDK 64-Bit Server VM (build 25.282-b08, mixed mode)
root@ip-172-31-45-183:~#
```

3.Jenkins Installation:

Jenkin key downloaded. step1.**Key Download**

- 1) wget -q -O - <https://pkg.jenkins.io/debian/jenkins.io.key> | sudo apt-key add -

```
root@ip-172-31-45-183:~# wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -
OK
```

Jenkin downloaded. – step 2.**Product Downloaded**

- 2) sudo sh -c 'echo deb <https://pkg.jenkins.io/debian binary/> > /etc/apt/sources.list.d/jenkins.list'

Jenkin download path reference noted in the List file

```
root@ip-172-31-45-183:~# sudo sh -c 'echo deb https://pkg.jenkins.io/debian binary/ > /etc/apt/sources.list.d/jenkins.list'
```

```
root@ip-172-31-45-183:~# cd /etc/apt/sources.list.d/
root@ip-172-31-45-183:/etc/apt/sources.list.d# ls -ltr
total 8
-rw-r--r-- 1 root root 136 Feb 16 17:24 webupd8team-ubuntu-java-xenial.list
-rw-r--r-- 1 root root 42 Feb 16 17:57 jenkins.list
root@ip-172-31-45-183:/etc/apt/sources.list.d# cd -
/root
root@ip-172-31-45-183:~#
```

```
root@ip-172-31-45-183:/etc/apt/sources.list.d# cat jenkins.list
deb https://pkg.jenkins.io/debian binary/
root@ip-172-31-45-183:/etc/apt/sources.list.d#
```

<https://pkg.jenkins.io/debian binary/> - jenkins debian binary path url address will be stored

/etc/apt/sources.list.d/jenkins.list' this file

** ubuntu use debian binary only

step 3.Environment update

3) sudo apt-get update

inform the system to the location of wherer the installation files are kept.

```
root@ip-172-31-45-183:~# sudo apt-get update
Hit:1 http://ap-northeast-1.ec2.archive.ubuntu.com/ubuntu xenial InRelease
Get:2 http://ap-northeast-1.ec2.archive.ubuntu.com/ubuntu xenial-updates InRelease [109 kB]
Get:3 http://ap-northeast-1.ec2.archive.ubuntu.com/ubuntu xenial-backports InRelease [107 kB]
Ign:4 https://pkg.jenkins.io/debian binary/ InRelease
Get:5 https://pkg.jenkins.io/debian binary/ Release [2,044 B]
Get:6 https://pkg.jenkins.io/debian binary/ Release.gpg [833 B]
Get:7 https://pkg.jenkins.io/debian binary/ Packages [34.2 kB]
Get:8 http://security.ubuntu.com/ubuntu xenial-security InRelease [109 kB]
Hit:9 http://ppa.launchpad.net/webupd8team/java/ubuntu xenial InRelease
Fetched 362 kB in 1s (312 kB/s)
Reading package lists... Done
root@ip-172-31-45-183:~#
```

Package informations are available

step 4.Jenkins Installation:

4) sudo apt-get install jenkins

5) Verify:-

(i) ps -ef | grep Jenkins

To verify the Jenkins daemon files is running on the top of the server.

Here the jenkins is running on the port 8080

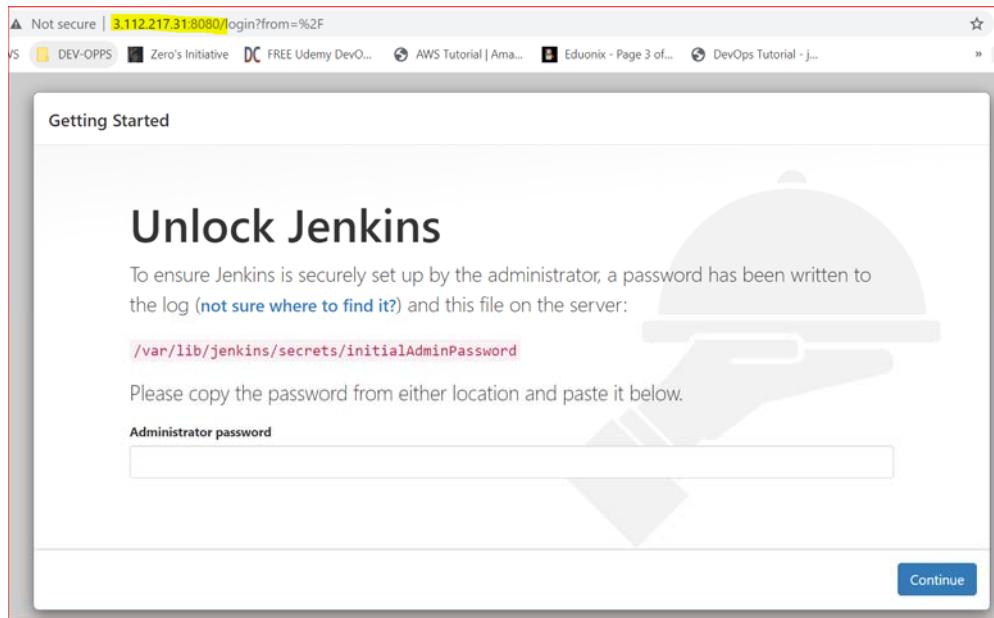
```
root@ip-172-31-45-183:~# ps -ef | grep jenkins
jenkins 18625 1 0 18:14 ? 00:00:00 /lib/systemd/systemd --user
jenkins 18627 18625 0 18:14 ? 00:00:00 (sd-pam)
jenkins 18639 1 0 18:14 ? 00:00:00 /usr/bin/daemon --name=jenkins --inherit --env=JENKINS_HOME=/var/lib/jenkins --output=/var/log/jenkins/jenkins.log --pidfile=/var/run/jenkins/jenkins.pid -- /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080
jenkins 18640 18639 37 18:14 ? 00:00:25 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080
root 18763 1962 0 18:15 pts/0 00:00:00 grep --color=auto jenkins
root@ip-172-31-45-183:~#
```

(ii) Jenkins will be launched as a daemon up on start - Check under /etc/init.d/jenkins

(iii) /etc/default/jenkins will capture configuration parameters for the launch like e.g JENKINS_HOME.

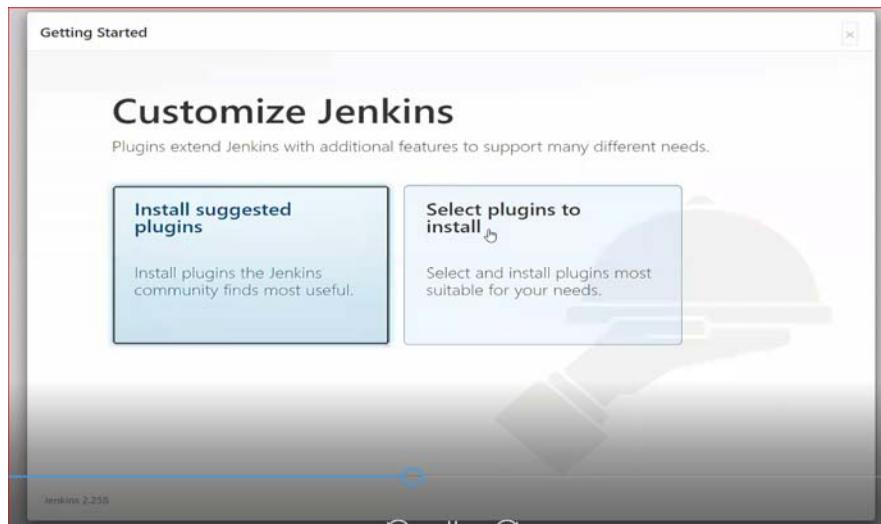
6) launch the Jenkins URLs in the browser:-

<ubuntu_ip_address>:8080



7) Get the Password from the path : `/var/lib/jenkins/secrets/initialAdminPassword`

```
root@ip-172-31-45-183:~# cat /var/lib/jenkins/secrets/initialAdminPassword
692f749e4e5640c891c8f0f9ec5579ab
```



Default plugins are installed

Getting Started

| | | | | |
|-----------------------------------|--|---|--|--------------------------------------|
| <input type="radio"/> Folders | <input type="radio"/> OWASP Markup Formatter | <input type="radio"/> Build Timeout | <input type="radio"/> Credentials Binding | ** GIT server |
| <input type="radio"/> Timestamper | <input type="radio"/> Workspace Cleanup | <input type="radio"/> Ant | <input type="radio"/> Gradle | ** Pipeline: Shared Groovy Libraries |
| <input type="radio"/> Pipeline | <input type="radio"/> GitHub Branch Source | <input type="radio"/> Pipeline: GitHub Groovy Libraries | <input type="radio"/> Pipeline: Stage View | ** Branch API |
| <input type="radio"/> Git | <input type="radio"/> SSH Build Agents | <input type="radio"/> Matrix Authorization Strategy | <input type="radio"/> PAM Authentication | ** Pipeline: Multibranch |
| <input type="radio"/> LDAP | <input type="radio"/> Email Extension | <input type="radio"/> Mailer | | ** Pipeline: Stage Tags Metadata |
| | | | | ** Pipeline: Declarative |
| | | | | ** Lockable Resources |
| | | | | Pipeline |
| | | | | ** OkHttpClient |
| | | | | ** GitHub API |
| | | | | GitHub |
| | | | | ** GitHub |
| | | | | Github Branch Source |
| | | | | Pipeline: GitHub Groovy Libraries |
| | | | | Pipeline: Stage View |
| | | | | Git |
| | | | | SSH Build Agents |
| | | | | Matrix Authorization Strategy |
| | | | | PAM Authentication |
| | | | | LDAP |
| | | | | Email Extension |
| | | | | Mailer |
| | | | | ** - required dependency |

Getting Started

Create First Admin User

| | |
|-------------------|--|
| Username: | <input type="text" value="admin"/> |
| Password: | <input type="password" value="*****"/> |
| Confirm password: | <input type="password" value="*****"/> |
| Full name: | <input type="text" value="Senthilkumar"/> |
| E-mail address: | <input type="text" value="bharathisen@gmail.com"/> |

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[Skip and continue as admin](#)[Save and Continue](#)

Getting Started

Jenkins is ready!

Your Jenkins setup is complete.

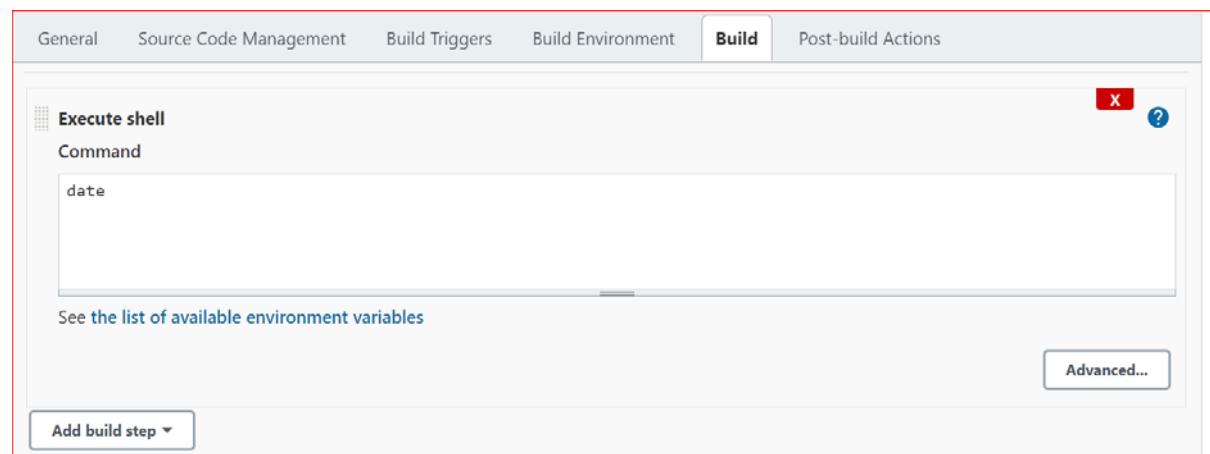
[Start using Jenkins](#)

Jenkins 2.280

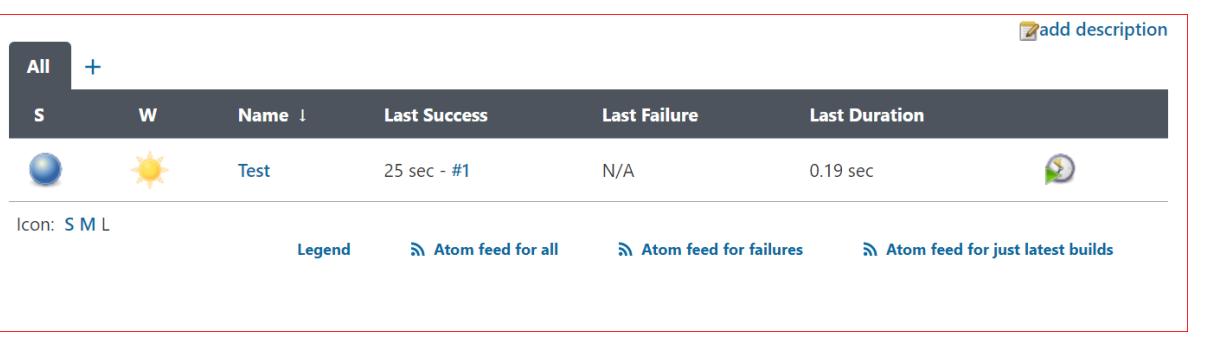
Working with Jenkins console

[#1 .Create New Job](#)

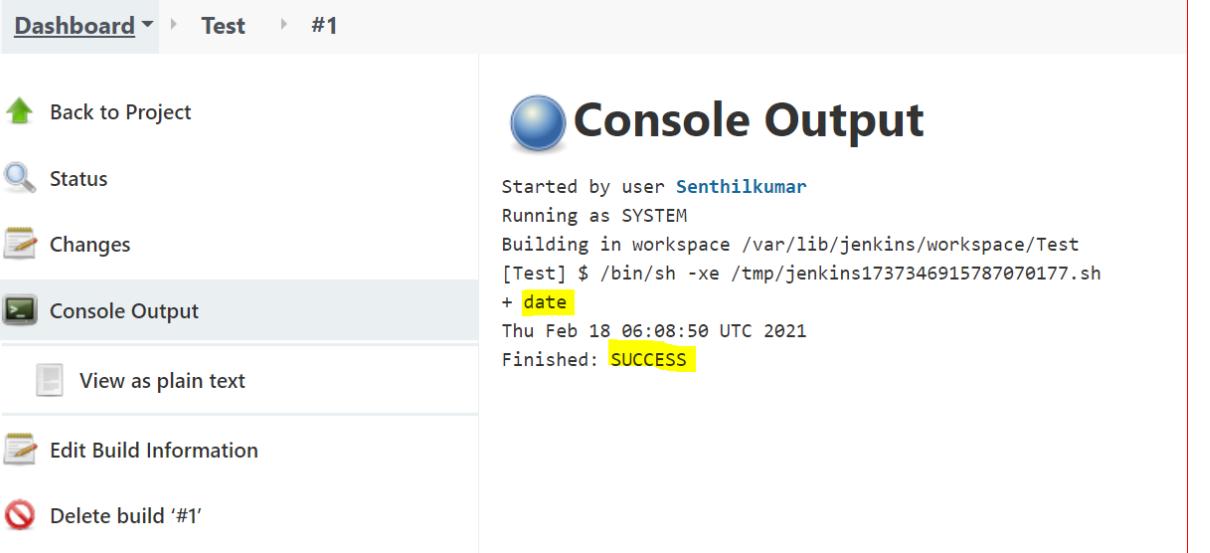
- 1.Name → test
- 2.Freestyle
- 3.Test Configuration: Build



The screenshot shows the 'Build' section of a Jenkins job configuration. It contains a single 'Execute shell' step with the command 'date' entered. A note below the command says 'See the list of available environment variables'. There is an 'Advanced...' button and a 'Add build step ▾' button.



The dashboard shows a summary of builds. One build named 'Test' is listed with a status icon (blue circle with a white sun), last success at '25 sec - #1', and last failure at 'N/A'. The duration was '0.19 sec'. Below the table are links for 'Icon: S M L', 'Legend', and three Atom feed options.



The build history for 'Test' shows a single build labeled '#1'. The left sidebar has links for 'Back to Project', 'Status', 'Changes', 'Console Output' (which is selected and expanded), 'View as plain text', 'Edit Build Information', and 'Delete build '#1''. The right panel displays the 'Console Output' with the following log:

```

Started by user Senthilkumar
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/Test
[Test] $ /bin/sh -xe /tmp/jenkins1737346915787070177.sh
+ date
Thu Feb 18 06:08:50 UTC 2021
Finished: SUCCESS

```

2. Queuing Up Jobs

Create 3 jobs : 1.Devproject 2.Testproject 3.Prodproject

| Date | PWD | uptime |
|------|-----|--------|
|------|-----|--------|

| All | W | Name ↓ | Last Success | Last Failure | Last Duration | |
|-----|---|-------------|---------------|--------------|---------------|--|
| | | DevProject | 15 sec - #3 | N/A | 32 ms | |
| | | Prodproject | 0.53 sec - #3 | N/A | 39 ms | |
| | | Test | 25 min - #1 | N/A | 0.19 sec | |
| | | Testproject | 10 sec - #3 | N/A | 29 ms | |

Icon: S M L Legend Atom feed for all Atom feed for failures Atom feed for just latest builds

1.Devproject → configure

Build Triggers

- Trigger builds remotely (e.g., from scripts) ?
- Build after other projects are built ?
- Build periodically ?

Schedule

```
*****
```

⚠ Do you really mean "every minute" when you say "***"? Perhaps you meant "H * * * *" to poll once per hour**
Would last have run at Thursday, February 18, 2021 6:38:40 AM UTC; would next run at Thursday, February 18, 2021 6:38:40 AM UTC.

Post-build Actions

Build other projects

Projects to build

Trigger only if build is stable
 Trigger even if the build is unstable
 Trigger even if the build fails

Add post-build action ▾

2.Testproject → configure → Post Build Actions → Prodproject

The projects run Sequentially as prescribed Que. And automaticall time triggers as every minute

#3. Calling Remote

| S | W | Name | Last Success | Last Failure | Last Duration |
|---|---|-------------|--------------|--------------|---------------|
| | | DevProject | 51 sec - #11 | N/A | 41 ms |
| | | Prodproject | 36 sec - #11 | N/A | 56 ms |
| | | Test | 34 min - #1 | N/A | 0.19 sec |
| | | Testproject | 46 sec - #11 | N/A | 55 ms |

Icon: S M L Legend [Atom feed for all](#) [Atom feed for failures](#) [Atom feed for just latest builds](#)

DevProject

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

None

Git

Build Triggers

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

Authentication Token

12345

Use the following URL to trigger build remotely: `JENKINS_URL/job/DevProject/build?token=TOKEN_NAME` or `/buildWithParameters?`
`token=TOKEN_NAME`

Optionally append `&cause=Cause+Text` to provide text that will be included in the recorded build cause.

Build after other projects are built ?

Build periodically ?

Schedule

<http://54.238.199.137:8080/job/Devproject/build?token=12345>

now the projects run from remote.

The screenshot shows the Jenkins dashboard. On the left, there's a sidebar with icons for Workspace, Build Now, Configure, Delete Project, and Rename. Below that is a 'Build History' section with a table showing builds from #19 to #24. The 'Build History' tab is highlighted. To the right, there are sections for 'Upstream Projects' (Remote_test1) and 'Downstream Projects' (Prodproject). At the bottom is a 'Permalinks' section with a bulleted list:

- Last build (#22), 59 sec ago
- Last stable build (#22), 59 sec ago
- Last successful build (#22), 59 sec ago
- Last completed build (#22), 59 sec ago

Deployment in Jenkins

Automation Deployment:

It is a process of Automating the Deployment process in a Continuous Delivery System.

Main Stages in Continuous Delivery & Deployment Pipelines:

Build --> Deploy --> Test --> Release

- These are Chained Processes,
- It means when the Build is success, then only Deploy will get started,
- Same like seeing the success of Deployment, the Testing happens.
- Also after every job, will have a notification, which tell us about its status

This is called as "Continuous Integrated System"

File Edit Format View Help

This is called as "Continuous Integrated System"

Step 1 -- Start the Jenkins and login into the console

Step 2 -- Install Deploy Plugins called as "Deploy to container"

Step 3 -- Create a Build Job in Jenkins

Step 4 -- Add Post build Action - Deploy war/ear to container, Choose container, credentials.

Step 5 -- In tomcat-users.xml [under /opt/apache-tomcat-7.0.91/conf] add user for DEPLOYMENT [Install TOMCAT before that]

