

**< CONTINUOUS INTEGRATION & DELIVERY USING JENKINS,
NEXUS, SONARQUBE & SLACK OF JAVA WEB APPLICATION >**

IMPLEMENTATION PLAN

VERSION 1.0 | 07/06/2022 – 08/06/2022

Purpose

This section, describe the Continuous Integration Using Jenkins, Nexus, Sonarqube & Slack.

Project Scenario

- Agile SDLC.
- Developer makes regular code changes.
- These commits need to be regularly Build and Tested.
- Build and Release Team will do this job.
- Or Developer job to merge and integrate code.

Problem Statement

- PACKAGE/SOFTWARE/ARTIFACT Deployment on server.
- Software testing & integration testing after deployment.
- Test report gets evaluated and approved each time for production deployment.
- In Agile SDLC, there will be frequent code changes.
- Manual code deployment is time consuming.
- Involves task assignment/ticketing/approvals.
- Dependency on Ops & Build & Release Team.

Solution

- Build & test for every commit.
- Automated process.
- Notify for every build status.
- Fix code if bugs or error found instantly rather than waiting.

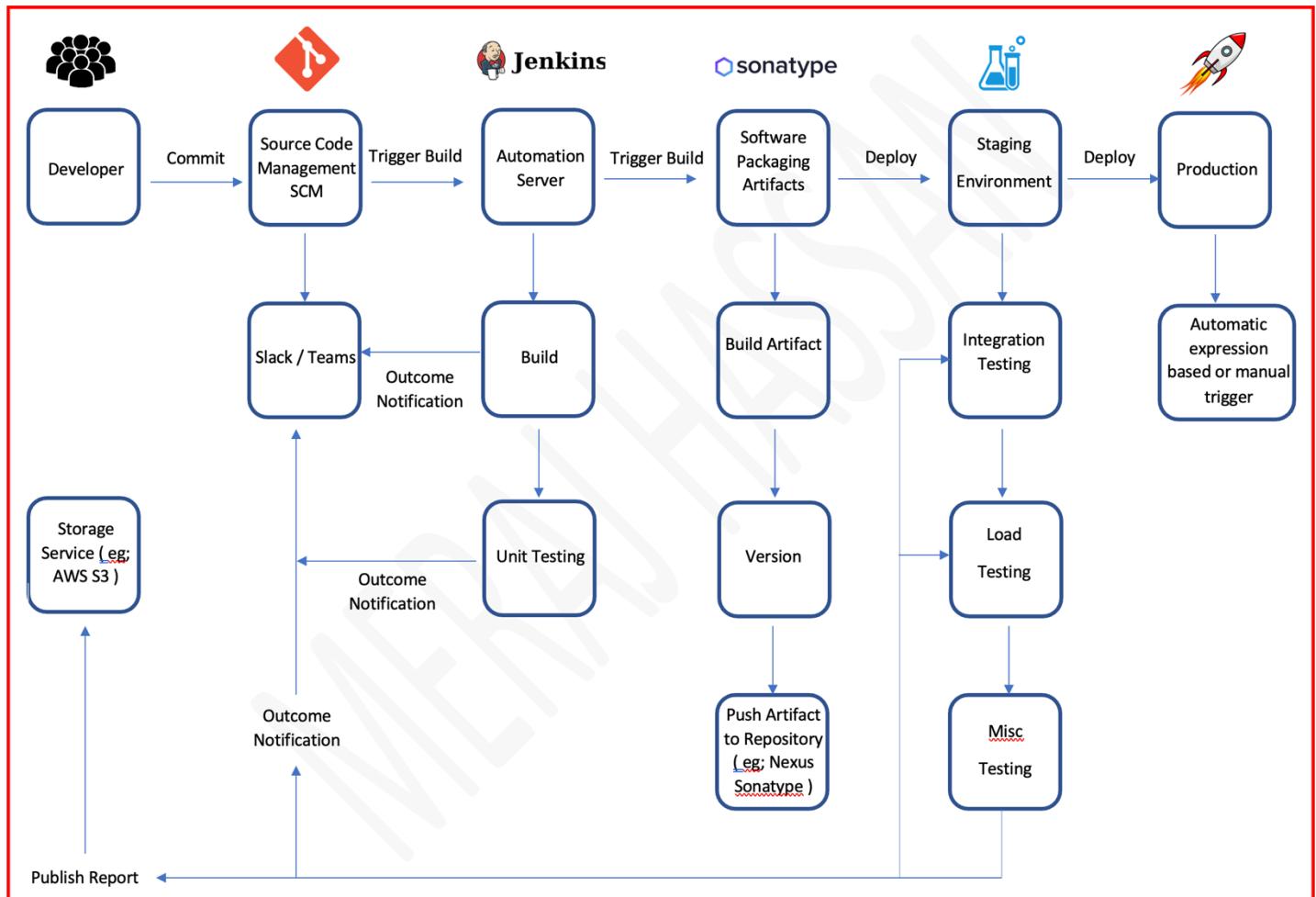
Tools

- Jenkins – Continuous Integration Server
- GIT – Version Control System
- Maven – Build Tool
- CheckStyle – Code Analysis Tool
- Slack – Notification
- Nexus – Artifact/Software Repository
- Sonarqube – Code Analysis Server
- Tomcat – Java Web Application Server
- Selenium – Software Testing
- Windows Server – Slave of Jenkins for software test suit
- AWS – EC2 Resource

Objective

- Fault Isolation.
- Short MTTR
- Fast turnaround on feature changes
- Less disruptive

Architecture Continuous Integration Pipeline



Flow of Execution

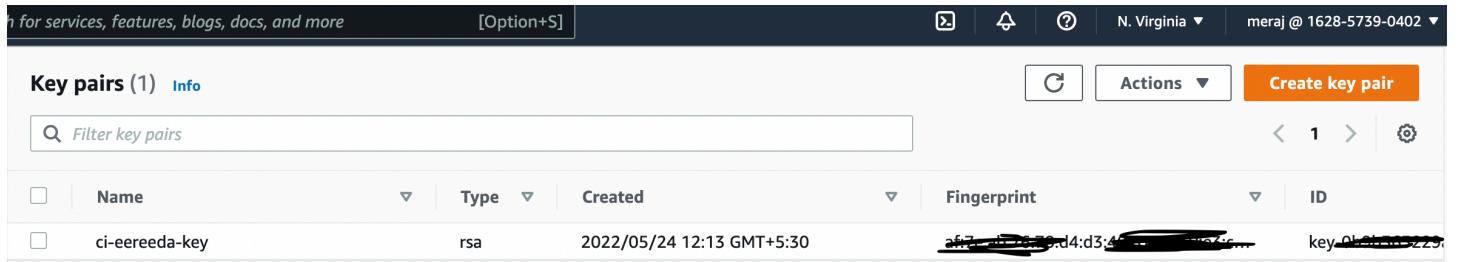
- *Login to AWS Account*
- *Create Login Key*
- *Create Security Group*
 - *Jenkins*
 - *Nexus*
 - *Sonar*
- *Create EC2 instance with user data*
 - *Jenkins*
 - *Sonarqube*
 - *Nexus*
- *Jenkins post installation*
- *Nexus repository setup*
 - *3 Repos*
- *Sonarqube Post Installation*
- *Jenkins Steps*
 - *Build Job*
 - *Setup Slack Notification*
 - *Checkstyle code analysis job*
 - *Setup Sonar integration*
 - *Sonar Code analysis job*
 - *Artifact upload job*
- *Connect all job together with BuildPipeline*
- *Set automatic build trigger*
- *Test with GIT*
- *Create SG*
 - *Windows Server*
 - *Tomcat & Backend Server*
- *Setup tomcat & backend server on ec2 with userdata*
- *Create Jenkins job to deploy artifact to Staging*
- *Add windows node as a slave to Jenkins*
- *Create job to run software test(Selenium) from windows server*
- *Deploy artifact to Production Tomcat Server*
- *Connect all the jobs with Build Pipeline*
- *Clean-up*