```
<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"/>
```

Step 6 -- Place the war file in the appropriate path.
eg: /var/lib/jenkins/workspace/AutoDeployment/sample.war

Step 7 -- Run & Validate.

Step 8 -- WAR should be available under the tomcat's webapps folder.

How to do automated deployment using Jenkins

1. Prepare / Install Middleware (Tomcat Sever)
2. Port no change
3. Deployment of Application

Default port for **Jenkins =8080**

1. ##1. Tomcat (Middleware) Installation

TOMCAT Installation:

Step 1 -- Goto the link <https://tomcat.apache.org/download-70.cgi> & download the binaries [tar.gz under CORE].

Step 2 -- Once the file [apache-tomcat-7.0.91.tar] is downloaded, move it to the server.

Step 3 -- Copy it to the /opt location in the server.

Step 4 -- untar the file -> tar zxvf <filename>

Step 5 -- delete the .gz file.

Jenkins_Part_2_T Go to the bin path and start tomcat - startup.sh

1. [tomcat.apache.org download-70.cgi](https://tomcat.apache.org/download-70.cgi)

<https://mirrors.estointernet.in/apache/tomcat/tomcat-7/v7.0.108/bin/apache-tomcat-7.0.108.tar.gz>

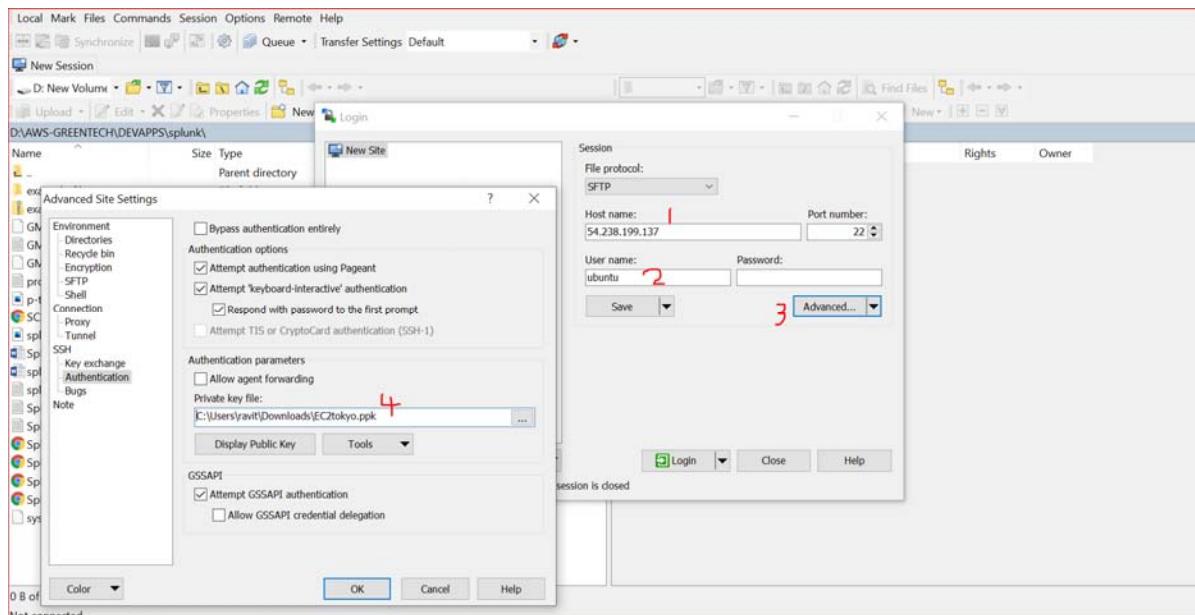
Deployment file for Tomcat..- **download**

##2. File transfer from local machine to Ubuntu machine

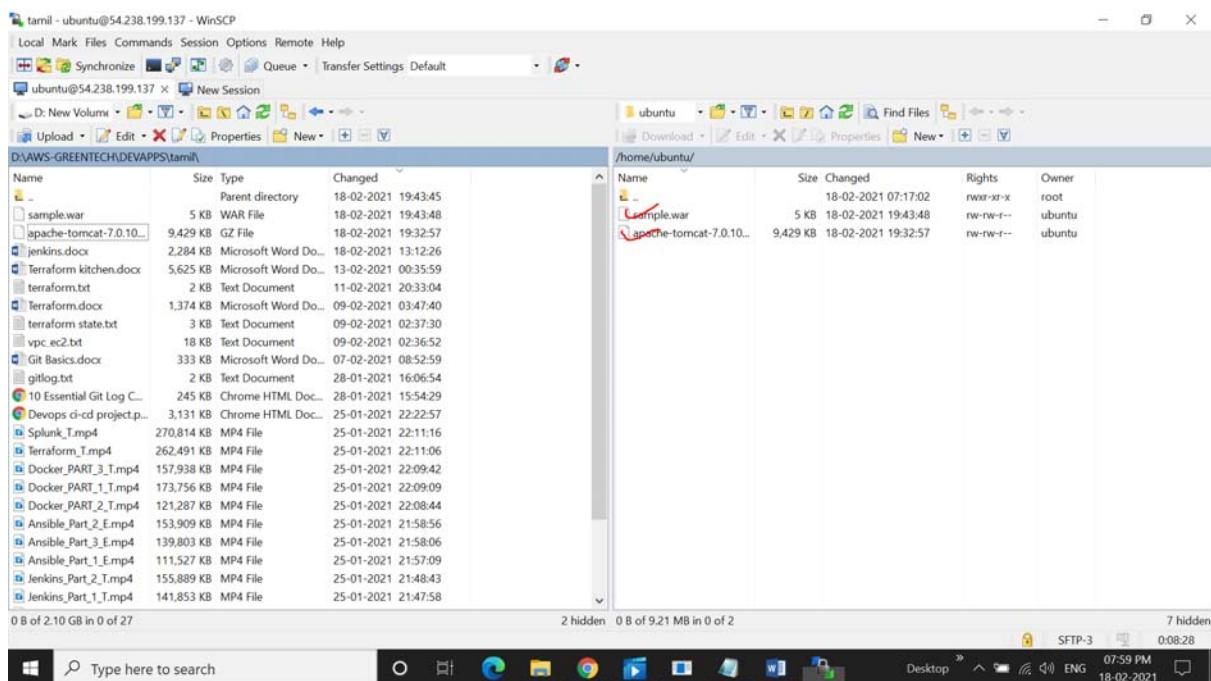
<https://tomcat.apache.org/tomcat-7.0-doc/appdev/sample/>

Using WINSCP to transfer file from one environment to another one.

1. Ubuntu machines public ip
2. login as Ubuntu
- 3.Adanced -> 4. Select PPK file



File transfer from local machine to Ubuntu machine



```

root@ip-172-31-9-106:~# pwa
/root
root@ip-172-31-9-106:~# cd /opt
root@ip-172-31-9-106:/opt# cp /home/ubuntu/apache-tomcat-7.0.108.tar.gz .
root@ip-172-31-9-106:/opt# ls -la
total 9440
drwxr-xr-x  2 root root    4096 Feb 18 14:36 .
drwxr-xr-x 24 root root    4096 Feb 18 06:42 ..
-rw-r--r--  1 root root 9655294 Feb 18 14:36 apache-tomcat-7.0.108.tar.gz
root@ip-172-31-9-106:/opt#

```

In linux all installation files are installed from non root directory is called **/opt**

-copy the .tar file to /opt

```
root@ip-172-31-9-106:~# pwd
```

```
/root
```

```
root@ip-172-31-9-106:~# cd /opt – directory change
```

```
root@ip-172-31-9-106:/opt# cp /home/ubuntu/apache-tomcat-7.0.108.tar.gz • –copy the  
tar file to /opt by using • for current directory
```

```
root@ip-172-31-9-106:/opt# ls -la
```

```
total 9440
```

```
drwxr-xr-x 2 root root 4096 Feb 18 14:36 .
```

```
drwxr-xr-x 24 root root 4096 Feb 18 06:42 ..
```

```
-rw-r--r-- 1 root root 9655294 Feb 18 14:36 apache-tomcat-7.0.108.tar.gz
```

```
root@ip-172-31-9-106:/opt#
```

##3.To unzip the rar file into Ubuntu server

Unzip .tar file - #tar -xvzf apache-tomcat-7.0.108.tar.gz

```
root@ip-172-31-9-106:/opt# ls -la
total 9444
drwxr-xr-x 3 root root 4096 Feb 18 14:42 .
drwxr-xr-x 24 root root 4096 Feb 18 06:42 ..
drwxr-xr-x 9 root root 4096 Feb 18 14:42 apache-tomcat-7.0.108
-rw-r--r-- 1 root root 9655294 Feb 18 14:36 apache-tomcat-7.0.108.tar.gz
root@ip-172-31-9-106:/opt# cd apache-tomcat-7.0.108
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108# ls -ltra
total 160
```

```
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108# ls -ltr
total 152
drwxr-x--- 2 root root 4096 Jan 28 09:13 work
drwxr-x--- 2 root root 4096 Jan 28 09:13 logs
drwxr-x--- 7 root root 4096 Jan 28 09:14 webapps
-rw-r----- 1 root root 17251 Jan 28 09:15 RUNNING.txt
-rw-r----- 1 root root 9362 Jan 28 09:15 RELEASE-NOTES
-rw-r----- 1 root root 3257 Jan 28 09:15 README.md
-rw-r----- 1 root root 1281 Jan 28 09:15 NOTICE
-rw-r----- 1 root root 56846 Jan 28 09:15 LICENSE
-rw-r----- 1 root root 5586 Jan 28 09:15 CONTRIBUTING.md
drwxr----- 2 root root 4096 Jan 28 09:15 conf
-rw-r----- 1 root root 17883 Jan 28 09:15 BUILDING.txt
drwxr-x--- 2 root root 4096 Feb 18 14:42 temp
drwxr-x--- 2 root root 4096 Feb 18 14:42 lib
drwxr-x--- 2 root root 4096 Feb 18 14:42 bin
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108# ■
```

1.Logs – Tomcats log informations, start, stop like operations ,application installations, deletion like logs

2.WebApps - Deployed contents after deployment of applications stored here

One of the important folder, holds your application related data.

3.Conf - Tomcat relevant configurations

4.bin - script commands relevant with tomcat is stored.

Tomcats default port is **8080**

Jenkins default port also **8080**

2. ## Jenkins Default Port Change :

How to change the Jenkins default portno of 8080 to other ? why ?

We the Jenkins admin, we have only access / manage credentials /rights to do with Jenkins alone. Middle ware tomcat is managed by middleware admin. So we can change only Jenkins portno

cd/etc/default –Jenkins default config files path

```

root@ip-172-31-9-106:/etc/default
root@ip-172-31-9-106:/etc/default# cd..
cd..: command not found
root@ip-172-31-9-106:/etc/default# cd /
root@ip-172-31-9-106:# clear
root@ip-172-31-9-106:# cd /etc/default/
root@ip-172-31-9-106:/etc/default# ls -ltra
total 124
-rw-r--r-- 1 root root 222 May 22 2012 bsdmainutils
-rw-r--r-- 1 root root 652 Mar 28 2015 cryptdisks
-rw-r--r-- 1 root root 306 Jun 2 2015 networking
-rw-r--r-- 1 root root 86 Jan 19 2016 halt
-rw-r--r-- 1 root root 92 Jan 19 2016 devpts
-rw-r--r-- 1 root root 124 Jan 27 2016 rsyslog
-rw-r--r-- 1 root root 346 Feb 9 2016 acpid
-rw-r--r-- 1 root root 1118 Mar 29 2016 useradd
-rw-r--r-- 1 root root 149 Mar 31 2016 apport
-rw-r--r-- 1 root root 183 Apr 5 2016 cron
-rw-r--r-- 1 root root 1756 Apr 14 2016 nss
-rw-r--r-- 1 root root 1754 Apr 15 2016 ufw
-rw----- 1 root root 384 Dec 16 2017 cacerts
-rw-r--r-- 1 root root 363 May 30 2018 pollinate
-rw-r--r-- 1 root root 2691 Aug 2 2018 open-iscsi
-rw-r--r-- 1 root root 297 Oct 7 2019 dbus
-rw-r--r-- 1 root root 1768 Feb 14 2020 rsync
-rw-r--r-- 1 root root 133 May 13 2020 ssh
-rw-r--r-- 1 root root 150 Oct 14 08:52 keyboard
-rw-r--r-- 1 root root 126 Oct 14 08:55 irqbalance
-rw-r--r-- 1 root root 830 Oct 14 08:55 mdadm
-rw-r--r-- 1 root root 779 Oct 14 08:55 motd-news
-rw-r--r-- 1 root root 1139 Oct 14 08:55 lxd-bridge
-rw-r--r-- 1 root root 284 Oct 14 08:55 console-setup
-rw-r--r-- 1 root root 636 Oct 14 08:55 rcs
drwxr-xr-x 2 root root 4096 Oct 14 09:01 grub.d
-rw-r--r-- 1 root root 1249 Oct 14 09:02 grub
-rw-r--r-- 1 root root 2775 Feb 16 12:41 jenkins
-rw-r--r-- 1 root root 52 Feb 18 01:47 locale
drwxr-xr-x 3 root root 4096 Feb 18 06:41 .
drwxr-xr-x 97 root root 4096 Feb 18 06:42 ..

```

root@ip-172-31-39-170:/etc/default# vi jenkins

```

# port for HTTP connector (default 8080; disable with -1)
HTTP_PORT=8080

# servlet context, important if you want to use apache proxying
PREFIX=/${NAME}

# arguments to pass to jenkins.
# --javahome=${JAVA_HOME}
# --httpListenAddress=${HTTP_HOST} (default 0.0.0.0)
# --httpPort=${HTTP_PORT} (default 8080; disable with -1)
# --httpsPort=${HTTP_PORT}
# --argumentsRealm.passwd.${ADMIN_USER}=[password]
# --argumentsRealm.roles.${ADMIN_USER}=admin
# --webroot=~/jenkins/war
# --prefix=${PREFIX}

```

Changed to 9900 from 8080

```

# port for HTTP connector (default 8080; disable with -1)
HTTP_PORT=9900

```

root@ip-172-31-9-106:/etc/default# ps -ef |grep jenkins

-webroot=/var/cache/jenkins/war --httpPort=8080

```
jenkins 20176 20175 0 05:18 ? 00:02:24 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080
```

still the port is remain as 8080

```
root@ip-172-31-9-106:/etc/default# service jenkins stop – Jenkins service stop
```

```
root@ip-172-31-9-106:/etc/default# ps -ef |grep jenkins
```

```
root 14698 14424 0 17:36 pts/1 00:00:00 grep --color=auto jenkins
```

```
root@ip-172-31-9-106:/etc/default# service jenkins start - Jenkins service start
```

```
root@ip-172-31-9-106:/etc/default# ps -ef |grep jenkins
```

```
webroot=/var/cache/jenkins/war --httpPort=9900
```

```
jenkins 14779 14778 76 17:36 ? 00:00:03 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=9900
```

```
root 14806 14424 0 17:36 pts/1 00:00:00 grep --color=auto jenkins
```

```
root@ip-172-31-9-106:/etc/default#
```

Now the port changed to 9900

```
root@ip-172-31-9-106:/etc/default# ps -ef |grep jenkins
root 14620 14424 0 17:34 pts/1 00:00:00 grep --color=auto jenkins
jenkins 20162 1 0 05:18 ? 00:00:00 /lib/systemd/systemd --user
jenkins 20164 20162 0 05:18 ? 00:00:00 (sd-pam)
jenkins 20175 1 0 05:18 ? 00:00:00 /usr/bin/daemon --name=jenkins --inherit --env=JENKINS_HOME=/var/lib/jenkins --output=/var/log/jenkins/jenkins.log --pidfile=/var/run/jenkins/jenkins.pid -- /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080
jenkins 20176 20175 0 05:18 ? 00:02:24 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=8080
root@ip-172-31-9-106:/etc/default# AC
root@ip-172-31-9-106:/etc/default# service jenkins stop
root@ip-172-31-9-106:/etc/default# ps -ef |grep jenkins
root 14698 14424 0 17:36 pts/1 00:00:00 grep --color=auto jenkins
root@ip-172-31-9-106:/etc/default# service jenkins start
root@ip-172-31-9-106:/etc/default# ps -ef |grep jenkins
jenkins 14765 1 0 17:36 ? 00:00:00 /lib/systemd/systemd --user
jenkins 14766 14765 0 17:36 ? 00:00:00 (sd-pam)
jenkins 14778 1 0 17:36 ? 00:00:00 /usr/bin/daemon --name=jenkins --inherit --env=JENKINS_HOME=/var/lib/jenkins --output=/var/log/jenkins/jenkins.log --pidfile=/var/run/jenkins/jenkins.pid -- /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=9900
jenkins 14779 14778 76 17:36 ? 00:00:03 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/jenkins/jenkins.war --webroot=/var/cache/jenkins/war --httpPort=9900
root 14806 14424 0 17:36 pts/1 00:00:00 grep --color=auto jenkins
root@ip-172-31-9-106:/etc/default#
```

Change the server path <root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin>

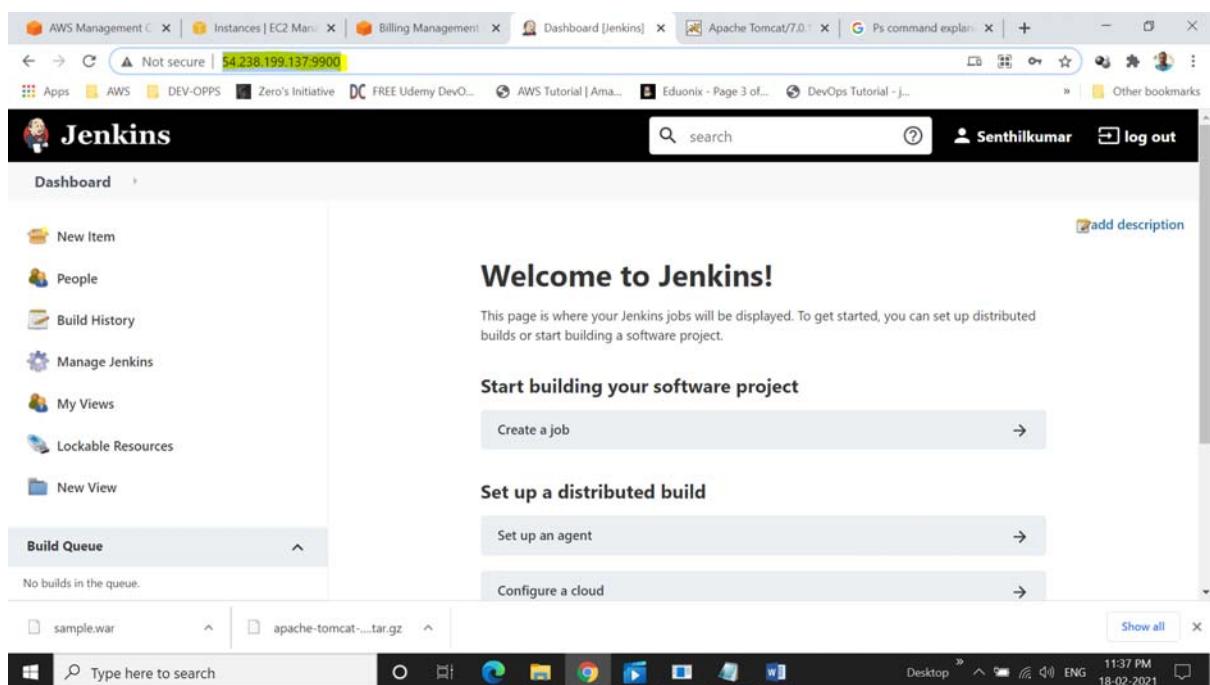
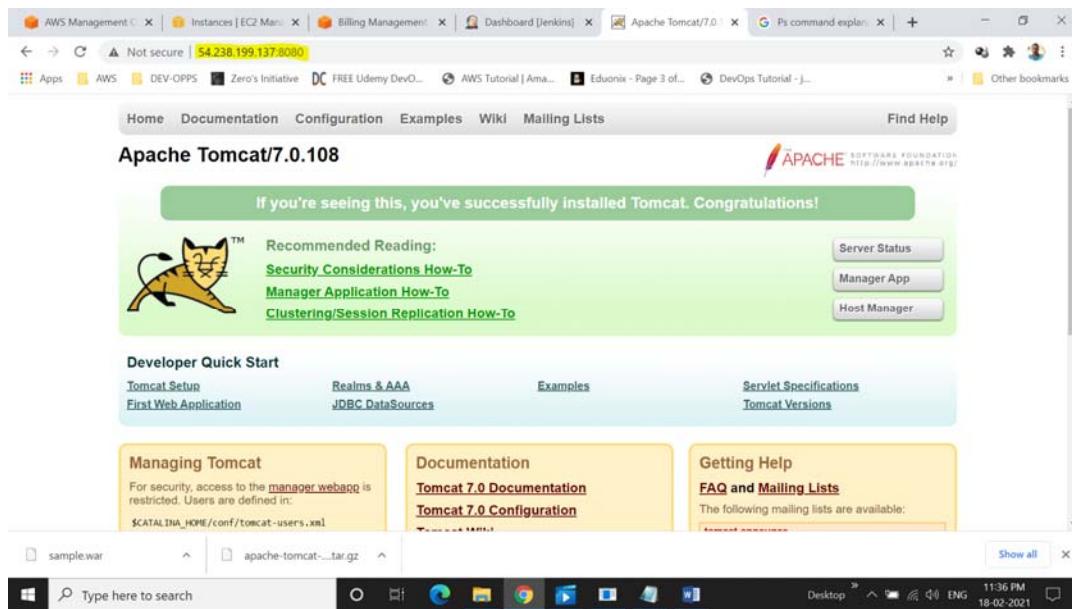
-bin -- script commands relevant with tomcat is stored.

```
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108# cd bin
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ls -ltra
total 868
-rw-r---- 1 root root 2026 Jan 28 09:14 version.bat
-rw-r---- 1 root root 4576 Jan 28 09:14 tool-wrapper.bat
-rw-r---- 1 root root 50838 Jan 28 09:14 tomcat-juli.jar
-rw-r---- 1 root root 2022 Jan 28 09:14 startup.bat
-rw-r---- 1 root root 2020 Jan 28 09:14 shutdown.bat
-rw-r---- 1 root root 3460 Jan 28 09:14 setclasspath.bat
-rw-r---- 1 root root 2091 Jan 28 09:14 digest.bat
-rw-r---- 1 root root 2040 Jan 28 09:14 configtest.bat
-rw-r---- 1 root root 25357 Jan 28 09:14 commons-daemon.jar
-rw-r---- 1 root root 16613 Jan 28 09:14 catalina.bat
-rw-r---- 1 root root 29916 Jan 28 09:14 bootstrap.jar
-rwxr-x-- 1 root root 1908 Jan 28 09:14 version.sh
-rwxr-x-- 1 root root 5542 Jan 28 09:14 tool-wrapper.sh
-rwxr-x-- 1 root root 1904 Jan 28 09:14 startup.sh
-rwxr-x-- 1 root root 1902 Jan 28 09:14 shutdown.sh
-rwxr-x-- 1 root root 3708 Jan 28 09:14 setclasspath.sh
-rwxr-x-- 1 root root 1965 Jan 28 09:14 digest.sh
-rwxr-x-- 1 root root 9100 Jan 28 09:14 daemon.sh
-rwxr-x-- 1 root root 1922 Jan 28 09:14 configtest.sh
-rwxr-x-- 1 root root 25080 Jan 28 09:14 catalina.sh
-rw-r---- 1 root root 423135 Jan 28 09:14 tomcat-native.tar.gz
-rw-r---- 1 root root 207420 Jan 28 09:14 commons-daemon-native.tar.gz
-rw-r---- 1 root root 1664 Jan 28 09:15 catalina-tasks.xml
drwxr-xr-x 9 root root 4096 Feb 18 14:42 ..
drwxr-x-- 2 root root 4096 Feb 18 14:42 .
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin#
```

```
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ./startup.sh
Using CATALINA_BASE: /opt/apache-tomcat-7.0.108
Using CATALINA_HOME: /opt/apache-tomcat-7.0.108
Using CATALINA_TMPDIR: /opt/apache-tomcat-7.0.108/temp
Using JRE_HOME: /usr
Using CLASSPATH: /opt/apache-tomcat-7.0.108/bin/bootstrap.jar:/opt/apache-tomcat-7.0.108/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin#
```

root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ps -ef |grep tomcat
now tomcat is running top of the server.

Now Tomcat is running on port 8080, Jenkins on 9900 paralally

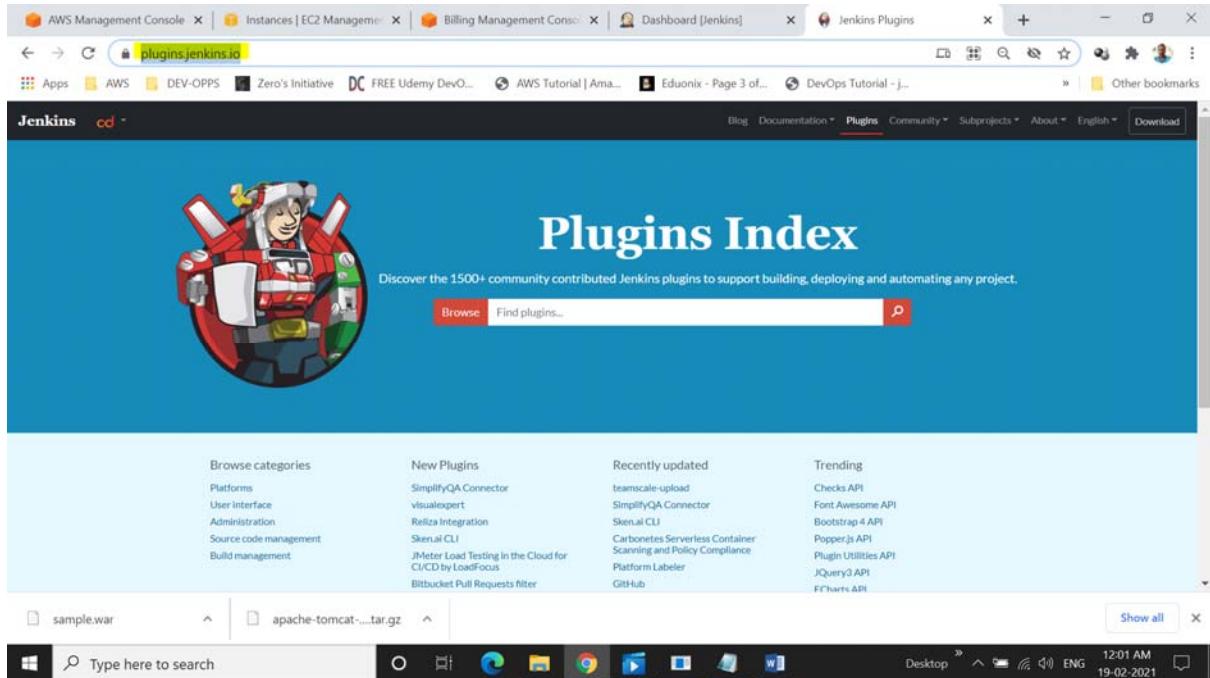


3. Deployment of Application.

Auto Deployment

Manage Plugin –Plugin – add-ons , extra feature

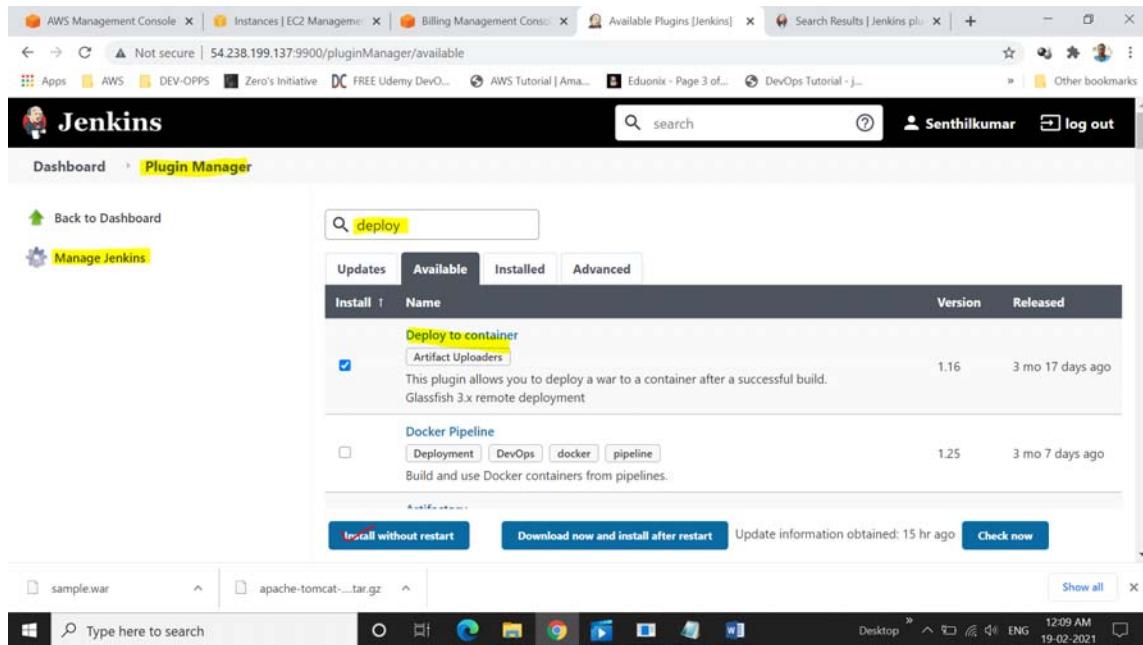
<https://plugins.jenkins.io/>



Auto deployment of Application

New Item : Autodeploymentproject

The screenshot shows the Jenkins AutodeploymentProject configuration page. It features a table with columns: All, S, W, Name, Last Success, Last Failure, and Last Duration. A single row is present with an icon (a sun), the name 'AutoDeploymentProject', and all other fields showing 'N/A'. Below the table, there are buttons for 'Icon: S M L', 'Legend', and three 'Atom feed' options: 'Atom feed for all', 'Atom feed for failures', and 'Atom feed for just latest builds'. A red border highlights the entire table area.



The screenshot shows the Jenkins Update Center page titled 'Installing Plugins/Upgrades'. On the left sidebar, there are links: 'Back to Dashboard', 'Manage Jenkins' (with a red checkmark), and 'Manage Plugins' (with a green checkmark). The main content area has a heading 'Installing Plugins/Upgrades' and a section 'Preparation' with a bulleted list:

- Checking internet connectivity
- Checking update center connectivity
- Success

Below this, there are two status indicators: 'Deploy to container' (Success) and 'Loading plugin extensions' (Success). At the bottom, there are two links: 'Go back to the top page' (with a green arrow icon) and 'Restart Jenkins when installation is complete and no jobs are running' (with a green arrow icon).

```
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# cd /var/lib/jenkins/
```

Jenkins application file path **var/lib/Jenkins**

Home path / Landing Path of Jenkins

Workspace foleder is created only after the first project created in Jenkins.

```
root@ip-172-31-9-106:/var/lib/jenkins# cd workspace
```

projects path

```

root@ip-172-31-9-106:/var/lib/jenkins/workspace#
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# cd /var/lib/jenkins/
root@ip-172-31-9-106:/var/lib/jenkins# ls -lrt
total 7064
-rw-r--r-- 1 root root 68822161 Mar  9 2020 jenkins.war
-rw-r--r-- 1 jenkins jenkins 64 Feb 18 03:21 secret.key
-rw-r--r-- 1 jenkins jenkins 1712 Feb 18 03:21 secret.key.not-so-secret
-rw-r----- 1 jenkins jenkins 171 Feb 18 03:21 identity.key.enc
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 03:21 nodes
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 03:21 logs
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 03:21 userContent
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 03:42 updates
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 03:42 workflow-libs
-rw-r--r-- 1 jenkins jenkins 370 Feb 18 03:42 hudson.plugins.git.GitTool.xml
drwxr-xr-x 3 jenkins jenkins 4096 Feb 18 03:42 users
-rw-r--r-- 1 jenkins jenkins 184 Feb 18 03:42 jenkins.model.JenkinsLocationConfiguration.xml
-rw-r--r-- 1 jenkins jenkins 5 Feb 18 03:43 jenkins.install.UpgradeWizard.state
-rw-r--r-- 1 root root 3417571 Feb 18 05:48 jenkins-cli.jar
drwxr-xr-x 8 jenkins jenkins 4096 Feb 18 07:18 workspace
drwxr-xr-x 4 jenkins jenkins 4096 Feb 18 08:11 secrets
-rw-r--r-- 1 jenkins jenkins 131 Feb 18 17:36 queue.xml.bak
-rw-r--r-- 1 jenkins jenkins 158 Feb 18 17:36 hudson.model.UpdateCenter.xml
-rw-r--r-- 1 jenkins jenkins 907 Feb 18 17:36 nodeMonitors.xml
-rw-r--r-- 1 jenkins jenkins 5 Feb 18 17:36 jenkins.install.InstallUtil.lastExecVersion
-rw-r--r-- 1 jenkins jenkins 1595 Feb 18 17:36 config.xml
drwxr-xr-x 3 jenkins jenkins 4096 Feb 18 18:13 jobs
drwxr-xr-x 80 jenkins jenkins 12284 Feb 18 18:41 plugins
root@ip-172-31-9-106:/var/lib/jenkins# cd workspace
root@ip-172-31-9-106:/var/lib/jenkins/workspace# ls -lra
total 32
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 06:08 Test
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 06:26 DevProject
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 06:27 Testproject
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 06:27 Prodproject
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 07:08 Remote_test1
drwxr-xr-x 2 jenkins jenkins 4096 Feb 18 07:18 Remote_test2
drwxr-xr-x 8 jenkins jenkins 4096 Feb 18 07:18 .
drwxr-xr-x 15 jenkins jenkins 4096 Feb 18 17:36 ..
root@ip-172-31-9-106:/var/lib/jenkins/workspace# ^C
root@ip-172-31-9-106:/var/lib/jenkins/workspace# ^C
root@ip-172-31-9-106:/var/lib/jenkins/workspace# 
```

The project files are listed only after build the projects

| | | | | | | | | |
|------------|----|---------|---------|------|-----|----|-------|-----------------------|
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 06:08 | Test |
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 06:26 | DevProject |
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 06:27 | Testproject |
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 06:27 | Prodproject |
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 07:08 | Remote_test1 |
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 07:18 | Remote_test2 |
| drwxr-xr-x | 15 | jenkins | jenkins | 4096 | Feb | 18 | 17:36 | .. |
| drwxr-xr-x | 2 | jenkins | jenkins | 4096 | Feb | 18 | 18:54 | AutoDeploymentProject |
| drwxr-xr-x | 9 | jenkins | jenkins | 4096 | Feb | 18 | 18:54 | . |

Copy the war/rar file to project

```
root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProjct#
```

cp /home/ubuntu/sample.war

.current directory

```

root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProject# cp /home/ubuntu/sample.war .
root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProject# ls -lrt
total 8
-rw-r--r-- 1 root root 4606 Feb 18 19:05 sample.war
root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProject# 
```

Applying Tomcat credential

Tomcat application path : **root@ip-172-31-9-106:/# cd opt/apache-tomcat-7.0.108/conf/**

Edit **tomcat-users.xml** – tomcat relevant user information

```

root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProject# AC
root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProject# clear
root@ip-172-31-9-106:/var/lib/jenkins/workspace/AutoDeploymentProject# cd ..
root@ip-172-31-9-106:/var/lib/jenkins/workspace# cd /
root@ip-172-31-9-106:/# cd opt/apache-tomcat-7.0.108/
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108# ls -ltr
total 152
drwxr-x--- 7 root root 4096 Jan 28 09:14 webapps
-rw-r---- 1 root root 17251 Jan 28 09:15 RUNNING.txt
-rw-r---- 1 root root 9362 Jan 28 09:15 RELEASE-NOTES
-rw-r---- 1 root root 3257 Jan 28 09:15 README.md
-rw-r---- 1 root root 1281 Jan 28 09:15 NOTICE
-rw-r---- 1 root root 56846 Jan 28 09:15 LICENSE
-rw-r---- 1 root root 5586 Jan 28 09:15 CONTRIBUTING.md
-rw-r---- 1 root root 17883 Jan 28 09:15 BUILDING.txt
drwxr-x--- 2 root root 4096 Feb 18 14:42 temp
drwxr-x--- 2 root root 4096 Feb 18 14:42 lib
drwxr-x--- 2 root root 4096 Feb 18 14:42 bin
drwx----- 3 root root 4096 Feb 18 17:59 conf
drwxr-x--- 2 root root 4096 Feb 18 17:59 Logs
drwxr-x--- 3 root root 4096 Feb 18 17:59 work
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108# cd conf
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/conf# ls -ltr
total 220
-rw----- 1 root root 170681 Jan 28 09:15 web.xml
-rw----- 1 root root 2633 Jan 28 09:15 tomcat-users.xsd
-rw----- 1 root root 2164 Jan 28 09:15 tomcat-users.xml
-rw----- 1 root root 6689 Jan 28 09:15 server.xml
-rw----- 1 root root 3562 Jan 28 09:15 logging.properties
-rw----- 1 root root 1394 Jan 28 09:15 context.xml
-rw----- 1 root root 6776 Jan 28 09:15 catalina.properties
-rw----- 1 root root 13342 Jan 28 09:15 catalina.policy
drwxr-x--- 3 root root 4096 Feb 18 17:59 Catalina
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/conf# █

```

Automated Deployment - Notepad

File Edit Format View Help

Step 4 -- Add Post build Action - Deploy war/ear to container, Choose container, credentials.

Step 5 -- In tomcat-users.xml [under /opt/apache-tomcat-7.0.91/conf] add user for DEPLOYMENT [Install TOMCAT before that]

```

<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"/>

```

Step 6 -- Place the war file in the appropriate path.
eg: /var/lib/jenkins/workspace/AutoDeployment/sample.war

Step 7 -- Run & Validate.

Step 8 -- WAR should be available under the tomcat's webapps folder.

00:47:08 00:32:10

0 Type here to search

12:48 AM 19-02-2021

To add credentials to Admin & users

```

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">
  <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"/>
</tomcat-users>
~
```

To enable credential changes in config file effectively , the tomcat should restart

Shutdown & startup the tomcat

```
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ./shutdown.sh
```

```
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ./startup.sh
```

```

root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ./shutdown.sh
Using CATALINA_BASE: /opt/apache-tomcat-7.0.108
Using CATALINA_HOME: /opt/apache-tomcat-7.0.108
Using CATALINA_TMPDIR: /opt/apache-tomcat-7.0.108/temp
Using JRE_HOME: /usr
Using CLASSPATH: /opt/apache-tomcat-7.0.108/bin/bootstrap.jar:/opt/apache-tomcat-7.0.108/bin/tomcat-juli.jar
Using CATALINA_OPTS:
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin# ./startup.sh
Using CATALINA_BASE: /opt/apache-tomcat-7.0.108
Using CATALINA_HOME: /opt/apache-tomcat-7.0.108
Using CATALINA_TMPDIR: /opt/apache-tomcat-7.0.108/temp
Using JRE_HOME: /usr
Using CLASSPATH: /opt/apache-tomcat-7.0.108/bin/bootstrap.jar:/opt/apache-tomcat-7.0.108/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
root@ip-172-31-9-106:/opt/apache-tomcat-7.0.108/bin#
```

Post-build Actions

The screenshot shows the Jenkins 'Post-build Actions' configuration for a job named 'Apache Tomcat - Tar.gz'. The 'Deploy war/ear to a container' action is selected. The configuration includes:

- WAR/EAR files:** /var/lib/jenkins/workspace/AutoDeploymentProject/sample.war
- Context path:** sample
- Containers:** A 'Tomcat 7.x Remote' container is selected. It has a 'Credentials' dropdown set to 'deployer/***' and a 'Tomcat URL' input field containing 'http://54.238.199.137:8080/'.
- Buttons:** Save, Apply, Advanced...

Error Facing

Deployment Failure

```

at hudson.model.Executor.run(Executor.java:429)
Caused by: org.codehaus.cargo.container.tomcat.internal.TomcatManagerException: The username you provided is not allowed
to use the text-based Tomcat Manager (error 403)
    at org.codehaus.cargo.container.tomcat.internal.TomcatManager.invoke(TomcatManager.java:710)
    at org.codehaus.cargo.container.tomcat.internal.TomcatManager.list(TomcatManager.java:882)
    at org.codehaus.cargo.container.tomcat.internal.TomcatManager.getStatus(TomcatManager.java:895)
    at
org.codehaus.cargo.container.tomcat.internal.AbstractTomcatManagerDeployer.redeploy(AbstractTomcatManagerDeployer.java:161
)

    at org.codehaus.cargo.container.tomcat.internal.TomcatManager.invoke(TomcatManager.java:577)
    ... 22 more
Build step 'Deploy war/ear to a container' marked build as failure
[Finished: FAILURE]

```

Changes made in context file ;

[root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps/manager/META-INF#context.xml](#)