Prerequisite

1. *AWS Account*
2. *GITHUB Account*
3. *IntelliJ*

1. Security Group & Keypairs

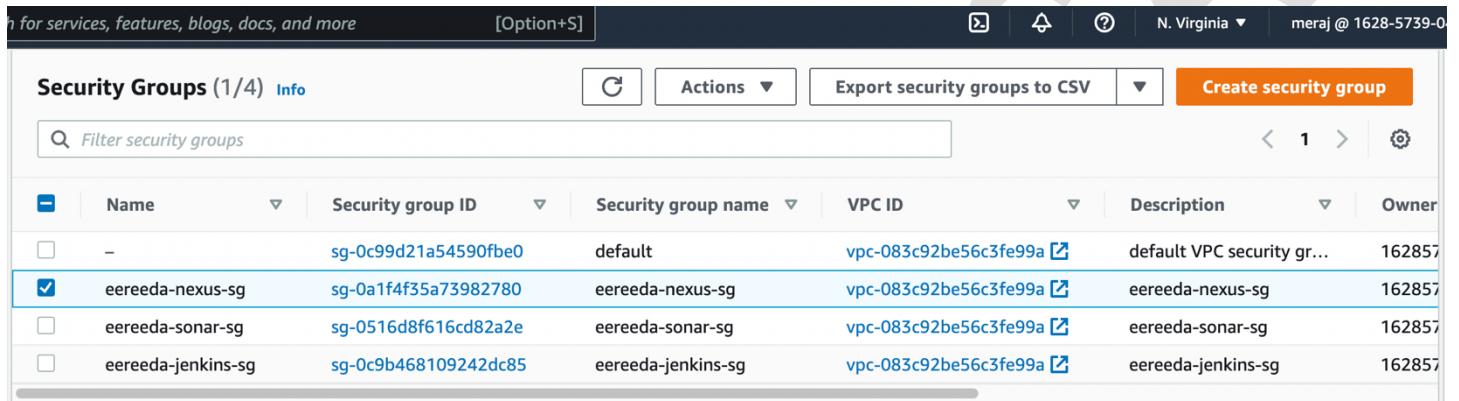
a. KeyPairs



A screenshot of the AWS Lambda console showing the 'Key pairs' list. The table has columns: Name, Type, Created, Fingerprint, and ID. One row is visible: 'ci-eereeda-key' (rsa, 2022/05/24 12:13 GMT+5:30, fingerprint, key_ID).

	Name	Type	Created	Fingerprint	ID
<input type="checkbox"/>	ci-eereeda-key	rsa	2022/05/24 12:13 GMT+5:30	[REDACTED]	key_ID[REDACTED]

b. Security Group



A screenshot of the AWS Lambda console showing the 'Security Groups' list. The table has columns: Name, Security group ID, Security group name, VPC ID, Description, and Owner. One row is checked: 'eereeda-nexus-sg' (sg-0a1f4f35a73982780, default, vpc-083c92be56c3fe99a, eereeda-nexus-sg, 162857).

	Name	Security group ID	Security group name	VPC ID	Description	Owner
<input type="checkbox"/>	-	sg-0c99d21a54590fbe0	default	vpc-083c92be56c3fe99a	default VPC security gr...	162857
<input checked="" type="checkbox"/>	eereeda-nexus-sg	sg-0a1f4f35a73982780	eereeda-nexus-sg	vpc-083c92be56c3fe99a	eereeda-nexus-sg	162857
<input type="checkbox"/>	eereeda-sonar-sg	sg-0516d8f616cd82a2e	eereeda-sonar-sg	vpc-083c92be56c3fe99a	eereeda-sonar-sg	162857
<input type="checkbox"/>	eereeda-jenkins-sg	sg-0c9b468109242dc85	eereeda-jenkins-sg	vpc-083c92be56c3fe99a	eereeda-jenkins-sg	162857

User Data Script

```
$ git clone https://github.com/merajafnan/DevOps_Projects.git  
$ git checkout CI-Jenkins  
$ cd userdata  
$ ls
```