```

root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps/manager/META-INF# cat context.xml
<?xml version="1.0" encoding="UTF-8"?>
<!--
Licensed to the Apache Software Foundation (ASF) under one or more
contributor license agreements. See the NOTICE file distributed with
this work for additional information regarding copyright ownership.
The ASF licenses this file to You under the Apache License, Version 2.0
(the "License"); you may not use this file except in compliance with
the License. You may obtain a copy of the License at
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.
-->
<context antiResourceLocking="false" privileged="true">
<!--
    <Valve className="org.apache.catalina.valves.RemoteAddrValve"
        allow="127\\.\\d+\\.\\d+\\.\\d+:1|0:0:0:0:1" />
-->
</Context>
root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps/manager/META-INF# 

```

Ref:

<https://stackoverflow.com/questions/41675813/the-username-you-provided-is-not-allowed-to-use-the-text-based-tomcat-manager-e>

| All | W | Name ↓ | Last Success | Last Failure | Last Duration |
|-----|---|-----------------------|-------------------|-------------------|---------------|
| | | AutoDeploymentProject | 8.4 sec - #11 | 9 min 13 sec - #7 | 0.67 sec |
| | | DevProject | 3 hr 22 min - #87 | N/A | 27 ms |
| | | Prodproject | 3 hr 21 min - #79 | N/A | 21 ms |
| | | Test | 3 hr 58 min - #2 | 3 hr 59 min - #1 | 48 ms |
| | | Testproject | 3 hr 22 min - #78 | N/A | 32 ms |

Icon: S M L

Legend: Atom feed for all Atom feed for failures Atom feed for just latest builds

Console Output

```

Started by user Senthil Kumar
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/AutoDeploymentProject
[AutoDeploymentProject] $ /bin/sh -xe /tmp/jenkins3592445747822797354.sh
+ date
Fri Feb 19 17:44:05 UTC 2021
+ pwd
/var/lib/jenkins/workspace/AutoDeploymentProject
+ uptime
17:44:05 up 4:18, 1 user, load average: 0.03, 0.03, 0.00
[DeployPublisher][INFO] Attempting to deploy 1 war file(s)
[DeployPublisher][INFO] Deploying /var/lib/jenkins/workspace/AutoDeploymentProject/sample.war to container Tomcat 7.x
Remote with context sample
  Redeploying [/var/lib/jenkins/workspace/AutoDeploymentProject/sample.war]
  Undeploying [/var/lib/jenkins/workspace/AutoDeploymentProject/sample.war]
  Deploying [/var/lib/jenkins/workspace/AutoDeploymentProject/sample.war]
Finished: SUCCESS

```

Ensure the Auto Deployment in Tomcat

```
root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps/sample#
```

```
root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps# ls -la
total 40
drwxr-x--- 8 root root 4096 Feb 19 17:44 .
drwxr-xr-x 9 root root 4096 Feb 19 14:50 ..
drwxr-x--- 14 root root 4096 Feb 19 14:50 docs
drwxr-x--- 7 root root 4096 Feb 19 14:50 examples
drwxr-x--- 5 root root 4096 Feb 19 14:50 host-manager
drwxr-x--- 5 root root 4096 Feb 19 14:50 manager
drwxr-x--- 3 root root 4096 Feb 19 14:50 ROOT
drwxr-x--- 5 root root 4096 Feb 19 17:44 sample
-rw-r----- 1 root root 4606 Feb 19 17:44 sample.war
root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps# cd sample
root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps/sample# ls -la
total 28
drwxr-x--- 5 root root 4096 Feb 19 17:44 .
drwxr-x--- 8 root root 4096 Feb 19 17:44 ..
-rw-r----- 1 root root 376 Jul 30 2007 hello.jsp
drwxr-x--- 2 root root 4096 Feb 19 17:44 images
-rw-r----- 1 root root 636 Jul 30 2007 index.html
drwxr-x--- 2 root root 4096 Feb 19 17:44 META-INF
drwxr-x--- 4 root root 4096 Feb 19 17:44 WEB-INF
root@ip-172-31-39-170:/opt/apache-tomcat-7.0.108/webapps/sample#
```

Ensure the Auto Deployment in Webportal



User Management In Jenkins

- **User Management In Jenkins**
- **Security Policy relevant with Jenkins on Managing a Jenkins A/c.**

The screenshot shows the Jenkins System Configuration page with the following sections:

- System Configuration:**
 - Configure System: Configure global settings and paths.
 - Global Tool Configuration: Configure tools, their locations and automatic installers.
 - Manage Plugins: Add, remove, disable or enable plugins that can extend the functionality of Jenkins. A red triangle icon indicates there are updates available.
- Security:**
 - Configuring Global Security: Secure Jenkins: define who is allowed to access/use the system. A green checkmark is shown.
 - Manage Credentials: Configure credentials.
 - Configure Credential Providers: Configure the credential providers and types.

A prominent warning message at the top states: "WARNINGS HAVE BEEN PUBLISHED FOR THE FOLLOWING CURRENTLY INSTALLED COMPONENTS: Lockable Resources plugin 2.8: CSRF vulnerability; Script Security-Plugin 1.74: Sandbox bypass vulnerability".

Configure Global Security

Authentication

Disable remember me

Security Realm

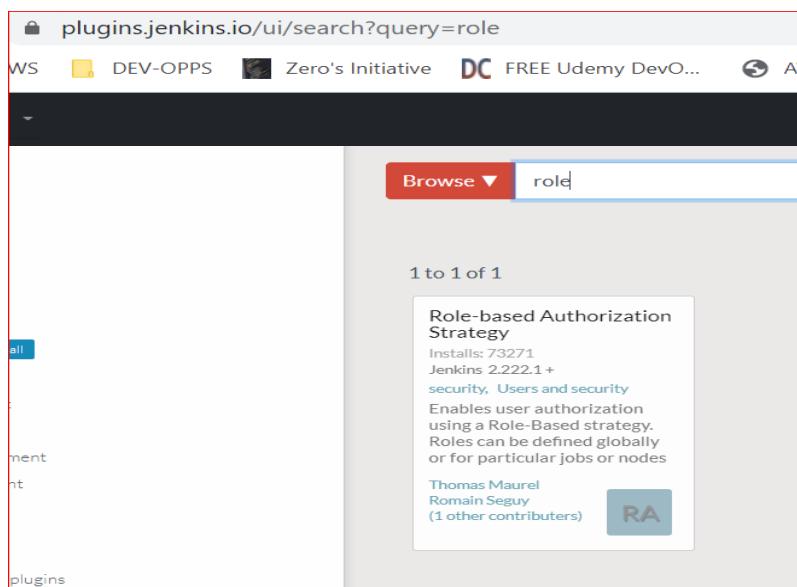
Delegate to servlet container
 Jenkins' own user database
 Allow users to sign up
 The Current Security policy. the restriction provided in the tomcat conf.xml what we provide
 LDAP
 Unix user/group database
 None

Authorization

Anyone can do anything
 Legacy mode
 Logged-in users can do anything
 Allow anonymous read access
 Matrix-based security
 Project-based Matrix Authorization Strategy

The Authorization allows anyone can do anything. To restrict this used

“Role Based Matrix” a plugin to control user access



Manage Jenkins – Plugins Manager –Available

Dashboard > Plugin Manager

Back to Dashboard | Manage Jenkins | Update Center

Updates Available Installed Advanced

Install Name

Role-based Authorization Strategy

Security Authentication and User Management

Enables user authorization using a Role-Based strategy. Roles particular jobs or nodes selected by regular expressions.

CloudBees AWS Credentials

aws

Allows storing Amazon IAM credentials within the Jenkins CloudBees AWS Credentials. IAM access keys (AWSAccessKeyId and AWSSecretKey) within Also support IAM Roles and IAM MFA Token.

Install without restart **Download now and install after restart**

New plugin added as Role based

Authorization

- Anyone can do anything
- Legacy mode
- Logged-in users can do anything
 - Allow anonymous read access
- Matrix-based security
- Project-based Matrix Authorization Strategy
- Role-Based Strategy

Role Based Strategy : a new methodology of managing the Jenkins upon the role,

Splitting the users based on Role wise.

Users 1. Developer, 2. Tester

Create User:

Security



Configure Global Security

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



Manage Credentials

Configure credentials



Configure Credential Providers

Configure the credential providers and types



Manage and Assign Roles

Handle permissions by creating roles and assigning them to users/groups

Manage Users

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

Dashboard ➔ Jenkins' own user database

Back to Dashboard

Manage Jenkins

Create User

Users

These users can log into Jenkins. This is a sub set of [this list](#), which also contains auto-created users who really just made some commits on some projects and have no direct Jenkins access.

| User ID | Name | |
|---------|-------|--|
| admin | admin | |
| user1 | user1 | |
| user2 | user2 | |

Roles



Manage and Assign Roles



Manage Roles

Manage Roles



Assign Roles

Assign Roles



Role Strategy Macros

Provides info about macro usage and available macros

User & Role Created.

1. Global Role – Admin, Employee - user roles
2. Item Role – Depends upon the Project
3. Node Role – Machine level Roles.

The screenshot shows the Jenkins 'Manage and Assign Roles' interface. At the top, there are two tables: one for 'Overall' roles and one for 'Item' roles.

Overall Roles Table:

| Role | Overall | Credentials | Agent | Job |
|-----------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| admin | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Employees | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Item Roles Table:

| Role | Pattern | Credentials | Job | Run | SCM | Lockable Resources |
|-----------|----------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Developer | "Dev.*" | <input checked="" type="checkbox"/> |
| Tester | "Test.*" | <input checked="" type="checkbox"/> |

Below these tables, there are sections for 'Role to add' (with dropdowns for 'Employees' and 'Tester') and a Windows taskbar at the bottom.

Global Role -- Employee – Read only Credentials

ItemRoles → Developer – Dev.* users – Full Access

Tester → Test.* users – Full Access

Manage and Assign Roles :

The screenshot shows the Jenkins 'Assign Roles' page. On the left, there's a sidebar with various Jenkins management links. The main area displays a table of 'Global roles' and a section for 'User/group to add'.

Global roles:

| User/group | Employees | admin |
|---------------|-------------------------------------|-------------------------------------|
| Senthil Kumar | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Anonymous | <input type="checkbox"/> | <input type="checkbox"/> |
| user1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| user2 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

User/group to add:

Add button:

Item roles

| User/group | Developer | Tester |
|------------|-------------------------------------|-------------------------------------|
| Anonymous | <input type="checkbox"/> | <input type="checkbox"/> |
| user1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| user2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

User/group to add

[Add](#)

Login as User1 → Developer, he can access only development Projects alone

| All | S | W | Name ↓ | Last Success | Last Failure | Last Duration |
|-----|---|-----------------------|--------|-------------------|------------------|---------------|
| | | AutoDeploymentProject | | 19 hr - #16 | 1 day 9 hr - #7 | 0.64 sec |
| | | DevProject | | 32 sec - #228 | N/A | 14 ms |
| | | Prodproject | | 1 day 12 hr - #79 | N/A | 21 ms |
| | | Test | | 19 hr - #4 | 1 day 13 hr - #1 | 15 ms |
| | | Testproject | | 27 sec - #217 | N/A | 23 ms |

Icon: [S](#) [M](#) [L](#)

[Legend](#) [Atom feed for all](#) [Atom feed for failures](#) [Atom feed for just latest builds](#)

Login as User2 → Tester, he can access only development Projects alone

| All | S | W | Name ↓ | Last Success | Last Failure | Last Duration |
|-----|---|-----------------------|--------|-------------------|------------------|---------------|
| | | AutoDeploymentProject | | 19 hr - #16 | 1 day 9 hr - #7 | 0.64 sec |
| | | DevProject | | 44 sec - #230 | N/A | 20 ms |
| | | Prodproject | | 1 day 12 hr - #79 | N/A | 21 ms |
| | | Test | | 19 hr - #4 | 1 day 13 hr - #1 | 15 ms |
| | | Testproject | | 38 sec - #219 | N/A | 15 ms |

Icon: [S](#) [M](#) [L](#)

[Legend](#) [Atom feed for all](#) [Atom feed for failures](#) [Atom feed for just latest builds](#)

Day3- Technology

Master – Slave

| Instances (1/2) Info | | C | Connect | Instance state ▾ | Actions ▾ | Actions |
|--------------------------------------|---------------|----------------------------------|--|------------------|--|-------------------------|
| | | Filter instances | | | | |
| | Name ▾ | Instance ID | Instance state ▾ | Instanc... ▾ | Status check | |
| <input checked="" type="checkbox"/> | Jenkins-slave | i-084df3c7d61fb45... | Running    | t2.micro | 2/2 checks passed  | |
| <input type="checkbox"/> | Jenkins | i-039e165e288d74... | Running    | t2.micro | 2/2 checks passed  | |

Pre Requestis

Master Machine : Java, Jenkins –port-9900

Slave Machine: Java alone

Organization Standard :Master → slave

Instaed of one server doing 100 jobs , 100 machines will do 100 jobs , but **the 100 jobs are the same one.**

Master is Login as Ubuntu

```
ubuntu@ip-172-31-39-170:~$ pwd
/home/ubuntu          Login as ubuntu the user
ubuntu@ip-172-31-39-170:~$ ls -ltra
total 9480
-rw-r--r-- 1 ubuntu ubuntu    3771 Aug 31 2015 .bashrc
-rw-r--r-- 1 ubuntu ubuntu     220 Aug 31 2015 .bash_logout
-rw-r--r-- 1 ubuntu ubuntu     655 Jul 12 2019 .profile
-rw-rw-r-- 1 ubuntu ubuntu 9655294 Feb 18 14:02 apache-tomcat-7.0.108.tar.gz
-rw-rw-r-- 1 ubuntu ubuntu    4606 Feb 18 14:13 sample.war
drwxr-xr-x 3 root  root    4096 Feb 19 13:25 ..
drwx----- 2 ubuntu ubuntu    4096 Feb 19 13:26 .ssh   Hiden Directory
drwx----- 2 ubuntu ubuntu    4096 Feb 19 13:26 .cache
-rw-r--r-- 1 ubuntu ubuntu        0 Feb 19 13:26 sudo_as_admin_successful
-rw----- 1 ubuntu ubuntu     629 Feb 19 16:21 .viminfo
drwxr-xr-x 2 ubuntu ubuntu    4096 Feb 19 16:21 .vim
drwxr-xr-x 5 ubuntu ubuntu    4096 Feb 19 16:21 .
-rw----- 1 ubuntu ubuntu     239 Feb 19 21:31 .bash_history
ubuntu@ip-172-31-39-170:~$ cd .ssh
ubuntu@ip-172-31-39-170:~/ssh$ pwd
/home/ubuntu/.ssh
ubuntu@ip-172-31-39-170:~/ssh$
```

```
/home/ubuntu/.ssh
ubuntu@ip-172-31-39-170:~/ssh$ ls -ltra
total 12
-rw----- 1 ubuntu ubuntu    390 Feb 19 13:26 authorized_keys
drwx----- 2 ubuntu ubuntu    4096 Feb 19 13:26 .
drwxr-xr-x 5 ubuntu ubuntu    4096 Feb 19 16:21 ..
ubuntu@ip-172-31-39-170:~/ssh$
```

From this .SSH folder → create connections with the master—slave machines. Through an identity.

Public Key

There is Lock in Public Key as Authorized Key

Private Key

The Key using to Login the EC2

```
ubuntu@ip-172-31-39-170:~/ssh$ cat authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQC1VXcAEXmyR5zKLkarM9Z1yYXwbPi2/tHKDCsttic9
oL0v5Ssb6ARLnKeShFqrgDf+T31ZGUfQ4x5yJFcXPY1C2zRIZinWYUgZXVaCyaTJApURe9pqmWBd+A+w
uSpX7RVawQaYKm/DqdZ/Ad3aDnFGOYJboEKNhTK5E/6p9UKHInB0kPCUAZ1vomAY7ATSB8qcaLPVcTmi
qFCHqsx50d627dMRsobQLPtuFesumHz4ptwNy0BB4UW0DvPSW4EZ1cYpxokSK136fKytIF93q2uYdvoj
HadNHqtpjhGFnifCCBF1JviGlnBp6QTsgwwwe8rbMViaoZN/VajEWcgXjov65 EC2tokyo
ubuntu@ip-172-31-39-170:~/ssh$
```

Communicate with slave Machine

```
ubuntu@ip-172-31-39-170:~/ssh$ ls -lra
total 12
-rw----- 1 ubuntu ubuntu 390 Feb 19 13:26 authorized_keys
drwx----- 2 ubuntu ubuntu 4096 Feb 19 13:26 .
drwxr-xr-x 5 ubuntu ubuntu 4096 Feb 19 16:21 ..
ubuntu@ip-172-31-39-170:~/ssh$ cat authorized_keys
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQC1VXcAEXmyR5zKLkarM9Z1yYXwbPi2/tHKDCsttic9
oL0v5Ssb6ARLnKeShFqrgDf+T31ZGUfQ4x5yJFcXPY1C2zRIZinWYUgZXVaCyaTJApURe9pqmWBd+A+w
uSpX7RVawQaYKm/DqdZ/Ad3aDnFGOYJboEKNhTK5E/6p9UKHInB0kPCUAZ1vomAY7ATSB8qcaLPVcTmi
qFCHqsx50d627dMRsobQLPtuFesumHz4ptwNy0BB4UW0DvPSW4EZ1cYpxokSK136fKytIF93q2uYdvoj
HadNHqtpjhGFnifCCBF1JviGlnBp6QTsgwwwe8rbMViaoZN/VajEWcgXjov65 EC2tokyo
ubuntu@ip-172-31-39-170:~/ssh$ ssh localhost /
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:Fq80r0oebfKYNmwblo3eca0ojzohI++0GnIFn4jheA4.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'localhost' (ECDSA) to the list of known hosts.
Permission denied (publickey).2
ubuntu@ip-172-31-39-170:~/ssh$
```

1. \$ ssh localhost – try to connect with slave
2. Permission denied
3. Authorized keys – read & write access only

```
ubuntu@ip-172-31-39-170:~/ssh$ chmod 777 authorized_keys
ubuntu@ip-172-31-39-170:~/ssh$ ls -la
total 16
drwx----- 2 ubuntu ubuntu 4096 Feb 21 03:39 .
drwxr-xr-x 5 ubuntu ubuntu 4096 Feb 19 16:21 ..
-rwxrwxrwx 1 ubuntu ubuntu 390 Feb 19 13:26 authorized_keys
-rw-r--r-- 1 ubuntu ubuntu 222 Feb 21 03:39 known_hosts
ubuntu@ip-172-31-39-170:~/ssh$ ssh localhost
Permission denied (publickey).
ubuntu@ip-172-31-39-170:~/ssh$
```

Permission granted, but still denied, because there is no private key to communicate.

How to solve and communicate the Master – Slave Machines

Create two key files 1. Public Key , 2. Privatekey

```
ubuntu@ip-172-31-37-42:~/ssh$ touch id_rsa
```

```
ubuntu@ip-172-31-37-42:~/ssh$ touch id_rsa.pub
file names are as same as given..
```

- **Public Key Creation**

copy authorized_keys to touch id_rsa.pub

```
ubuntu@ip-172-31-37-42:~/ssh$ cp authorized_keys id_rsa.pub - Public key
```

```
ubuntu@ip-172-31-37-42:~/ssh$ touch id_rsa
ubuntu@ip-172-31-37-42:~/ssh$ touch id_rsa.pub
ubuntu@ip-172-31-37-42:~/ssh$ ls -la
total 12
drwx----- 2 ubuntu ubuntu 4096 Feb 21 13:50 .
drwxr-xr-x 4 ubuntu ubuntu 4096 Feb 21 13:44 ..
-rw----- 1 ubuntu ubuntu 390 Feb 21 13:32 authorized_keys
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 21 13:50 id_rsa
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 21 13:50 id_rsa.pub
ubuntu@ip-172-31-37-42:~/ssh$ cp authorized_keys id_rsa.pub
ubuntu@ip-172-31-37-42:~/ssh$ ls -ltra
total 16
-rw----- 1 ubuntu ubuntu 390 Feb 21 13:32 authorized_keys
drwxr-xr-x 4 ubuntu ubuntu 4096 Feb 21 13:44 ..
-rw-rw-r-- 1 ubuntu ubuntu 0 Feb 21 13:50 id_rsa
drwx----- 2 ubuntu ubuntu 4096 Feb 21 13:50 .
-rw-rw-r-- 1 ubuntu ubuntu 390 Feb 21 13:51 id_rsa.pub
ubuntu@ip-172-31-37-42:~/ssh$
```

- **Private Key Creation**

Open the .PEM file of **Master machine's** , which is used to login , copy and paste into the id_rsa file