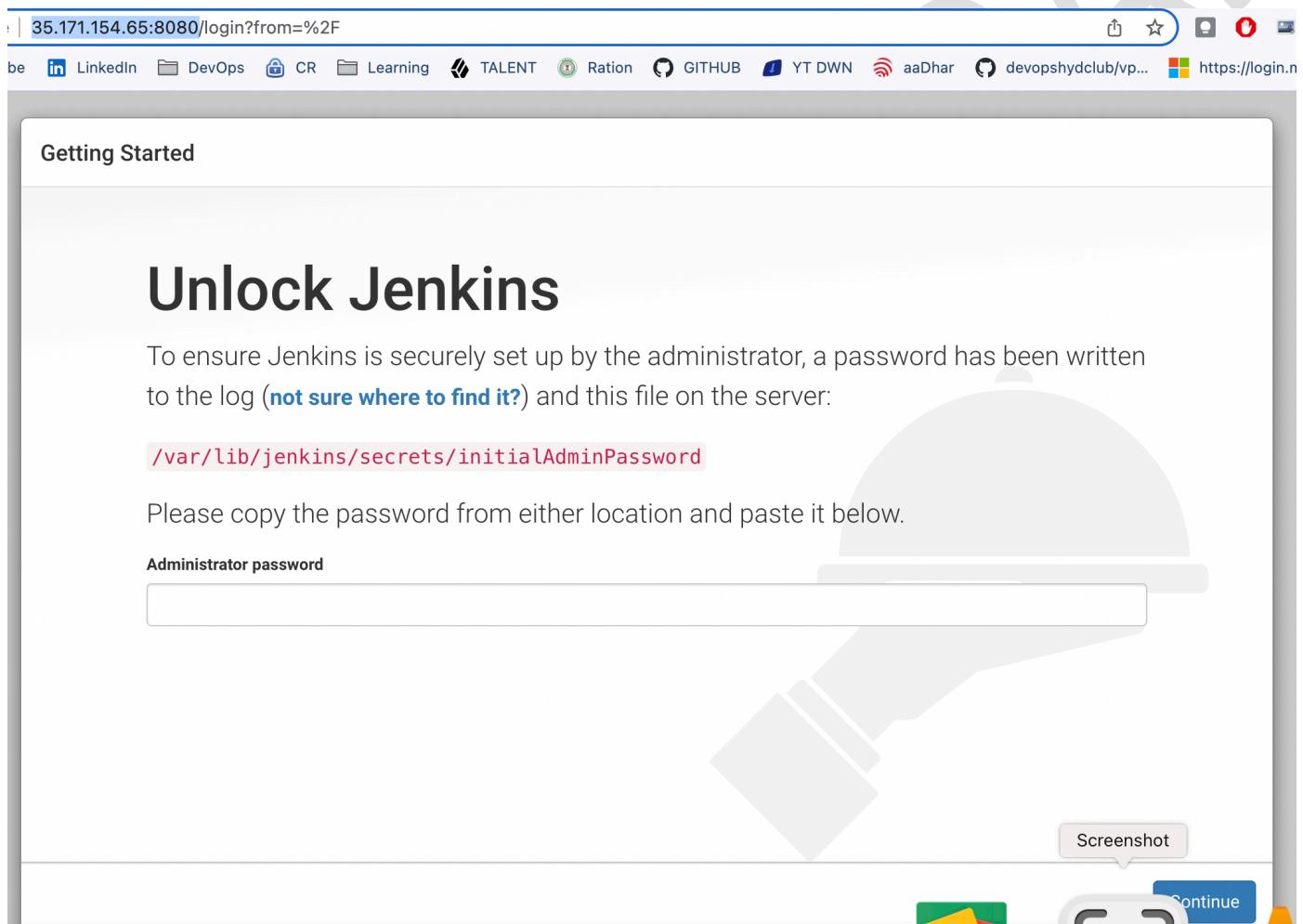
A screenshot of a terminal window titled 'DevOps_Projects -- zsh -- 80x24'. The command 'ls userdata' is run, showing files: jenkins-setup.sh, nexus-setup.sh, sonar-analysis-properties, and sonar-setup.sh.

```
merajhassan@MERAJs-MacBook-Air DevOps_Projects % ls userdata  
jenkins-setup.sh  
nexus-setup.sh  
sonar-analysis-properties  
sonar-setup.sh
```

2. Setup Jenkins, Nexus & SonarQube Server

Instances (1/3) Info							
	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	Nexus-Server	i-01982dc566661f662	Running  	t2.medium	Initializing 	No alarms 	us-east-1d
<input checked="" type="checkbox"/>	Jenkins-Server	i-0dde0e3c038db66f3	Running  	t2.small	2/2 checks passed 	No alarms 	us-east-1d
<input type="checkbox"/>	SonarQube-Se...	i-0f350bfa8ac3a3267	Running  	t2.medium	Initializing 	No alarms 	us-east-1d

Check Jenkins is working - <http://35.171.154.65:8080/>



The screenshot shows the Jenkins 'Unlock Jenkins' setup page. At the top, there's a header with a search bar and navigation links. Below it is a 'Getting Started' section with a large 'Unlock Jenkins' heading. A text block explains that a password has been written to the log and on the server. A red highlighted path '/var/lib/jenkins/secrets/initialAdminPassword' is shown. Below this, a text input field is labeled 'Administrator password'. On the right, there are 'Screenshot' and 'Continue' buttons.

```
$ ssh -i "ci-eereeda-key.pem" ubuntu@ec2-35-171-154-65.compute-1.amazonaws.com
$ sudo -i
# cat /var/lib/jenkins/secrets/initialAdminPassword
```

The screenshot shows the Jenkins dashboard at <http://35.171.154.65:8080>. The left sidebar contains links for 'New Item', 'People', 'Build History', 'Manage Jenkins', 'My Views', and 'New View'. The main content area features a 'Welcome to Jenkins!' heading and a 'Start building your software project' section with a 'Create a job' button.

Check Nexus is working - <http://54.165.249.37:8081/>

The screenshot shows the Sonatype Nexus Repository Manager at <http://54.165.249.37:8081>. The left sidebar has 'Welcome', 'Search', and 'Browse' options. The main content includes a 'Welcome' message, a 'Read More...' button, a 'Get Started' section, a 'Configuration' section, and a 'Repository Formats' section. A 'Sign In' dialog box is overlaid on the page, containing instructions about the admin password location and two input fields for 'Username' and 'Password'.

```
$ ssh -i "ci-eereeda-key.pem" centos@ec2-54-165-249-37.compute-1.amazonaws.com
$ sudo -i
$ cat /opt/nexus/sonatype-work/nexus3/admin.password
```

The screenshot shows the Sonatype Nexus Repository Manager at <http://54.165.249.37:8081>. The left sidebar includes 'Upload' in addition to 'Welcome', 'Search', and 'Browse'. The main content features a warning message about the log4j vulnerability and its mitigation, followed by a 'Enable Capability' button.

Settings > Repositories > Create Repository

Maven hosted – Upload our artifact

Maven hosted – Maven Build tool will download dependencies from here
[<https://repo1.maven.org/maven2/>]

Maven group – Group both repository together

The screenshot shows the Artifactory Manager interface with the 'Repositories' screen selected. The top navigation bar includes 'Manager', a cube icon, a gear icon (highlighted in green), a search bar, and user information for 'admin'. Below the header, there's a 'Create repository' button and a 'Filter' dropdown. The main area lists three repositories:

Name ↑	Type	Format	Status	URL	Health check	IQ Policy Vi...
eereeda-central	proxy	maven2	Online - Ready to Connect	<button>copy</button>	Analyze	
eereeda-maven-group	group	maven2	Online	<button>copy</button>		
eereeda-release	hosted	maven2	Online	<button>copy</button>		

3. Build and Nexus Integration Job

Build

Invoke top-level Maven targets X

Goals

install -DskipTests

POM ?

Properties ?

```
SNAP-REPO=eereeda-snapshot  
NEXUS-USER=admin  
NEXUS-PASS=admin123  
RELEASE-REPO=eereeda-release  
CENTRAL-REPO=eereeda-central  
NEXUS-GRP-REPO=eereeda-maven-group  
NEXUSIP=172.31.87.153  
NEXUSPORT=8081
```

Git ?

Repositories ?

Repository URL ?

https://github.com/merajafnan/DevOps_Projects.git

Credentials ?

- none - ▼

Add ▼

Advanced...

Add Repository

Branches to build ?

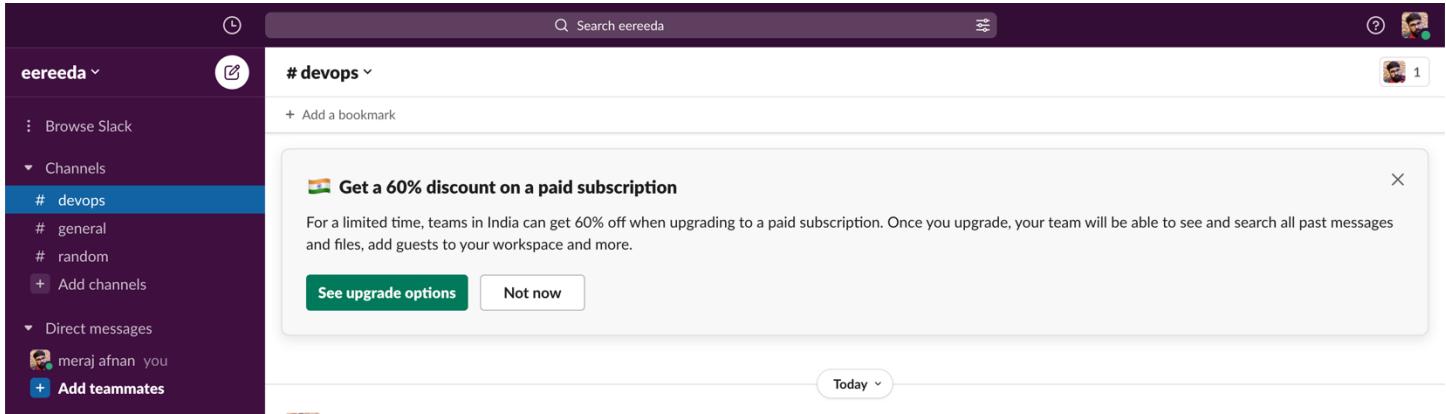
Branch Specifier (blank for 'any') X

[*/CI-Jenkins](#)

Screenshot

S	W	Name ↓	Last Success	Last Failure	Last Duration
✓	⌚	Build	58 sec #6	21 min #1	8.5 sec

4. Slack Integration

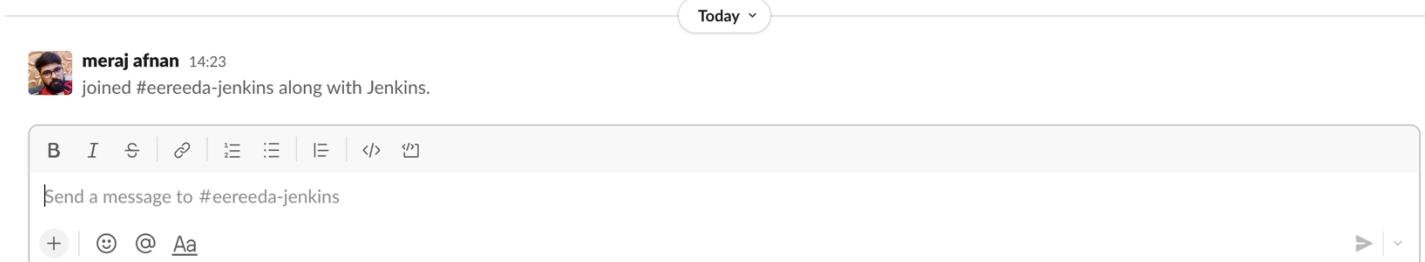


Create bot in - api.slack.com

Scope – Chat:write

Install to workspace

Add bot to slack - @jenkins in slack and press enter



Manage Jenkins > Plugins > Available > Slack Notification > Install without restart

Manage Jenkins > Manage Credentials > Jenkins > Global Credential > Add Credential > Kind > Secret Text

A screenshot of the Jenkins Global Credentials configuration page. The navigation path is: Dashboard > Credentials > System > Global credentials (unrestricted). On the left, there are links for "Back to credential domains" and "Add Credentials". The main form is for adding a new credential. The "Kind" is set to "Secret text". The "Scope" is set to "Global (Jenkins, nodes, items, all child items, etc)". The "Secret" field contains a masked value. The "ID" is set to "slack". The "Description" is set to "slack-token".

Manage Jenkins > Configure System > Slack > Custom slack app bot user >save

Post-build Actions

Slack Notifications

- Notify Build Start
- Notify Success
- Notify Aborted
- Notify Not Built
- Notify Unstable
- Notify Regression
- Notify Every Failure
- Notify Back To Normal
- Notify First Failure Only

Archive the artifact > build
Check Slack Notification

Today ▾



meraj afnan 14:23

joined #eereeda-jenkins along with Jenkins.



Jenkins APP 14:44

Slack/Jenkins plugin: you're all set on <http://35.171.154.65:8080/>

Build - #7 Started by user admin ([Open](#))

Build - #7 Success after 8.4 sec ([Open](#))

 Try me!

5. Test, Code Analysis, SonarQube Integration

New Item > Test > Copy from build Job

Build

Invoke top-level Maven targets

Goals

test

S	W	Name ↓	Last Success	Last Failure	Last Duration
✓	⌚	Build	29 min #7	1 hr 40 min #1	8.4 sec
✓	☁️	Test	1 min 1 sec #4	19 min #2	20 sec

Build > configure > Post Build job > Test,
New Item > Integration Test > Copy from Test Job
Test > configure > Post Build job > Integration Test,

Invoke top-level Maven targets

Goals

verify -DskipUnitTests

Advanced...

eereeda-jenkins ▾

+ Add a bookmark

Test - #3 Started by user admin (Open)

Test - #3 Still Failing after 11 sec (Open)

Jenkins APP 15:15

Test - #4 Started by user admin (Open)

Test - #4 Success after 20 sec (Open)

Jenkins APP 15:22

Integration Test - #1 Started by user admin (Open)

Integration Test - #1 Success after 28 sec (Open)

Try me!

Manage Jenkins > Plugins > Available > Warnings Next Generation & Violations > Install without restart

Install	Name ↓	Released
<input checked="" type="checkbox"/>	Warnings Next Generation 9.12.0	1 mo 9 days ago
<input checked="" type="checkbox"/>	Violations 0.7.11	9 yr 8 mo ago
	.NET Development Maven Build Reports	
	This plugin does reports on checkstyle, csslint, pmd, cpd, fxcop, pylint, jcReport, findbugs, and perlcritic violations.	
	This plugin is deprecated. In general, this means that it is either obsolete, no longer being developed, or may no longer work. Learn more.	

New Item > Code Analysis > Copy from Build Job



S	W	Name ↓	Last Success	Last Failure	Last Duration	# Issues
<input checked="" type="checkbox"/>		Build	43 min #7	1 hr 54 min #1	8.4 sec	
<input checked="" type="checkbox"/>		Code-Analysis	56 sec #1	N/A	21 sec	
<input checked="" type="checkbox"/>		Integration Test	8 min 39 sec #1	N/A	28 sec	
<input checked="" type="checkbox"/>		Test	14 min #4	33 min #2	20 sec	

Invoke top-level Maven targets X

?