```
ubuntu@ip-172-31-37-42:~/ssh$ vi id_rsa
```

paste .PEM (EC2tokyo) file content

```
ubuntu@ip-172-31-37-42:~/ssh$ ls -la
total 20
drwx----- 2 ubuntu ubuntu 4096 Feb 21 14:01 .
drwxr-xr-x 4 ubuntu ubuntu 4096 Feb 21 14:01 ..
-rw----- 1 ubuntu ubuntu 390 Feb 21 13:32 authorized_keys
-rw-rw-r-- 1 ubuntu ubuntu 1675 Feb 21 14:01 id_rsa
-rw-rw-r-- 1 ubuntu ubuntu 390 Feb 21 13:51 id_rsa.pub
ubuntu@ip-172-31-37-42:~/ssh$ vi id_rsa^C
ubuntu@ip-172-31-37-42:~/ssh$
```

```
ubuntu@ip-172-31-37-42:~/ssh$ chmod 400 * - authorization changed
```

the owner ***Ubuntu only read the file***. Others are denied to do any

```
ubuntu@ip-172-31-29-248:~/ssh$ chmod 400 *
ubuntu@ip-172-31-29-248:~/ssh$ ls -lrt
total 16
-r----- 1 ubuntu ubuntu 389 Sep 22 14:08 authorized_keys
-r----- 1 ubuntu ubuntu 222 Sep 28 14:56 known_hosts
-r----- 1 ubuntu ubuntu 389 Sep 28 14:58 id_rsa.pub
-r----- 1 ubuntu ubuntu 1675 Sep 28 14:59 id_rsa
ubuntu@ip-172-31-29-248:~/ssh$
```

Prepare Slave Machine

- Prerequisites' : 1. Java 8.0 should be installed

Java installation:

=====

- 1) sudo add-apt-repository ppa:webupd8team/java
- 2) sudo apt-get update
- 3) sudo apt install openjdk-8-jdk
- 4) java -version

```
root@ip-172-31-3-119:~# java -version
openjdk version "1.8.0_282"
OpenJDK Runtime Environment (build 1.8.0_282-8u282-b08-0ubuntu1~16.04-b08)
OpenJDK 64-Bit Server VM (build 25.282-b08, mixed mode)
root@ip-172-31-3-119:~#
```

Slave Machine Ready

Jenkins (Master Machine)

- Configuration file of Jenkins stored /etc/default path
- Landing Path / Home Path of Jenkins - /var/lib/Jenkins

Communication with Master → Slave

To Communicate with Master → Slave , to create a dedicated path between Master –slave .

create one appropriate folder in slave machine Named as Jenkins

Slave Machine – exit from /root user

```
ubuntu@ip-172-31-3-119:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-3-119:~$ mkdir jenkins
```

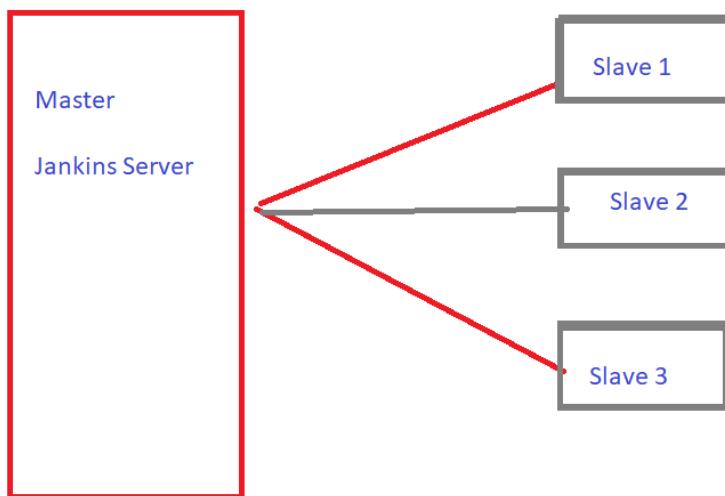
```
ubuntu@ip-172-31-3-119:~$ cd jenkins
ubuntu@ip-172-31-3-119:~/jenkins$
ubuntu@ip-172-31-3-119:~/jenkins$ pwd
/home/ubuntu/jenkins
ubuntu@ip-172-31-3-119:~/jenkins$ -- The Landing Path of Slave Machine
```

The screenshot shows the Jenkins management interface. On the left, there's a sidebar with links like 'New Item', 'People', 'Build History', 'Manage Jenkins' (which is selected), 'My Views', 'Lockable Resources', and 'New View'. The main area is titled 'Manage Jenkins' and has a 'System Configuration' section. It includes three cards: 'Configure System' (Configure global settings and paths), 'Global Tool Configuration' (Configure tools, their locations and automatic installers), and 'Manage Plugins' (Add, remove, disable or enable plugins that can extend the functionality of Jenkins). Below this is a 'Security' section with 'Configure Global Security' (Secure Jenkins; define who is allowed to access/use the system), 'Manage Credentials' (Configure credentials), and 'Configure Credential Providers' (Configure the credential providers). At the bottom, there's a taskbar with icons for various applications and a status bar showing '08:55 PM 21-02-2021'.

Connecting with Slave Machine

The screenshot shows the Jenkins 'Nodes' page. On the left, there are links for 'Back to Dashboard', 'Manage Jenkins' (highlighted in yellow), 'New Node', and 'Configure Clouds'. The main area displays a table of nodes. There is one entry for a node named 'master' which is a Linux (amd64) machine. The table columns include S, Name, Architecture, Clock Difference, Free Disk Space, Free Swap Space, Free Temp Space, and Response. The 'Free Disk Space' column shows 5.84 GB, the 'Free Swap Space' column shows 0 B (with a red warning icon), and the 'Free Temp Space' column shows 5.84 GB. A 'Refresh status' button is at the bottom right of the table.

| S | Name | Architecture | Clock Difference | Free Disk Space | Free Swap Space | Free Temp Space | Response |
|---|---------------|---------------|------------------|-----------------|-----------------|-----------------|----------|
| | master | Linux (amd64) | In sync | 5.84 GB | 0 B | 5.84 GB | |
| | Data obtained | 11 min | 11 min | 11 min | 11 min | 11 min | |

[Master - Slave Model](#)

Some Times the Other servers May execute the files

- Not Possible to install Jenkins in all servers

Solution :

Using one Jenkins Installed Server & Execute the Jenkins relevant operations in the other servers by using through Jenkins Machine./ Master Jenkins server

Manage Jenkins

New Node

Configure Clouds

Node Monitoring

Build Queue

0 builds in the queue.

Build Executor Status

Idle

?

Description

Project / Machine Description

of executors

2 How many executors simultaneously running this projects .its depends upon projects, machine configurations etc Jenkins default lv running 2 ****

Remote root directory

/home/ubuntu/jenkins Slave Machine Path - Landing Path

Labels

Test Projects grouping label - / prod, develop

Usage

Usage

Use this node as much as possible

Launch method

Launch agents via SSH

Host

18.182.23.172 **Slave Machines Public IP**

Credentials

ubuntu

Jenkins Credentials provider screens

Host Key Verification Strategy

Manually trusted key Verification Strategy

Require manual verification of initial connection

Availability

Keep this agent online as much as possible

Node Properties

Disable deferred wipeout on this node

Environment variables

Tool Locations

Save ✓

This screenshot shows the configuration page for a Jenkins slave node. It includes sections for Usage, Launch method, Host, Credentials, Host Key Verification Strategy, Availability, and Node Properties. The 'Save' button is highlighted with a checkmark.

Jenkins Credentials Provider: Jenkins

Add Credentials

Domain: Global credentials (unrestricted)

Kind: SSH Username with private key

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

ID: ubuntu

Description:

Username: ubuntu

Private Key:

Enter directly

Key:

```
CjjxAoGARhxffRkIhAv1V1NW8/KSB6ZghcRVkPQ9dKwYP2EXLC2xE/B89CnARGt2
3n9M0KK4WJIw++hnaiV4acnD8Hym0hVNxLgWKN+NGR0i/ndNaA9aqxg+uwXAoSy
iEubKtaIPxd15xGnUJRTQr2fQ3E8oyQ29LLuXn53Ydg7PE61a0=
-----END RSA PRIVATE KEY-----
```

Passphrase:

Add Cancel

Now the Master → slave Machines are connected

Dashboard Nodes

Back to Dashboard Manage Jenkins New Node Configure Clouds Node Monitoring

| S | Name | Architecture | Clock Difference | Free Disk Space | Free Swap Space | Free Temp Space | Response Time |
|---|--------------|---------------|------------------|-----------------|-----------------|-----------------|---------------|
| | master | Linux (amd64) | In sync | 5.84 GB | 0 B | 5.84 GB | 0ms |
| | ubuntuagent! | Linux (amd64) | In sync | 5.99 GB | 0 B | 5.99 GB | 99ms |

Data obtained

Master

Slave

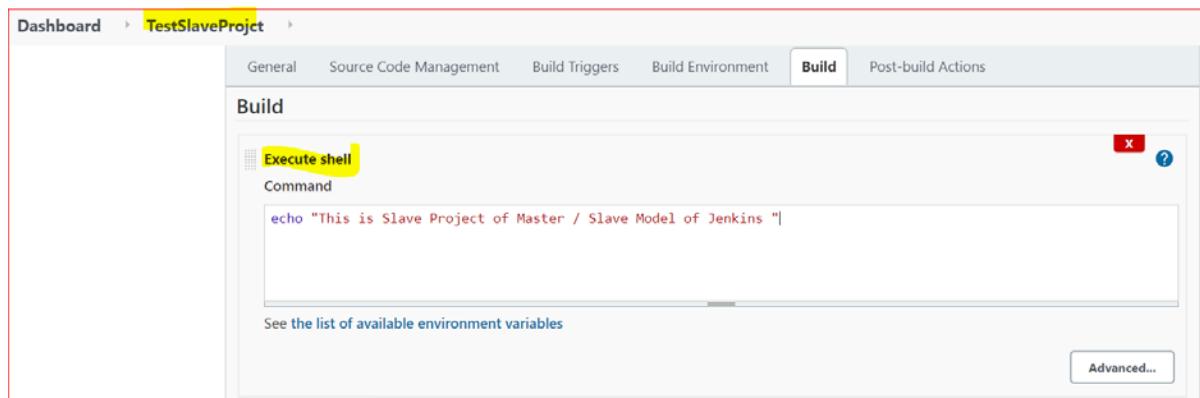
Agent

Security File in
ubuntu@ip-172-31-37-42:
~/ssh

Java
Jenkins Port:9900

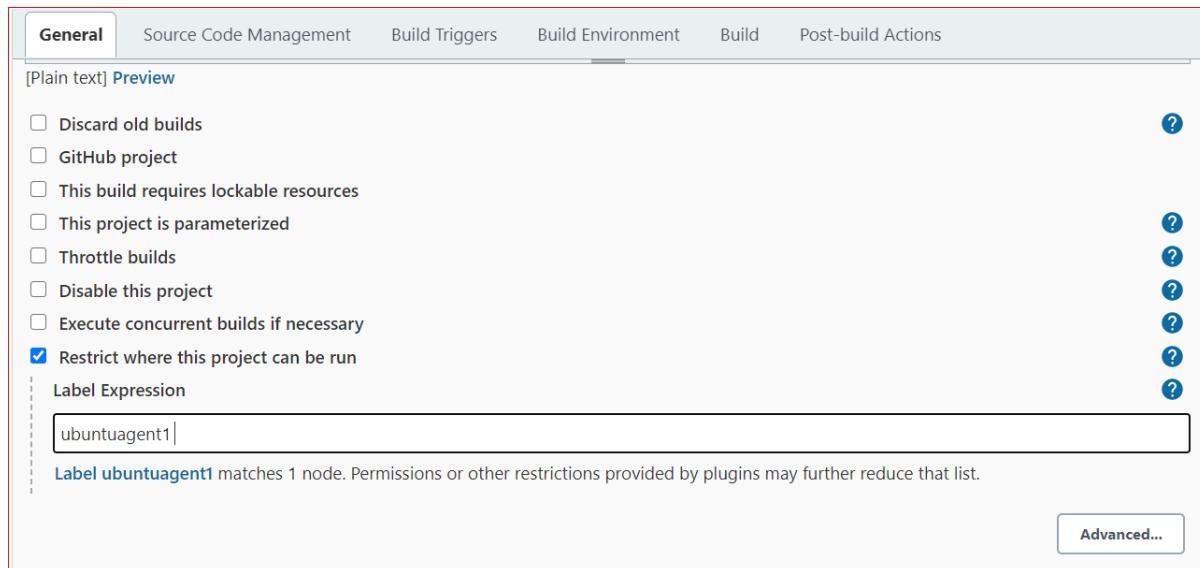
Slave Execution Testing

Project Name : TestSlaveProject



The screenshot shows the Jenkins project configuration for 'TestSlaveProject'. The 'Build' tab is selected. Under the 'Execute shell' section, the command 'echo "This is Slave Project of Master / Slave Model of Jenkins "' is entered. A tooltip for 'Advanced...' is visible at the bottom right.

Where to Run → Slave Machine



The screenshot shows the Jenkins project configuration for 'TestSlaveProject' under the 'General' tab. The 'Restrict where this project can be run' checkbox is checked. In the 'Label Expression' field, 'ubuntuagent1' is entered. A tooltip for 'Advanced...' is visible at the bottom right.

Verify with slave Machine. The Project Folder has generated on the name of the Project