Goals

checkstyle:checkstyle ▼

```
[ [1;33mWARNING [m] For more information see: https://maven.apache.org/plugins/maven-checkstyle-plugin/examples/upgrading-checkstyle.html
[ [1;33mWARNING [m] File encoding has not been set, using platform encoding UTF-8, i.e. build is platform dependent!
[ [1;34mINFO [m] There are 96 errors reported by Checkstyle 8.29 with sun_checks.xml ruleset.
[ [1;33mWARNING [m] Unable to locate Source XRef to link to - DISABLED
[ [1;34mINFO [m] [1m----- [m
[ [1;34mINFO [m] [1;32mBUILD SUCCESS [m
[ [1;34mINFO [m] [1m----- [m
[ [1;34mINFO [m] Total time: 14.329 s
[ [1;34mINFO [m] Finished at: 2022-05-24T10:00:04Z
[ [1;34mINFO [m] [1m----- [m
[Slack Notifications] will send OnSuccessNotification because build matches and user preferences allow it
Finished: SUCCESS Screenshot
```

> 50 error build becomes unstable

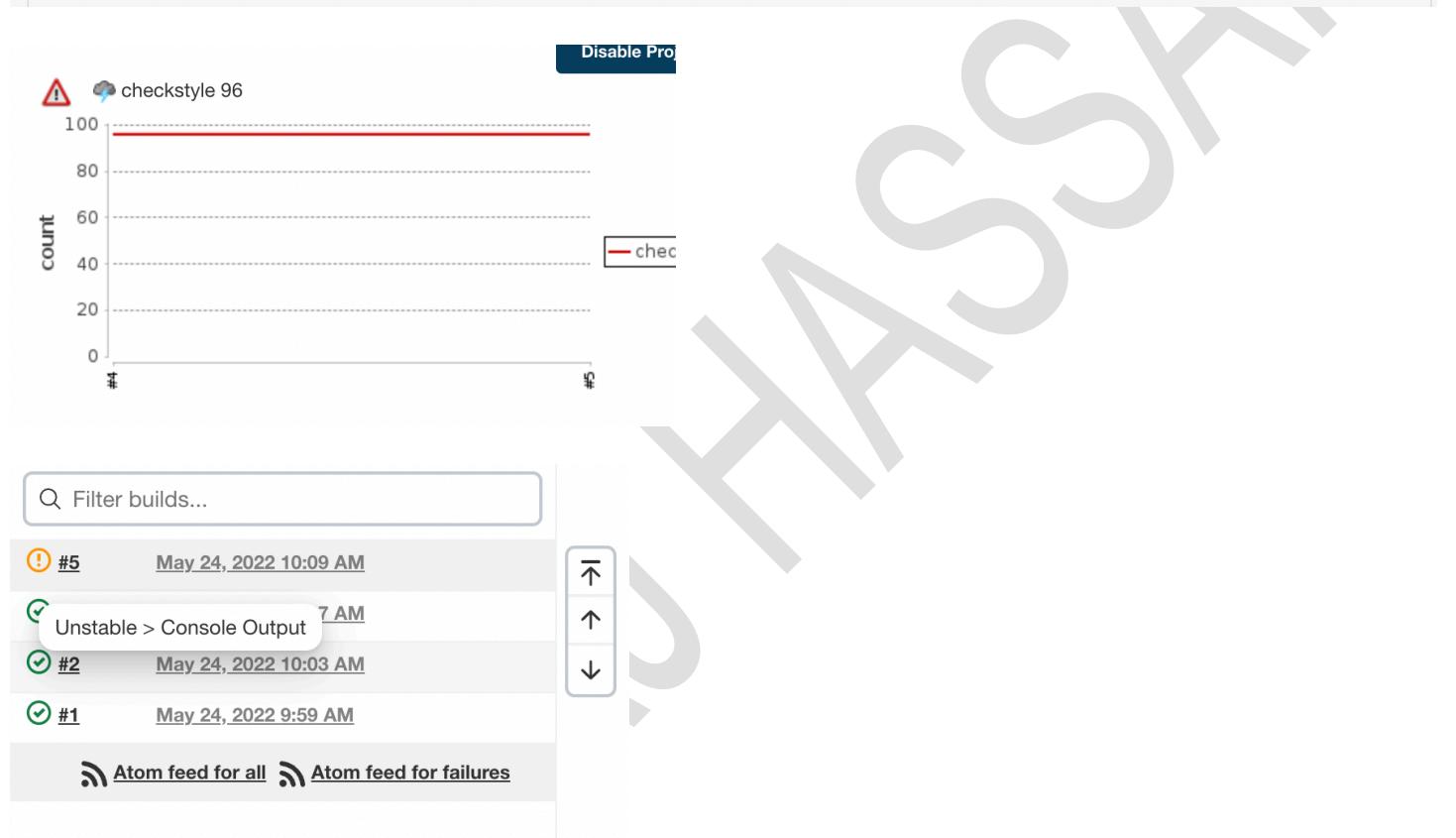
Post-build Actions

Report Violations X

XML filename pattern

checkstyle

10 50 50 target/checkstyle-result.xml



6. SonarQube Setup

My account > security > Generate Tokens > (sonartoken) > Generate
Manage Jenkins > Plugins > Available > SonarQube Scanner & Sonar Quality Gate > Install without restart
Manage Jenkins > Global Tool Configuration > SonarQube Scanner > Install
Manage Jenkins > Configure System > SonarQube servers > Enable injection of SonarQube
New Item > SonarScanner-CodeAnalysis > Copy from Build Job

SonarQube servers

- Environment variables Enable injection of SonarQube server configuration as build environment variables
If checked, job administrators will be able to inject a SonarQube server configuration as environment variables in the build.

SonarQube installations

Name

sonar-eereeda

Server URL

http://172.31.81.27

Default is http://localhost:9000

Server authentication token

sonartoken ▾

Add ▾

SonarQube authentication token. Mandatory when anonymous access is disabled.

Quality Gates - Sonarqube

Name ?

sonar-eereeda

Make sure the name is unique value

SonarQube Server URL ?

http://172.31.81.27

Default value is 'http://localhost:9000'

SonarQube account token ?

c1fe5b6a072548bb871237e0018bc43

Use token instead of user and password

Build Environment

- Delete workspace before build starts
- Use secret text(s) or file(s) ?
- Abort the build if it's stuck
- Add timestamps to the Console Output
- Inspect build log for published Gradle build scans
- Prepare SonarQube Scanner environment ?

Server authentication token

- none - ▼ Add ▾

SonarQube authentication token. Mandatory when anonymous access is disabled. Will default to the one defined in the SonarQube installation.

Invoke top-level Maven targets

X

Goals

clean install sonar:sonar

▼

POM ?

Properties ?

```
SNAP-REPO=eereeda-snapshot  
NEXUS-USER=admin  
NEXUS-PASS=admin123  
RELEASE-REPO=eereeda-release  
CENTRAL-REPO=eereeda-central  
NEXUS-GRP-REPO=eereeda-maven-group  
NEXUSIP=172.31.87.153  
NEXUSPORT=8081
```

Last analysis: May 25, 2022, 11:11 AM

32 C
 Bugs

1 D
 Vulnerabilities

0.0% E
 Hotspots Reviewed

18 A
 Code Smells

31.3%
 Coverage

13.6%
 Duplications

1.6k s
JSP, Java, ...

8. Nexus Repository Integration

Manage Jenkins > Plugins > Available > Nexus Artifact Uploader & Copy Artifact & ZenTimestamp > Install without restart

New Item > Deploy-to-Nexus > Copy from Build Job

Change date pattern for the BUILD_TIMESTAMP (build timestamp) variable ?

Date and Time Pattern ?

yy-MM-dd-HH-mm

Copy artifacts from another project X

Project name ?

Build

Which build ?

Latest successful build

Stable build only

Artifacts to copy ?

**/*.war

Nexus artifact uploader X

Nexus Details

Nexus Version

NEXUS3

Protocol

HTTP

Nexus URL ?

172.31.87.153:8081

Credentials

admin/******** (nexusserverlogin) Add ▾

GroupId

Version

Repository ?

Artifacts

Artifact X

ArtifactId

Browse / **eereeda-release**

[Upload component](#) [HTML View](#)

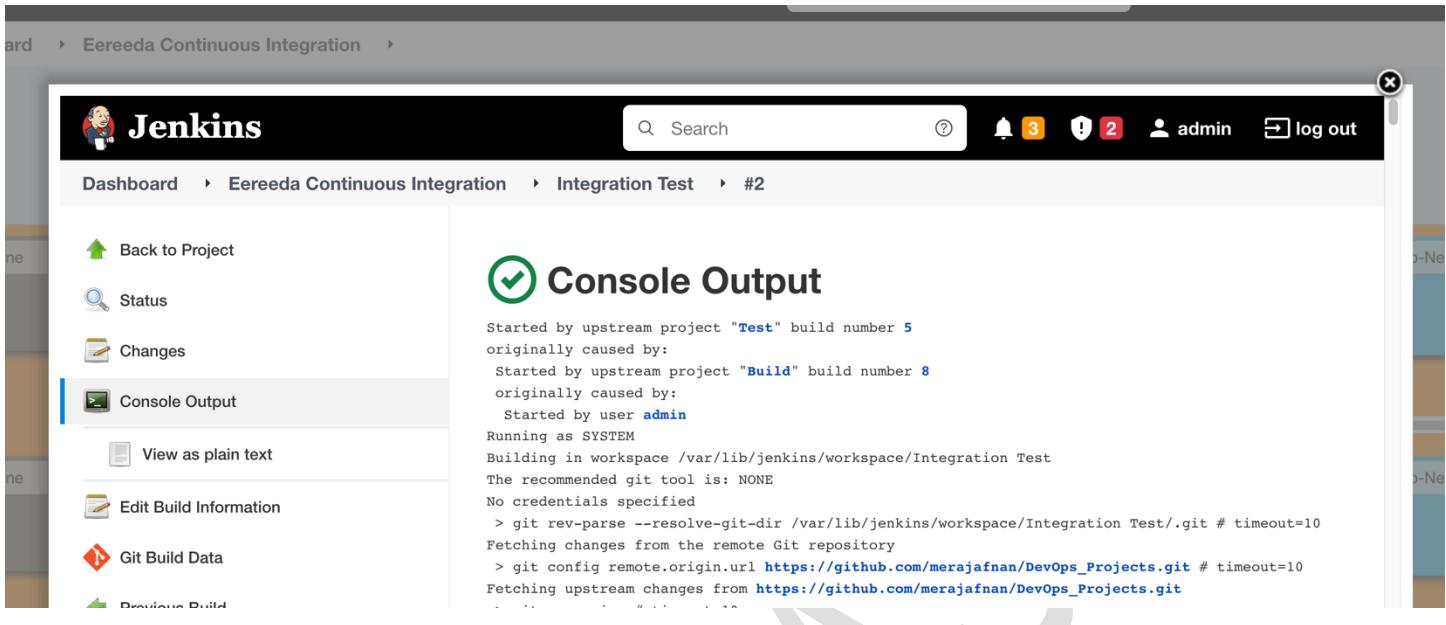
- QA
 - 22-05-25-06-25
 - eereeda-22-05-25-06-33
 - V3
 - V4
 - eereeda-22-05-25-06-33-V4.war
 - eereeda-22-05-25-06-33-V4.war.md5
 - eereeda-22-05-25-06-33-V4.war.sha1