```
ubuntu@ip-172-31-3-119:~/jenkins$ pwd
/home/ubuntu/jenkins
ubuntu@ip-172-31-3-119:~/jenkins$ ls -la
total 1488
drwxrwxr-x 4 ubuntu ubuntu 4096 Feb 21 18:18 .
drwxr-xr-x 5 ubuntu ubuntu 4096 Feb 21 17:51 ..
drwxrwxr-x 4 ubuntu ubuntu 4096 Feb 21 17:53 remoting
-rw-rw-r-- 1 ubuntu ubuntu 1506923 Feb 21 17:53 remoting.jar
drwxrwxr-x 3 ubuntu ubuntu 4096 Feb 21 18:18 workspace✓
ubuntu@ip-172-31-3-119:~/jenkins$ cd workspace
ubuntu@ip-172-31-3-119:~/jenkins/workspace$ ls -la
total 12
drwxrwxr-x 3 ubuntu ubuntu 4096 Feb 21 18:18 .
drwxrwxr-x 4 ubuntu ubuntu 4096 Feb 21 18:18 ..
drwxrwxr-x 2 ubuntu ubuntu 4096 Feb 21 18:18 TestSlaveProject✓
ubuntu@ip-172-31-3-119:~/jenkins/workspace$ █
```

Pipeline—Connective Passage, Sequential Flow

Sequence of Project → Upwards

→ Downwards

Set of projects → Delivery / Release of Projects

Pipelines are going to Provide you a separate segregated view about the projects sequence.

100 → individual projects → Running

3 Projects are queueup – to find , to create a view about the project queueup service is called **PIPELINE**.

How to Create Pipeline ?

Install Pipelines

Pipelines Variants → 1.Build Pipeline

2. Delivery Model Pipeline

Manage Jenkins → Manage Plugin

| Enabled | Name | Version | Previously installed version | Uninstall |
|-------------------------------------|-----------------------|-------------------------|------------------------------|---------------------------|
| <input checked="" type="checkbox"/> | Build Monitor View | 1.12+build.201809061734 | | Uninstall |
| <input checked="" type="checkbox"/> | Build Pipeline Plugin | 1.5.8 | | Uninstall |

| Preparation | Build Monitor View | Success |
|-------------|---------------------------|---------|
| | Run Condition | Success |
| | Javadoc | Success |
| | Maven Integration | Success |
| | Conditional BuildStep | Success |
| | Parameterized Trigger | Success |
| | jQuery | Success |
| | Build Pipeline | Success |
| | Loading plugin extensions | Success |
| | Delivery Pipeline | Success |
| | Loading plugin extensions | Success |

Plugins Installed

To view plugins

| All | + | To view | add description | | |
|-----|-------------------|------------------|---------------------------------|--------------|---------------|
| S | W | Name | Last Success | Last Failure | Last Duration |
| | | DevProject | 16 sec - #117 | N/A | 18 ms |
| | | Prodproject | 6.6 sec - #116 | N/A | 10 ms |
| | | Test | 23 hr - #2 | 23 hr - #1 | 56 ms |
| | | Testproject | 6.6 sec - #117 | N/A | 21 ms |
| | | TestSlaveProject | 19 hr - #5 | N/A | 99 ms |

Icon: [S](#) [M](#) [L](#)

[Legend](#) [Atom feed for all](#) [Atom feed for failures](#) [Atom feed for just latest builds](#)

Delivery Pipeline.... Look and feel Projects.

Delivery Pipeline mostly used by the officials who are in deliverable end like

1. Delivery Managers
2. Team Leads
3. Clients , working for delivery of Projects

Build Pipeline → 1.scratch Administrators .
2.Developers

Components

Component Name: [?](#)

Please supply a title

Initial Job: [?](#)

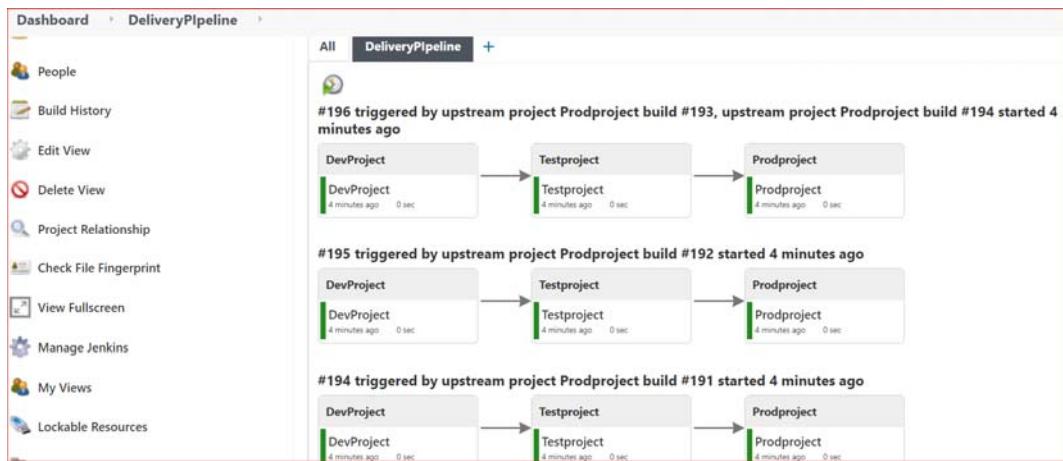
Final Job (optional): [?](#)

Show upstream [Delete](#)

OK **Apply**

Leave other fields as default

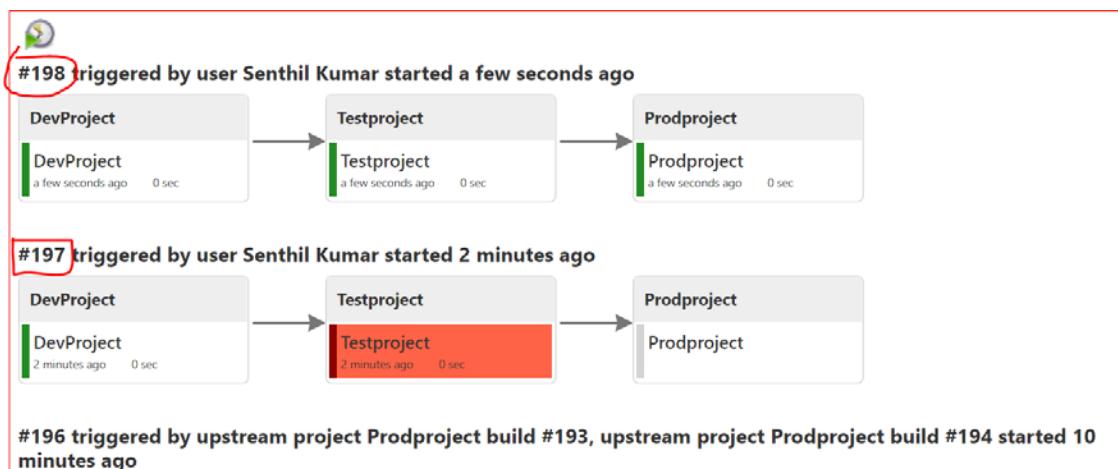
Success Version



Error Version :

#197 –Error version

198- recovered success version



Create Re-run, Trigger buttons

The Delivery Pipe line Provides only View version of project delivery status / progress

-But some time there is a need to Trigger out the Pipeline & Initiated

ADD -> Trigger Settings (By default it is not available)

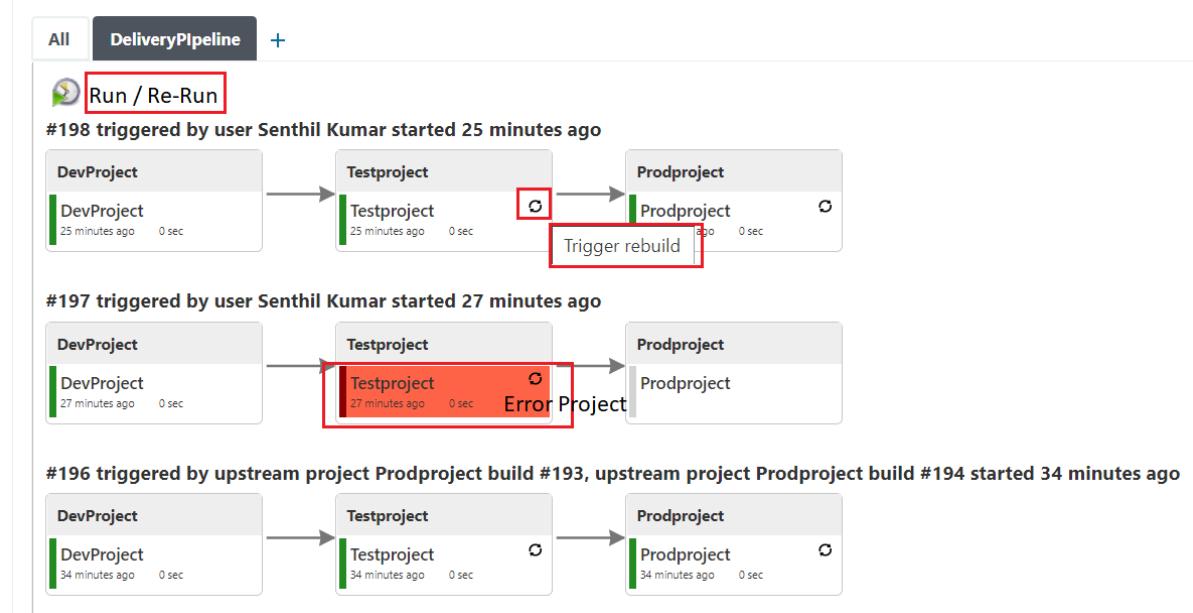
During the process of PIPELINE → Projects may failed / erred some time., after correct the solution, we need to rerun the project from start. Instead of restart from errored/failed position.



We need **Re-Run** button (By default it is not available).

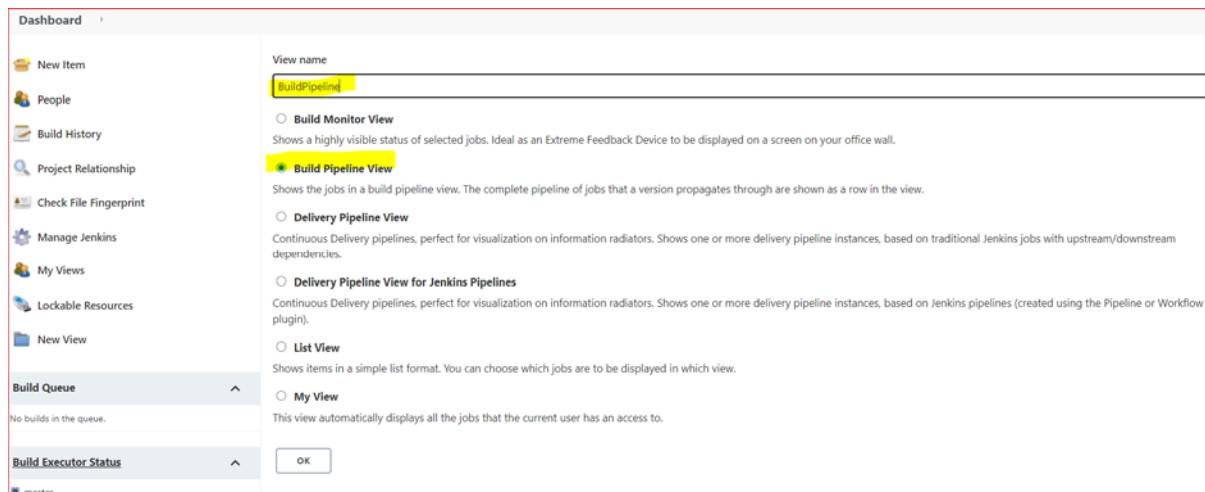
Edit view→

| |
|--|
| <input checked="" type="checkbox"/> Enable start of new pipeline build |
| <input checked="" type="checkbox"/> Enable manual triggers |
| <input checked="" type="checkbox"/> Enable rebuild |
| <input type="checkbox"/> Allow cancelling pipeline builds |
| <input type="checkbox"/> Show avatars |
| <input type="checkbox"/> Show commit messages |



Build Pipeline :

BUILD Pipeline is used by Administrators, Developers



Select 1st / Initial Project , leave the other field as default

Upstream / downstream config

Select Initial Job

DevProject **Select the 1st /Initial Project**

Trigger Options

Build Cards

Standard build card

Use the default build cards

Restrict triggers to most recent successful builds

Yes No

Always allow manual trigger on pipeline steps

Yes No

Display Options

No Of Displayed Builds

1

Build Pipeline is shown in Separate Segregated Page for View ., but the Delivery Pipeline show with in a part of the Jenkins console.

The build shows the Last build information only.

Build Pipeline

Pipeline #201 DevProject #200 Testproject #199 Prodproject

Last build information for each pipeline:

- Pipeline #201 DevProject: Feb 24, 2021 2:09:31 AM, 11 ms, admin
- #200 Testproject: Feb 24, 2021 2:09:40 AM, 21 ms
- #199 Prodproject: Feb 24, 2021 2:08:50 AM, 13 ms

To view multiple / more than one view –

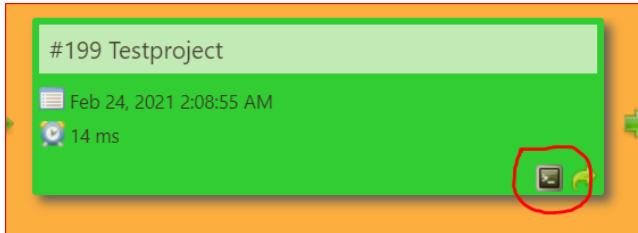
Click configure button

The output as

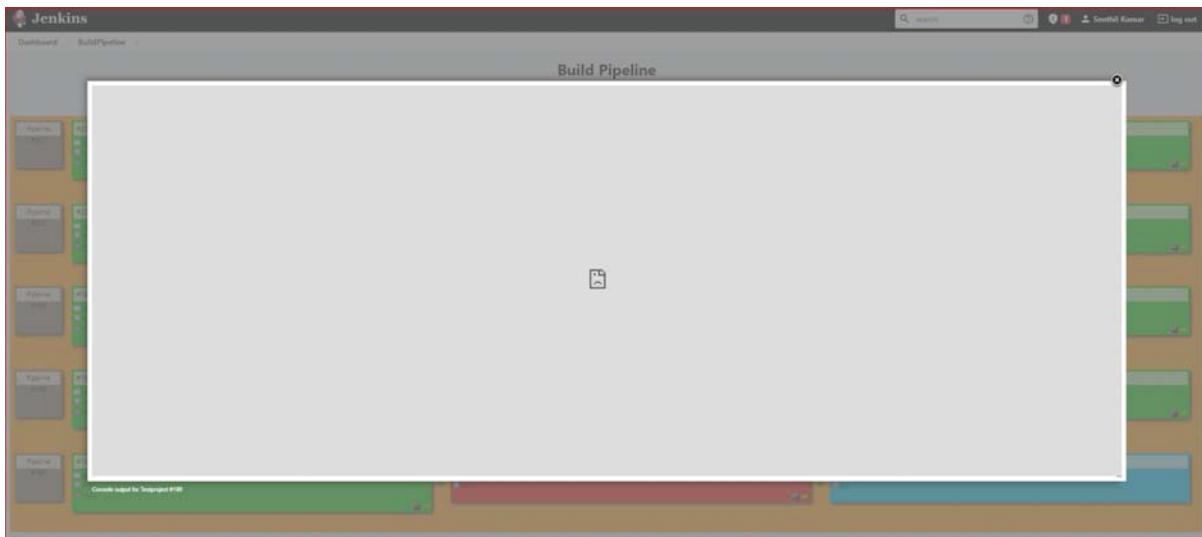


To view the Error





Error on Display

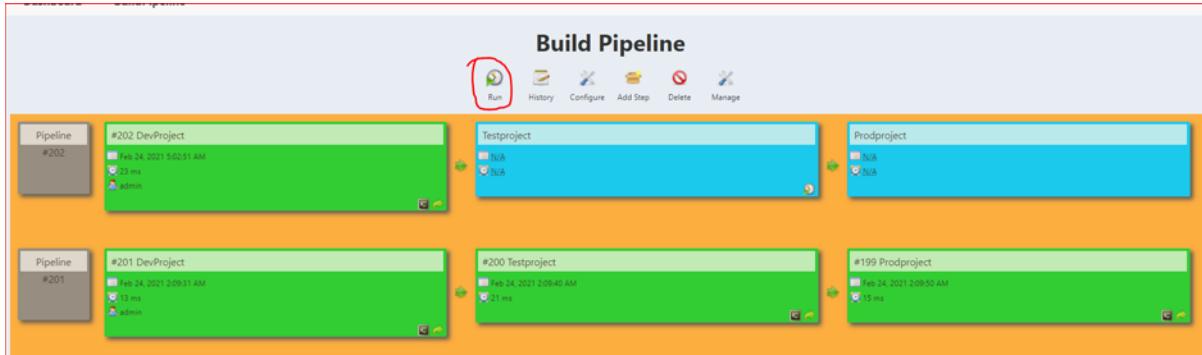


Select configure → console output link style -->New window

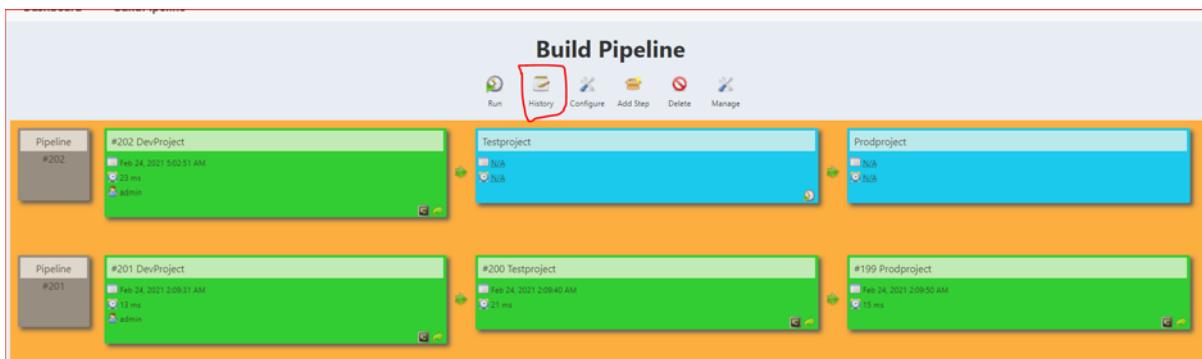
A screenshot of the Jenkins configuration interface for a job. The top navigation bar shows 'Dashboard > BuildPipeline > Testproject > #196'. On the left, there's a sidebar with links like 'Back to Project', 'Status', 'Changes', 'Console Output' (which is selected and highlighted in grey), 'View as plain text', 'Edit Build Information', and 'Delete build #196'. The main content area is titled 'Console Output' and contains the build log. Above the log, there's a dropdown menu labeled 'Console Output Link Style' with options: 'Lightbox' (disabled), 'New Window' (selected and highlighted in blue), and 'This Window'.

A screenshot of a Jenkins job page for 'Testproject #196'. The top navigation bar is identical to the previous screenshot. The sidebar on the left has the 'Console Output' link selected. The main content area shows the 'Console Output' section with the build log. The 'View as plain text' link in the sidebar is highlighted with a red box.

Run / Re-Run the Project



History for old / past project builds.



Output as

Build History of BuildPipeline

This history is not guaranteed to include all subtasks executed on the node, e.g. Jenkins Pipeline subtasks will not be displayed.

| Date | Build | Time Since | Status |
|--------|--|------------|--------|
| Feb 22 | Prodproject #199 Testproject #200 DevProject #201 Prodproject #198 Testproject #199 DevProject #200 | 2hr | stable |
| Feb 23 | | 3hr | |
| Feb 24 | Prodproject #200 Testproject #201 DevProject #202 | 5hr | stable |
| Feb 25 | | 6hr | |
| Feb 26 | | 7hr | |
| Feb 27 | | 8hr | |

Build History

| Build | Time Since | Status |
|------------------|--------------|--------|
| Prodproject #200 | 4 min 31 sec | stable |
| Testproject #201 | 4 min 41 sec | stable |
| DevProject #202 | 4 min 46 sec | stable |

| | | | | |
|--|----------------|-------------|--------|--|
| | Prodproject #2 | 1 day 14 hr | stable | |
| | DevProject #3 | 1 day 14 hr | stable | |
| | Testproject #2 | 1 day 14 hr | stable | |
| | DevProject #2 | 1 day 14 hr | stable | |
| | Prodproject #1 | 1 day 14 hr | stable | |
| | Testproject #1 | 1 day 14 hr | stable | |
| | DevProject #1 | 1 day 14 hr | stable | |

Icon: S M L Legend Atom feed for all Atom feed for failures Atom feed for just latest builds

Pipeline analysis are used to Root case analysis (RCA) of any issues occurred, and use to avoid unwanted time waste periodically.

Build Monitor View:

- To view any individual projects
- No sequential order needed
- View the builds which are may segregate , separate view

Select Projects to view

Jobs

- DevProject
- Prodproject
- Test
- Testproject
- TestSlaveProject

Other fields are default

In Jenkins we can do Project Monitoring view also using Build Monitoring View Plugins

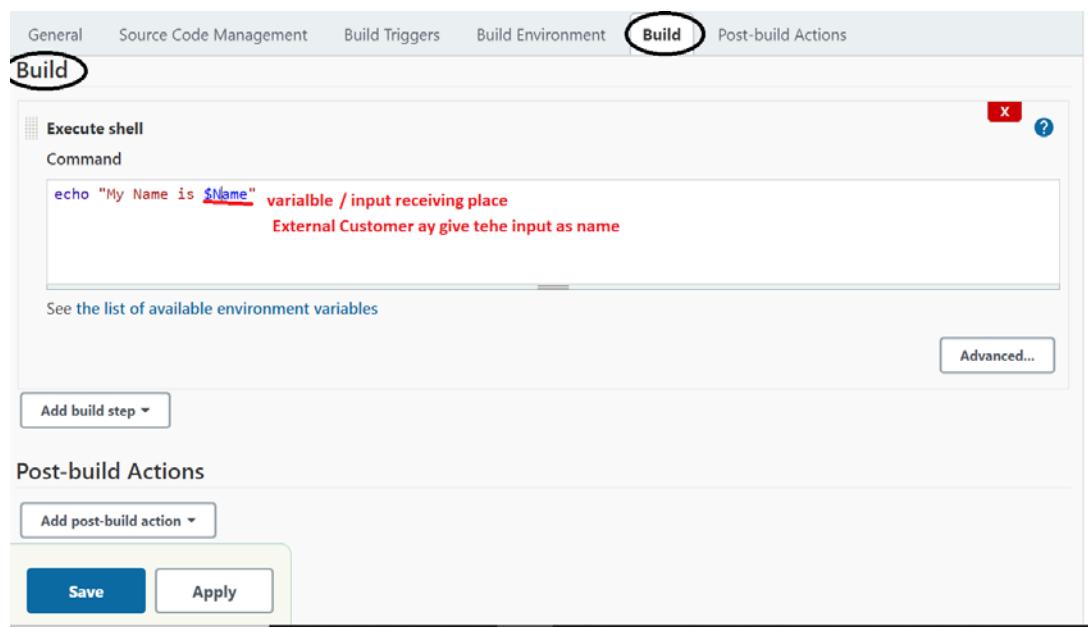
Parameterized Job: → Accepting inputs and execute

-→ Working with inputs /instructions.

Parameterized Jobs are nothing but, getting the inputs from the Administrator / Developers / Users and then running / executing the job in better manner.

Creating Parameterized Jobs

New item → Freestyle project → Parajobs



\$name → is the input text receiving location

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

String Parameter

Name

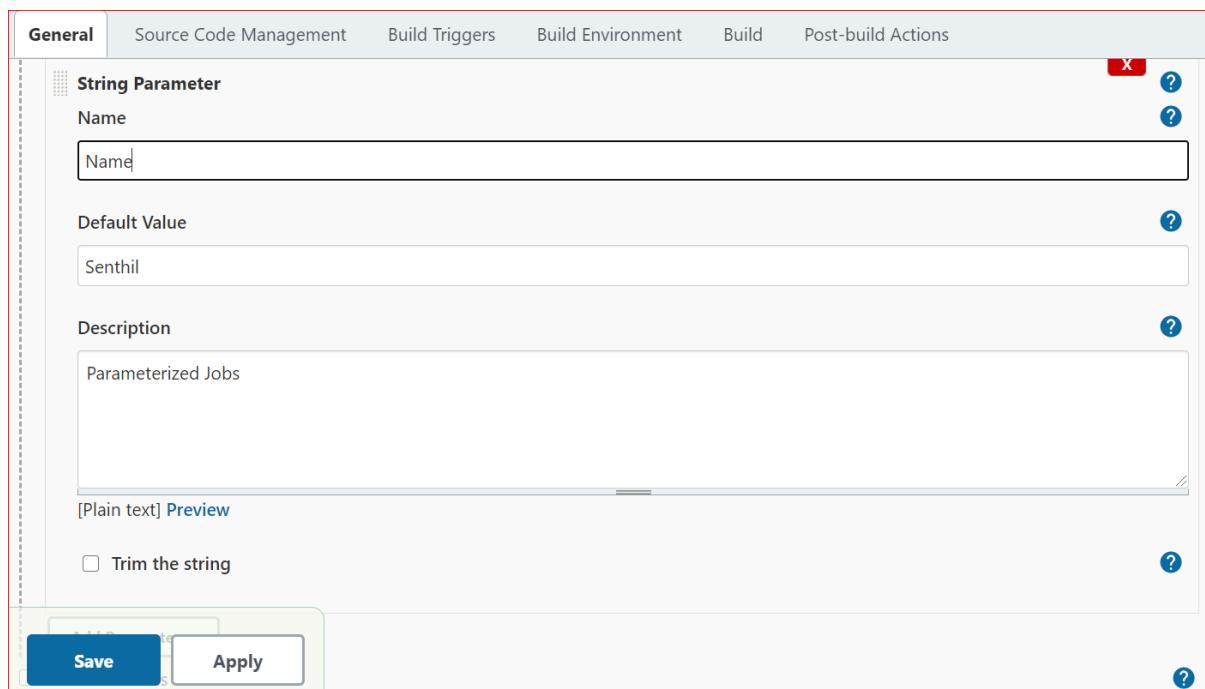
Default Value

Description

[Plain text] [Preview](#)

Trim the string

Save **Apply**



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

String Parameter

Name ✓

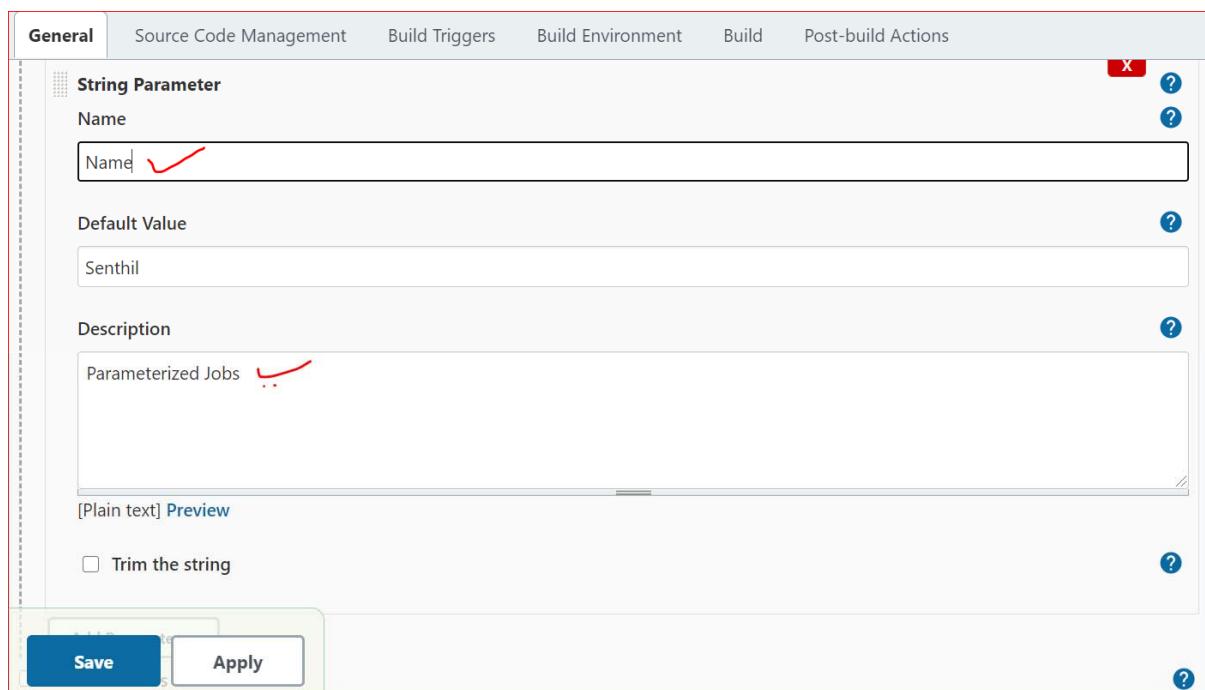
Default Value

Description ✓

[Plain text] [Preview](#)

Trim the string

Save **Apply**



By default, value as "Senthil"

Project Para Jobs

This build requires parameters:

Name

Senthil

Parameterized Jobs

Build



Console Output

Started by user Senthil Kumar

Running as SYSTEM

Building on master in workspace /var/lib/jenkins/workspace/Para Jobs

[Para Jobs] \$ /bin/sh -xe /tmp/jenkins1021182514182739328.sh

+ echo My Name is Senthil

My Name is Senthil

Finished: SUCCESS

Getting Input from User:

Project Para Jobs

This build requires parameters:

Name

Siva Chandra Kumaar

Parameterized Jobs

Build



Console Output

```
Started by user Senthil Kumar
Running as SYSTEM
Building on master in workspace /var/lib/jenkins/workspace/Para Jobs
[Para Jobs] $ /bin/sh -xe /tmp/jenkins440189915915546021.sh
+ echo My Name is Siva chandra kumaar
My Name is Siva chandra kumaar
Finished: SUCCESS
```

Assignment #1 – changed Password **stored in Jenkins, how to retrace in readable format.**

After add and save new userid and password the initial adminpassword is not available in given directory & file.