QA/eereeda-22-05-25-06-33 Delete folder

MEPAS

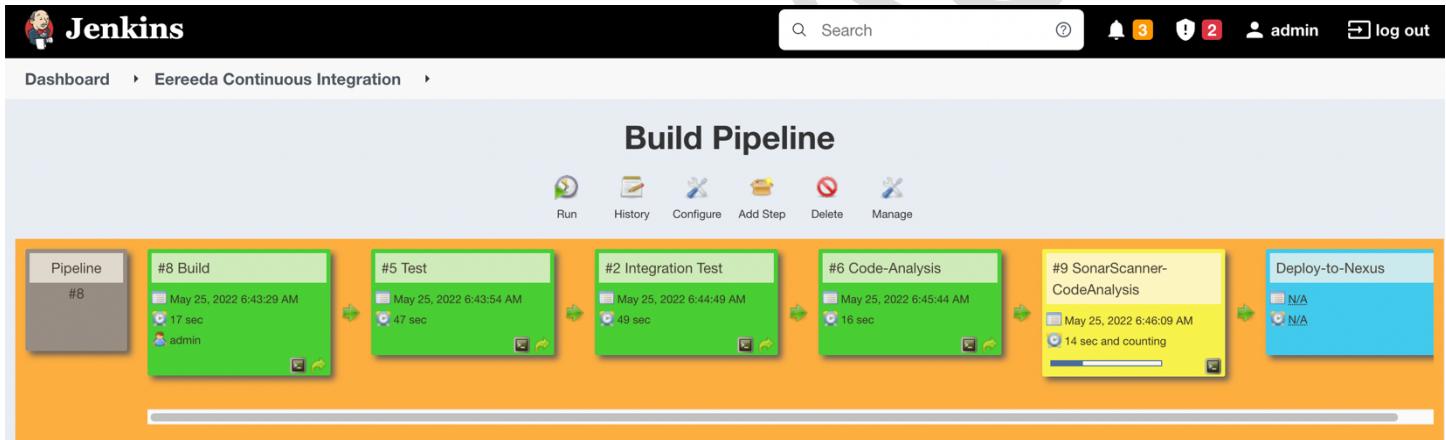
9. Validate Pipeline & Summarize

Manage Jenkins > Plugins > Available > Build Pipeline > Install without restart

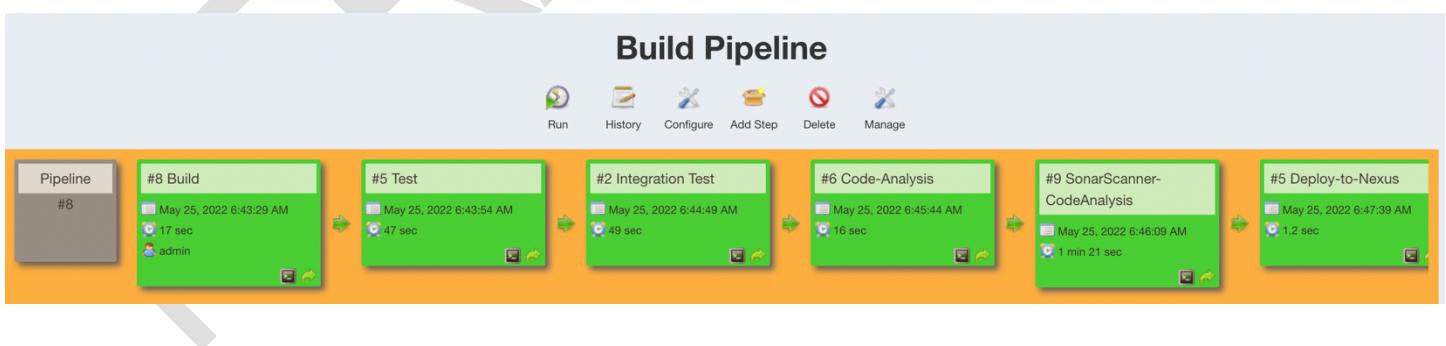


The screenshot shows the Jenkins interface for the 'Integration Test' project. The left sidebar has a 'Console Output' section selected. The main content area is titled 'Console Output' with a green checkmark icon. It displays the build log for build number 2, starting with the upstream project 'Test' and its cause, followed by the current build's details and git configuration.

```
Started by upstream project "Test" build number 5
originally caused by:
    Started by upstream project "Build" build number 8
originally caused by:
    Started by user admin
Running as SYSTEM
Building in workspace /var/lib/jenkins/workspace/Integration Test
The recommended git tool is: NONE
No credentials specified
> git rev-parse --resolve-git-dir /var/lib/jenkins/workspace/Integration Test/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/merajafnan/DevOps_Projects.git # timeout=10
Fetching upstream changes from https://github.com/merajafnan/DevOps_Projects.git
...
```



The screenshot shows the Jenkins interface displaying the 'Build Pipeline'. A top navigation bar includes 'Run', 'History', 'Configure', 'Add Step', 'Delete', and 'Manage' buttons. Below this is a horizontal bar with icons for each step: Pipeline (#8), #8 Build, #5 Test, #2 Integration Test, #6 Code-Analysis, #9 SonarScanner-CodeAnalysis, and Deploy-to-Nexus. Each step is represented by a colored card showing the status, timestamp, duration, and user.



This screenshot shows a second instance of the Jenkins Build Pipeline visualization. It features a similar layout with a top navigation bar and a horizontal bar of step cards. The steps shown are Pipeline (#8), #8 Build, #5 Test, #2 Integration Test, #6 Code-Analysis, #9 SonarScanner-CodeAnalysis, and #5 Deploy-to-Nexus. The cards provide detailed information about each build or test step.

10. Slack Notification

eereeda-jenkins ▾

+ Add a bookmark

Jenkins APP 12:13

Build - #8 Started by user admin ([Open](#))

Build - #8 Success after 17 sec ([Open](#))

Test - #5 Started by upstream project "Build" build number 8 ([Open](#))

Test - #5 Success after 47 sec ([Open](#))

Integration Test - #2 Started by upstream project "Test" build number 5 ([Open](#))

Integration Test - #2 Success after 49 sec ([Open](#))

Code-Analysis - #6 Started by upstream project "Integration Test" build number 2 ([Open](#))

Code-Analysis - #6 Success after 16 sec ([Open](#))

SonarScanner-CodeAnalysis - #9 Started by upstream project "Code-Analysis" build number 6 ([Open](#))

SonarScanner-CodeAnalysis - #9 Success after 1 min 21 sec ([Open](#))

Deploy-to-Nexus - #5 Started by upstream project "SonarScanner-CodeAnalysis" build number 9 ([Open](#))

Deploy-to-Nexus - #5 Success after 1.2 sec ([Open](#))

↑ 21 new messages ×

Pol SCM for Automatically start pipeline when there is a code change

Build Triggers

- Trigger builds remotely (e.g., from scripts) ?
- Build after other projects are built ?
- Build periodically ?
- GitHub hook trigger for GITScm polling ?
- Poll SCM ?

Schedule ?

⚠ Do you really mean "every minute" when you say "***"? Perhaps you meant "H * * * *" to poll once per hour**

Would last have run at Wednesday, May 25, 2022 6:53:02 AM UTC; would next run at Wednesday, May 25, 2022 6:53:02 AM UTC.

This field follows the syntax of cron (with minor differences). Specifically, each line consists of 5 fields separated by TAB or whitespace:
MINUTE HOUR DOM MONTH DOW

11. Security Group, Tomcat, Memcache & Queue Setup

Security Groups (1/2) Info

Filter security groups

Name: eereeda-app-backend-staging X Name: windows-server-SoftwareTest X Clear filters

Name	Security group ID	Security group name	VPC ID	Description
windows-server-SoftwareTest	sg-032ff1099816c639e	windows-server-Softw...	vpc-083c92be56c3fe99a	windows-server-Softw...
<input checked="" type="checkbox"/> eereeda-app-backend-staging	sg-01524c40b19d80c05	eereeda-app-backend-...	vpc-083c92be56c3fe99a	eereeda-app-backend-...

C Actions Export security groups to CSV Create security group

< 1 > ⚙️

Instances (1/6) Info

Search

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Available
Nexus-Server	i-01982dc566661f662	Running	t2.medium	2/2 checks passed	No alarms	+ us-east-1
Jenkins-Server	i-0dde0e3c038db66f3	Running	t2.small	2/2 checks passed	No alarms	+ us-east-1
SonarQube-Server	i-0f350bfa8ac3a3267	Running	t2.medium	2/2 checks passed	No alarms	+ us-east-1
windows-server-SoftwareTest	i-06155642ed8be0231	Running	t2.small	-	No alarms	+ us-east-1
Tomcat Server	i-0e53018661e75e769	Running	t2.micro	2/2 checks passed	No alarms	+ us-east-1
<input checked="" type="checkbox"/> Backend Server	i-0225f1418a7609b15	Running	t2.micro	2/2 checks passed	No alarms	+ us-east-1

C Connect Instance state Actions Launch instances

< 1 > ⚙️

MERAH

12. Build, Deploy & Test URL Job

Manage Jenkins > Plugins > Available > Deploy to container > Install without restart
New Item > eereeda-staging-deploy > Copy from Build Job

Copy artifacts from another project
Project name ?
Build

Which build ?
Latest successful build

Stable build only

Artifacts to copy ?
**/*.war

Post-build Actions

Deploy war/ear to a container
WAR/EAR files ?
|

Context path ?
eereeda

Containers

Tomcat 8.x Remote
Credentials
tomcat***** (tomcat-staging-login)

Tomcat URL ?
http://172.31.31.36:8080

Screenshot

Before building app check tomcat is up and running

Where work Instances | eereeda-staging-deploy | Dashboard | Browse - New | Projects | Slack | eereeda-staging-deploy | DevOps_Pro | Apache Tomcat | + | v

Not Secure | 52.201.254.5:8080

Home Documentation Configuration Examples Wiki Mailing Lists Find Help

Apache Tomcat/8.5.37

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

Recommended Reading:
[Security Considerations HOW-TO](#)
[Manager Application HOW-TO](#)
[Clustering/Session Replication HOW-TO](#)

Developer Quick Start

Tomcat Setup
First Web Application

Realms & AAA
JDBC DataSources

Examples

Servlet Specifications
Tomcat Versions

Not Secure | 52.201.254.5:8080/manager/html

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Tomcat Web Application Manager

Manager

List Applications		HTML Manager Help	Manager Help	Server Status	
Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	Start Stop Reload Undeploy Expire sessions with idle ≥ 30 minutes

Build the Job and we will see the app in Tomcat Server & Click to open the web page.