```
root@ip-172-31-45-183:~# cat /var/lib/jenkins/secrets/initialAdminPassword
692f749e4e5640c891c8f0f9ec5579ab
root@ip-172-31-45-183:~# cat /var/lib/jenkins/secrets/initialAdminPassword
cat: /var/lib/jenkins/secrets/initialAdminPassword: No such file or directory
root@ip-172-31-45-183:~# ■
```

Where is the changed Password stored in Jenkins, how to retrace in readable format.

```
root@ip-172-31-45-183:/var/lib/jenkins/users/admin_3679438262644075150# ls
config.xml
```

```
root@ip-172-31-45-183:/var/lib/jenkins/users/admin_3679438262644075150# cat config.xml
hashed password
```

```
<hudson.security.HudsonPrivateSecurityRealm_-Details>
<passwordHash>#jbcrypt:$2a$10$1YSq/M3wVtEhgWYr0wb.OudPbOxSvTf4Z6oUo0hI6sgSc72mOPLZ2</passwordHash>
```

```
hashed_pw='jbcrypt:$2a$10$1YSq/M3wVtEhgWYr0wb.OudPbOxSvTf4Z6oUo0hI6sgSc72mOPLZ2='
passwd = hudson.util.Secret.decrypt(hashed_pw)
println(passwd)
```

or

```
hashed_pw='jbcrypt:$2a$10$1YSq/M3wVtEhgWYr0wb.OudPbOxSvTf4Z6oUo0hI6sgSc72mOPLZ2='
passwd = hudson.util.Secret.decrypt(hashed_pw)
println(passwd)
```

 **Script Console**

Type in an arbitrary [Groovy script](#) and execute it on the server. Useful for trouble-shooting and diagnostics. Use the 'println' command to see the output (if you use `System.out`, it will go to the server's stdout, which is harder to see.) Example:

```
println(Jenkins.instance.pluginManager.plugins)
```

All the classes from all the plugins are visible. `jenkins.*`, `jenkins.model.*`, `hudson.*`, and `hudson.model.*` are pre-imported.

```
1 hashed_pwe='$2a$10$1Y5q/H3wVtEhgkYr0wbzOudPb0x5vTf426oUo0hI6sgSc72mQPLZ2='
2 passwd = hudson.util.Secret.decrypt(hashed_pwe)
3 println(passwd)
```

Run

Result

```
null
```

Assignment #2 – To find Jenkins version in CLI Mode.

```
java -jar jenkins-cli.jar -s http://localhost:8080/ version

Error: Unable to access jarfile jenkins-cli.jar

/var/lib/jenkins# wget http://updates.jenkins-ci.org/download/war/2.8/jenkins.war
```

```
root@ip-172-31-45-183:/var/lib/jenkins# cp /usr/lib/jenkins/jenkins.war /downloads/jenkins.war.previous.version
cp: cannot stat '/usr/lib/jenkins/jenkins.war': No such file or directory
root@ip-172-31-45-183:/var/lib/jenkins# wget http://updates.jenkins-ci.org/download/war/2.8/jenkins.war
--2021-02-17 19:28:12-- http://updates.jenkins-ci.org/download/war/2.8/jenkins.war
Resolving updates.jenkins-ci.org (updates.jenkins-ci.org)... 52.202.51.185
Connecting to updates.jenkins-ci.org (updates.jenkins-ci.org)|52.202.51.185|:80... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://get.jenkins.io/war/2.8/jenkins.war [following]
--2021-02-17 19:28:13-- https://get.jenkins.io/war/2.8/jenkins.war
Resolving get.jenkins.io (get.jenkins.io)... 52.167.253.43
Connecting to get.jenkins.io (get.jenkins.io)|52.167.253.43|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://fallback.get.jenkins.io/war/2.8/jenkins.war [following]
--2021-02-17 19:28:14-- https://fallback.get.jenkins.io/war/2.8/jenkins.war
Resolving fallback.get.jenkins.io (fallback.get.jenkins.io)... 52.167.253.43
Connecting to fallback.get.jenkins.io (fallback.get.jenkins.io)|52.167.253.43|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 68816058 (66M)
Saving to: 'jenkins.war'

jenkins.war          100%[=====] 65.63M 5.21MB/s   in 20s

2021-02-17 19:28:34 (3.37 MB/s) - 'jenkins.war' saved [68816058/68816058]
```

java -jar jenkins-cli.jar -s http://13.115.186.21:8080/ -version

```
ubuntu@ip-172-31-3-119:~/jenkins$ java -jar jenkins-cli.jar -s http://13.115.186.21:8080/ -version
Error: Unable to access jarfile jenkins-cli.jar
ubuntu@ip-172-31-3-119:~/jenkins$ █
```

Jenkins.cli is not fund in directory.. unable to access

Download the Jenkins.cli from Jenkins server

wget http://13.115.186.21:8080/jnlpJars/jenkins-cli.jar

```
root@ip-172-31-37-42:/var/lib/jenkins# wget http://13.115.186.21:8080/jnlpJars/jenkins-cli.jar
--2021-02-24 19:23:42-- http://13.115.186.21:8080/jnlpJars/jenkins-cli.jar
Connecting to 13.115.186.21:8080... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3417571 (3.3M) [application/java-archive]
Saving to: 'jenkins-cli.jar.2'

jenkins-cli.jar.2          100%[=====] 3.26M  ---KB/s   in 0.03s

2021-02-24 19:23:42 (107 MB/s) - 'jenkins-cli.jar.2' saved [3417571/3417571]
root@ip-172-31-37-42:/var/lib/jenkins# █
```

```
root@ip-172-31-37-42:/var/lib/jenkins# ls -la
total 97520
drwxr-xr-x 16 jenkins jenkins 4096 Feb 24 19:23 .
drwxr-xr-x 44 root root 4096 Feb 21 14:25 ..
drwxr-xr-x 3 jenkins jenkins 4096 Feb 21 14:32 .cache
-rw-r--r-- 1 jenkins jenkins 6249 Feb 24 17:23 config.xml
-rw-r--r-- 1 jenkins jenkins 3366 Feb 21 17:43 credentials.xml
drwxr-xr-x 3 jenkins jenkins 4096 Feb 24 02:37 fingerprints
drwxr-xr-x 3 jenkins jenkins 4096 Feb 21 14:32 groovy
-rw-r--r-- 1 jenkins jenkins 156 Feb 24 13:19 hudson.model.UpdateCenter.xml
-rw-r--r-- 1 jenkins jenkins 1243 Feb 21 16:34 hudson.plugins.emaiext.ExtendedEmailPublisher.xml
-rw-r--r-- 1 jenkins jenkins 370 Feb 21 14:31 hudson.plugins.git.GitTool.xml
-rw----- 1 jenkins jenkins 1712 Feb 21 14:25 identity.key.enc
drwxr-xr-x 3 jenkins jenkins 4096 Feb 21 14:25 java
-rw-r--r-- 1 root root 3417571 Feb 21 14:25 jenkins-cli.jar ✓
-rw-r--r-- 1 root root 3417571 Feb 21 14:25 jenkins-cli.jar.1
-rw-r--r-- 1 root root 3417571 Feb 21 14:25 jenkins-cli.jar.2
-rw-r--r-- 1 jenkins jenkins 5 Feb 24 13:19 jenkins.install.InstallUtil.lastExecVersion
-rw-r--r-- 1 jenkins jenkins 5 Feb 21 14:34 jenkins.install.UpgradeWizard.state
-rw-r--r-- 1 jenkins jenkins 184 Feb 21 14:34 jenkins.model.JenkinsLocationConfiguration.xml
-rw-r--r-- 1 jenkins jenkins 171 Feb 21 14:25 jenkins.telemetry.Correlator.xml
-rw-r--r-- 1 root root 20643629 Feb 24 18:41 jenkins.war
-rw-r--r-- 1 root root 68816058 Mar 9 2020 jenkins.war.1
drwxr-xr-x 8 jenkins jenkins 4096 Feb 24 17:41 jobs
-rw-r--r-- 1 jenkins jenkins 0 Feb 24 13:19 laststarted
drwxr-xr-x 4 jenkins jenkins 4096 Feb 21 17:53 logs
-rw-r--r-- 1 jenkins jenkins 907 Feb 24 13:19 nodeMonitors.xml
drwxr-xr-x 3 jenkins jenkins 4096 Feb 21 17:53 nodes
-rw-r--r-- 1 jenkins jenkins 48 Feb 24 19:24 owner
drwxr-xr-x 88 jenkins jenkins 12288 Feb 22 14:54 plugins
-rw-r--r-- 1 jenkins jenkins 131 Feb 24 18:19 queue.xml
-rw-r--r-- 1 jenkins jenkins 131 Feb 24 05:18 queue.xml.bak
-rw-r--r-- 1 jenkins jenkins 64 Feb 21 14:25 secret.key
-rw-r--r-- 1 jenkins jenkins 0 Feb 21 14:25 secret.key.not-so-secret
drwxr-xr-x 4 jenkins jenkins 4096 Feb 21 17:53 secrets
drwxr-xr-x 2 jenkins jenkins 4096 Feb 24 13:20 updates
drwxr-xr-x 2 jenkins jenkins 4096 Feb 21 14:25 userContent
drwxr-xr-x 3 jenkins jenkins 4096 Feb 21 14:34 users
drwxr-xr-x 2 jenkins jenkins 4096 Feb 21 14:31 workflow-libs
drwxr-xr-x 7 jenkins jenkins 4096 Feb 24 18:16 workspace
root@ip-172-31-37-42:/var/lib/jenkins#
```

```
root@ip-172-31-37-42:/var/lib/jenkins# java -jar jenkins-cli.jar -s http://13.115.186.21:8080/ -version
Version: 2.280
root@ip-172-31-37-42:/var/lib/jenkins#
```

Jenkins Version : 2.280

Cross check with Console version

Tools and Actions



Reload Configuration from Disk

Discard all the loaded data in memory and reload everything from file system. Useful when you modified config files directly on disk.



Jenkins CLI

Access/manage Jenkins from your shell, or from your script.



Script Console

Executes arbitrary script for administration/troubleshooting/diagnostics.



Prepare for Shutdown

Stops executing new builds, so that the system can be eventually shut down safely.

REST API

Jenkins 2.280

Assignment #3 Email Configuration on Jenkins

Email Configuration:

Step 1 -- Start the Jenkins and login into the console

Step 2 -- Click on Manage Jenkins --> Configure System --> Go down to see "E-mail Notification"

Step 3 -- Configure the details

1. smtp.gmail.com
2. Click advanced and enable SMTP Authentication UserName/Password.
3. SMTP Port - 465
4. Use SSL - Enable
5. Add test recipient email id too
6. Charset - UTF-8

I

Note: Enable "Allow Less Secure App - ON" from your GMAIL ACCT

The screenshot shows the Jenkins 'Email Configuration' page. It has fields for User Name (bharathisen@gmail.com), Password (redacted), Use SSL (checked), Use TLS (unchecked), SMTP Port (465), Reply-To Address (redacted), Charset (UTF-8), and a Test configuration section with a recipient (bharathisen@gmail.com) and a 'Test configuration' button.

The screenshot shows the Jenkins 'Email Configuration' page after a failed test configuration attempt. The error message is: "Failed to send out e-mail" and "javax.mail.AuthenticationFailedException: 535-5.7.8 Username and Password not accepted. Learn more at 535 5.7.8 https://support.google.com/mail/?p=BadCredentials jx20sm7815350pb30 - gsmtp". The stack trace is as follows:

```

at com.sun.mail.smtp.SMTPTransport$Authenticator.authenticate(SMTPTransport.java:947)
at com.sun.mail.smtp.SMTPTransport.authenticate(SMTPTransport.java:858)
at com.sun.mail.smtp.SMTPTransport.protocolConnect(SMTPTransport.java:762)
at javax.mail.Service.connect(Service.java:364)
at javax.mail.Service.connect(Service.java:222)
at javax.mail.Service.connect(Service.java:171)
at javax.mail.Transport.send0(Transport.java:230)
at javax.mail.Transport.send(Transport.java:100)
at hudson.tasks.Mailer$DescriptorImpl.doSendTestMail(Mailer.java:716)
at java.lang.invoke.MethodHandle.invokeWithArguments(MethodHandle.java:627)
at org.kohsuke.stapler.Function$MethodFunction.invoke(Function.java:396)
at org.kohsuke.stapler.Function$InstanceFunction.invoke(Function.java:408)
at org.kohsuke.stapler.interceptor.RequirePOST$Processor.invoke(RequirePOST.java:77)
at org.kohsuke.stapler.PreInvokeInterceptedFunction.invoke(PreInvokeInterceptedFunction.java:26)
at org.kohsuke.stapler.Function.bindAndInvoke(Function.java:212)
at org.kohsuke.stapler.Function.bindAndInvokeAndServeResponse(Function.java:145)
at org.kohsuke.stapler.MetaClass$11.dispatch(MetaClass.java:536)
at org.kohsuke.stapler.NameBasedDispatcher.dispatch(NameBasedDispatcher.java:58)
at org.kohsuke.stapler.Stapler.tryInvoke(Stapler.java:766)

```

1. [Two Step Verification should be turned off.](#)
2. [Allow Less Secure App\(should be turned on\).](#)
3. <https://stackoverflow.com/questions/39417636/javax-mail-authenticationfailedexception-534-5-7-14-https-accounts-google-co>

Turn off 2-Step Verification

Your account is more secure when you need a password and a verification code to sign in. If you remove this extra layer of security, you will only be asked for a password when you sign in. It might be easier for someone to break into your account.

Computer Android iPhone & iPad

1. Open your [Google Account](#).
2. In the "Security" section, select 2-Step Verification. You might need to sign in.
3. Select Turn off.
4. A pop-up window will appear to confirm that you want to turn off 2-Step Verification. Select Turn off.

Destroy all the backup codes that you've saved for signing in to this account.

The screenshot shows the 'Security' section of a Google Account. On the left, there's a sidebar with links: Home, Personal Info, Data & personalization, **Security** (which is highlighted with a red checkmark), People & sharing, Payments & subscriptions, and About. The main content area is titled 'Signing in to Google' and includes sections for Password (Last changed Jan 7, 2019), Use your phone to sign in (Off), 2-Step Verification (Off), and App passwords (None). An illustration of a smartphone and a laptop with a key icon is visible in the background.

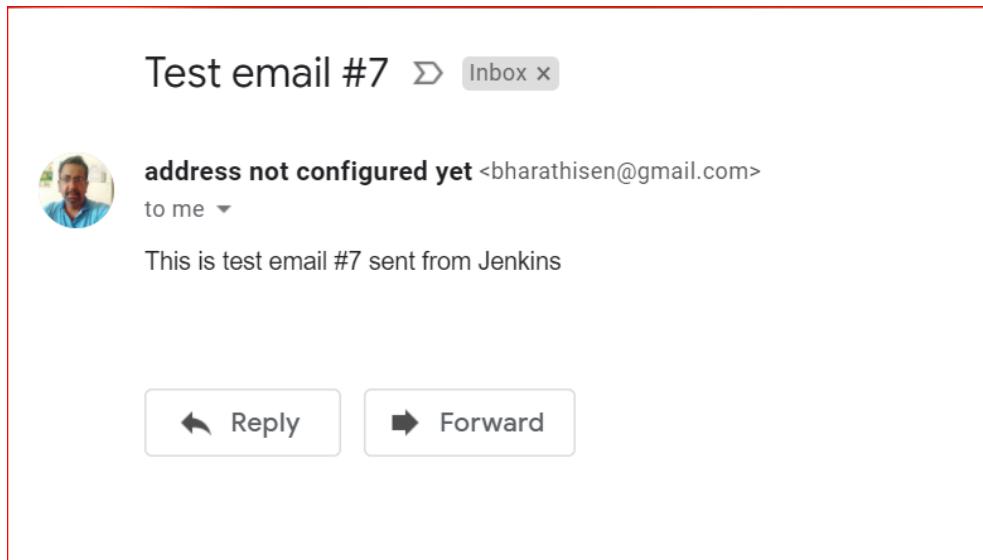
[Allow Less Secure App\(should be turned on\).](#)

← Less secure app access

Some apps and devices use less secure sign-in technology, which makes your account vulnerable. You can turn off access for these apps, which we recommend, or turn it on if you want to use them despite the risks. Google will automatically turn this setting OFF if it's not being used. [Learn more](#)

Allow less secure apps: ON





Test Mail confirmed

Assignment # 4, Jenkins – in Windows ...

The screenshot shows the AWS CloudFormation console. At the top, it displays the AMI details: "Microsoft Windows Server 2019 Base - ami-08e18b2fe66cdf6ab", "Windows", "Free tier eligible", "Microsoft Windows 2019 Datacenter edition. [English]", "Root device type: ebs", "Virtualization type: hvm", "FNA Enabled: Yes", "64-bit (x86)", and a "Select" button.

Below this, the "Instances (1/3) Info" table lists three instances:

| Name | Instance ID | Instance state | Instanc... | Status check |
|------------------------|----------------------|----------------|------------|--------------------------|
| Jenkins-slave | i-084df3c7d61fb45... | Stopped | t2.micro | - |
| Jenkins-windows | i-0e7cb49e9c1444a... | Running | t2.micro | 2/2 checks passed |
| Jenkins | i-07407aeb72017fa9f | Stopped | t2.micro | - |

Below the table, the "Instance: i-0e7cb49e9c1444a11 (Jenkins-windows)" details page is shown. It includes tabs for Details, Security, Networking, Storage, Status checks, Monitoring, and Tags. Under the Details tab, the Instance summary section shows the Instance ID (i-0e7cb49e9c1444a11), Public IPv4 address (18.183.11.152), Private IPv4 address (172.31.3.93), and Instance state (Running).

Instance Created

Windows RDP – Login Details / credentials

Session Manager **RDP client**

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

[Download remote desktop file](#)

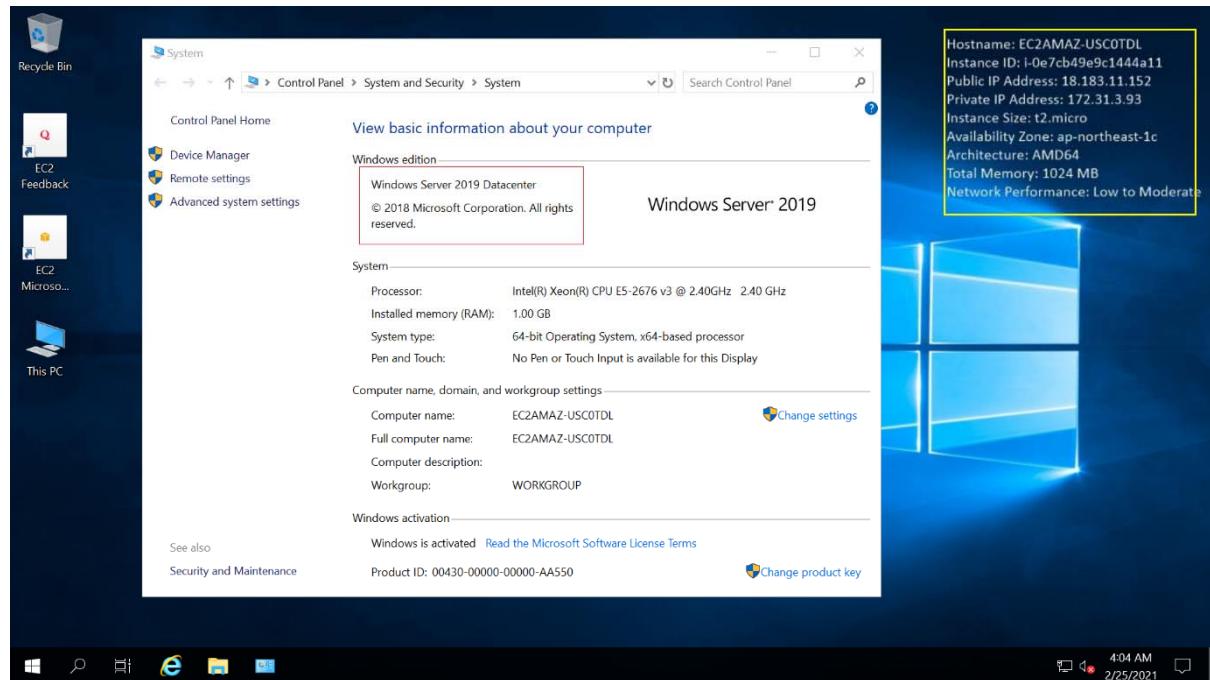
When prompted, connect to your instance using the following details:

| | |
|---|------------------------------------|
| Public DNS | User name |
| <input type="text"/> ec2-18-183-11-152.ap-northeast-1.compute.amazonaws.com | <input type="text"/> Administrator |
| Password | |
| <input type="text"/> bYqEbu&mYzdvwDhpAuiJScovIwiYmi@ | |

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

Windows Remote desktop Screen

Login

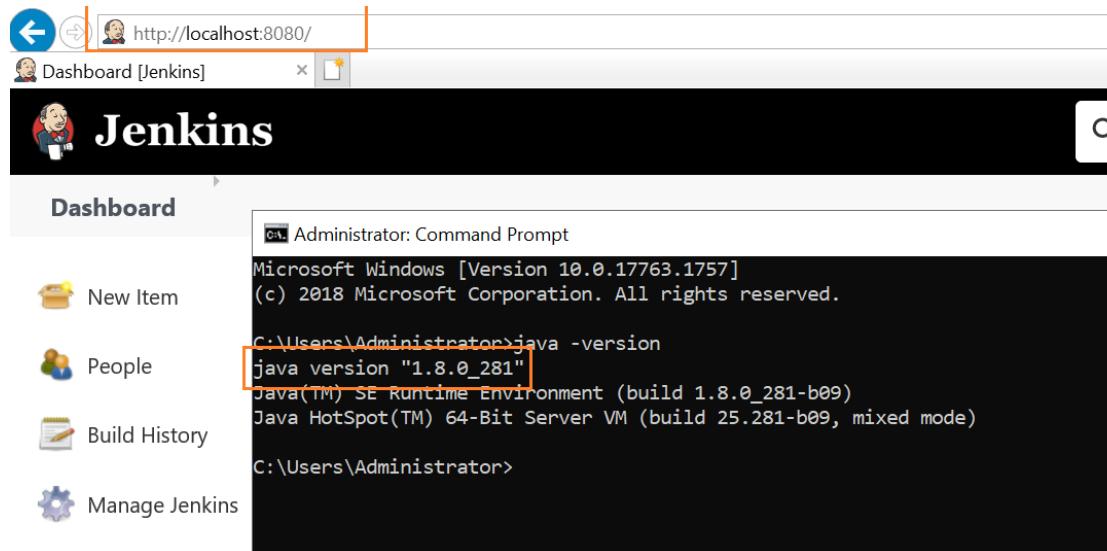


Jenkins installation:

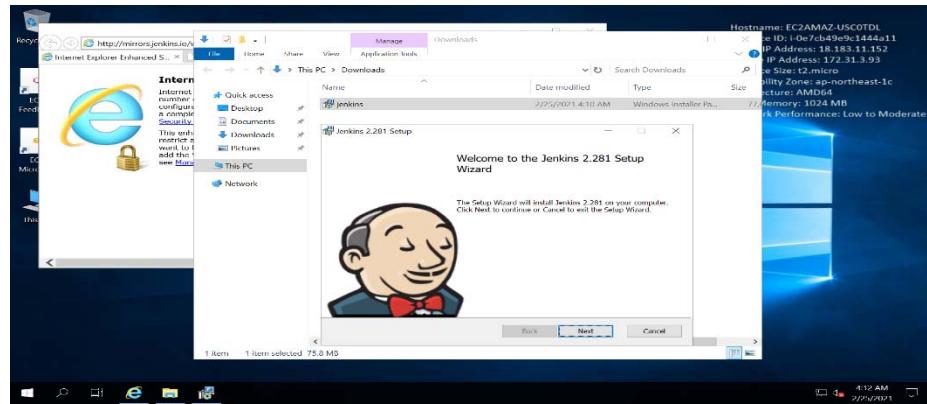
-Pre Requisites : Java 1.08

Jenkins.msi – the Jenkins installation file

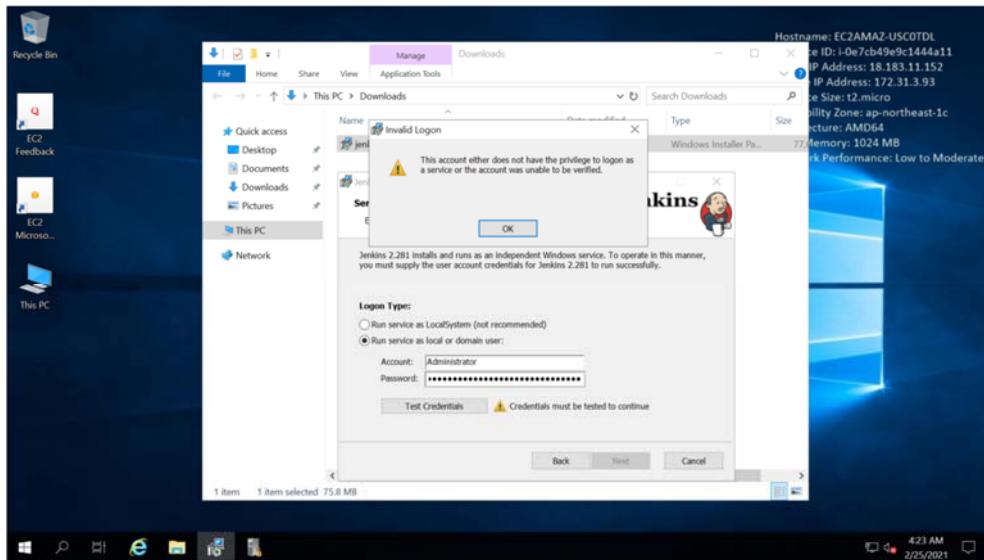
Java installed with default settings



Jenkins Installation

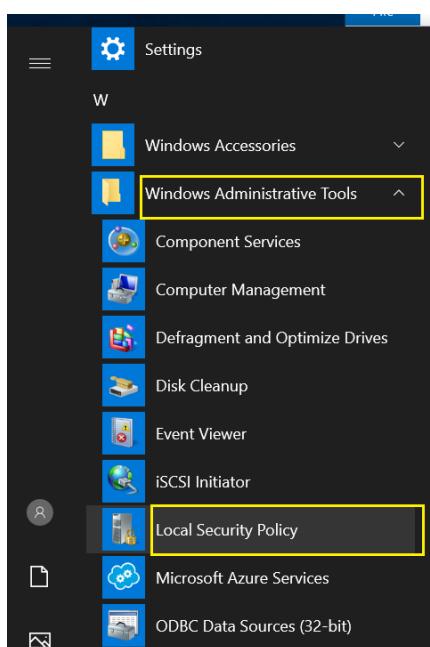


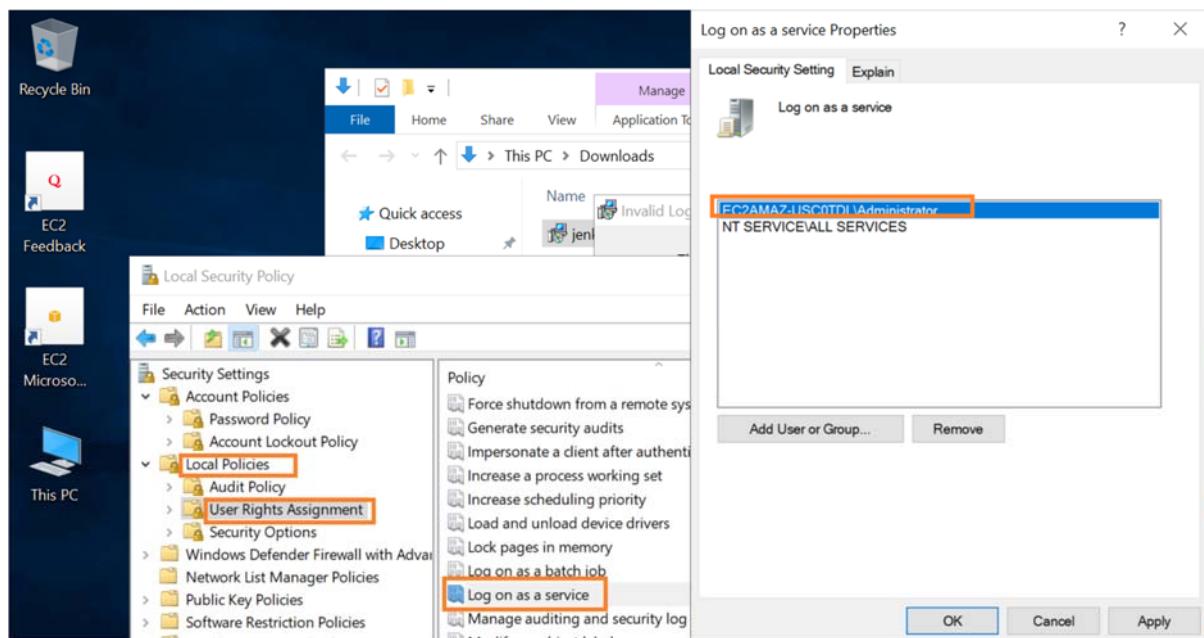
Login Credentials not allowed to login



Credentials enabling.

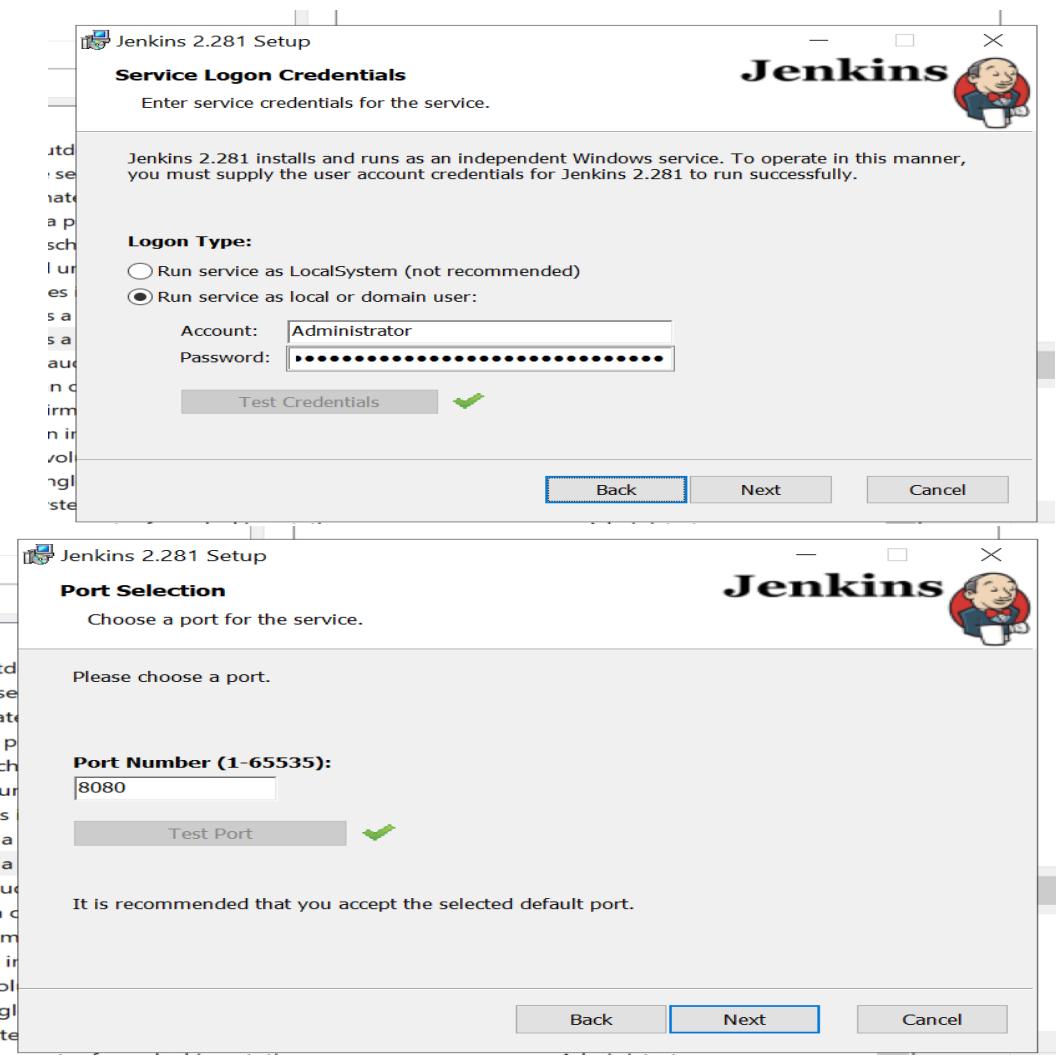
1. Logon to the computer with administrative privileges.
2. Open the **Administrative Tools** and open the **Local Security Policy**
3. Expand **Local Policy** and click on **User Rights Assignment**
4. In the right pane, right-click **Log on as a service** and select properties.
5. Click on the **Add User or Group...** button to add the new user.
6. In the **Select Users or Groups** dialogue, find the user you wish to enter and click **OK**
7. Click **OK** in the **Log on as a service Properties** to save changes.



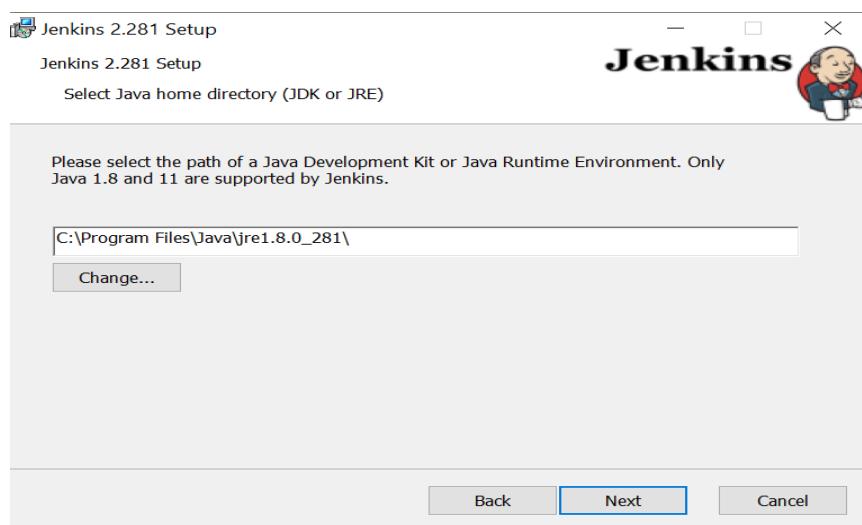


Login credentials enabled.

Login as Administrator , Default Port 8080



Java installation Path





Unlock Jenkins

The screenshot shows a web browser window for "http://localhost:8080/login?from=%2F". The title bar says "Windows". The main content is a "Getting Started" page with the heading "Unlock Jenkins". It instructs the user to copy a password from a file at "C:\Users\Administrator\AppData\Local\Jenkins\.jenkins\secrets\initialAdminPassword". A text input field is provided for "Administrator password". A "Continue" button is at the bottom right. The status bar at the bottom shows "5:57 AM 2/25/2021".

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:

C:\Users\Administrator\AppData\Local\Jenkins\.jenkins\secrets\initialAdminPassword

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

Administrator password

```
*****
```

initialAdminPassword - Notepad
File Edit Format View Help
8fddc933f99041a691ab953e0677508e

Customize Jenkins

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

Install suggested plugins

Install plugins the Jenkins community finds most useful.

Select plugins to install

Select and install plugins most suitable for your needs.

Getting Started

| Folders | OWASP Markup Formatter | Build Timeout | Credentials Binding |
|-------------|------------------------|-----------------------------------|----------------------|
| Timestamper | Workspace Cleanup | Ant | Gradle |
| Pipeline | GitHub Branch Source | Pipeline: GitHub Groovy Libraries | Pipeline: Stage View |
| Git | SSH Build Agents | Matrix Authorization Strategy | PAM Authentication |
| LDAP | Email Extension | Mailer | |

EXAMPLED
** Trilead API
OWASP Markup Formatter
** Structs
** Pipeline: Step API
** Token Macro
Build Timeout
** Credentials

** - required dependency

Jenkins 2.281

Administrator Login 1st screen

Getting Started

Create First Admin User

Username: admin

Password:

Confirm password:

Full name: Senthil kumar

E-mail address: bharathisen@gmail.com

Jenkins 2.281 Skip and continue as admin Save and Continue

Jenkins Console screen welcomes you

The screenshot shows the Jenkins dashboard running on a Windows operating system. The browser address bar displays "http://localhost:8080". The dashboard features a dark header with the Jenkins logo and a user profile for "Senthil kumar". Below the header is a search bar and a "log out" link. The main content area is titled "Welcome to Jenkins!" and includes sections for "Start building your software project" (with a "Create a job" button), "Set up a distributed build" (with "Set up an agent" and "Configure a cloud" buttons), and a link to "Learn more about distributed builds". On the left side, there's a sidebar with links for "New Item", "People", "Build History", "Manage Jenkins", "My Views", "Lockable Resources", and "New View". Under "Build Queue", it says "No builds in the queue". At the bottom, the taskbar shows various icons for Windows applications like File Explorer, Task Manager, and Control Panel.

Installed Jenkins in Windows successfully installed.

Assignment 5-Master – Slave

Connect with other operating systems as slave

Master → Ubuntu server

Slave -- > windows

Go to Jenkins dashboard -> Manage Jenkins -> Manage Nodes.

The screenshot shows the Jenkins System Configuration page. On the left sidebar, under 'Manage Jenkins', the 'New Node' option is highlighted. In the main content area, there is a section titled 'Manage Nodes and Clouds' with a sub-section for 'Permanent Agent'. The 'Node name' field contains 'Slave- windows'. The 'Permanent Agent' radio button is selected. A red arrow points to the 'OK' button at the bottom right of the configuration form.