Secure | 52.201.254.5:8080/eereeda/login

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TECHNOLOGIES ABOUT BLOG

LOGIN

Username
Password
LOGIN
Create an account

Execute Shell commands in build Job

Build

Execute shell

```
cat << EOT > src/main/resources/application.properties
#JDBC Configuration for Database Connection
jdbc.driverClassName=com.mysql.jdbc.Driver
jdbc.url=jdbc:mysql://172.31.26.75:3306/accounts?useUnicode=true&characterEncoding=UTF-8&zeroDateTimeBehavior=convertToNull
jdbc.username=admin
jdbc.password=admin123

#Memcached Configuration For Active and StandBy Host
#for Active Host
memcached.active.host=172.31.26.75
memcached.active.port=11211
#for StandBy Host
memcached.standBy.host=127.0.0.2
memcached.standBy.port=11211

#RabbitMq Configuration
rabbitmq.address=172.31.26.75
rabbitmq.port=5672
rabbitmq.username=test
rabbitmq.password=test
```

Manage Jenkins > Plugins > Available > HTTP request > Install without restart
New Item > TestURL > Copy from Build Job

Build

Execute shell

?

Command

```
sleep 60
```

See [the list of available environment variables](#)

[Advanced...](#)

HTTP Request

URL ?

HTTP mode ?

GET

[Screenshot](#)

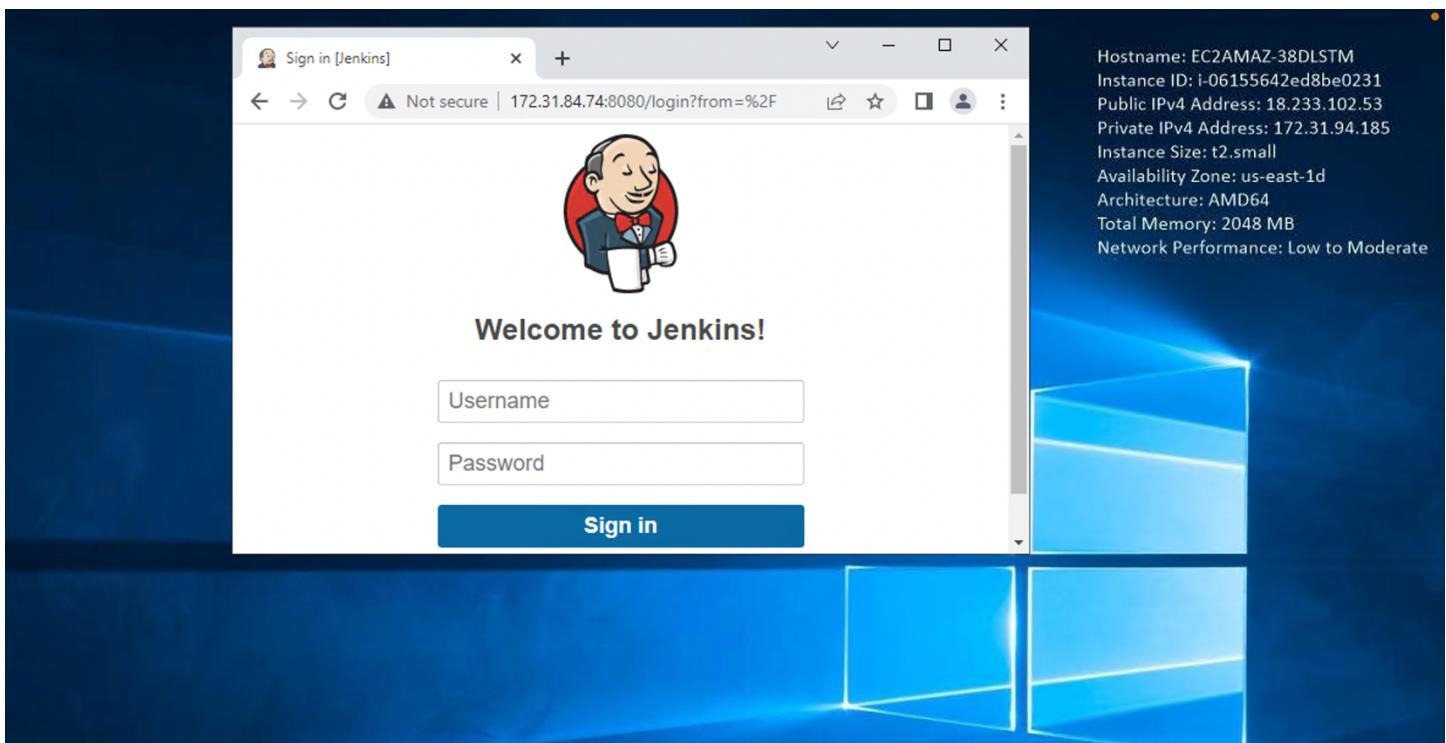
Build Pipeline



MERAUHASSAN

13. Software Test for Staging environment

Jenkins Server reachable from Windows Server



Manage Jenkins > Manage Node and Clouds > Create Node

A screenshot of the Jenkins "Create Node" configuration page. The left sidebar shows navigation links: Back to Dashboard, Manage Jenkins, New Node, Configure Clouds, and Node Monitoring. Under "Build Queue", it says "No builds in the queue." Under "Build Executor Status", it lists "1 Idle" and "2 Idle". The main configuration area has the following fields:

- Name**: eereeda-softwareTest-node
- Description**: (empty)
- Number of executors**: 1
- Remote root directory**: C:\jenkins
- Labels**: (empty)
- Usage**: Use this node as much as possible
- Launch method**: Launch agent by connecting it to the controller

The bottom of the screen shows the Windows taskbar with icons for File Explorer, Edge, and Google Chrome, along with system status indicators like battery level and network connection.

Manage Jenkins > Configure Global Security > Agent > Fixed Port > 8090

Dashboard > Configure Global Security

Agents

TCP port for inbound agents ?

Fixed : Random Disable

Agent protocols...

Manage Jenkins > Manage Node and Clouds > eereeda-softwareTest-node > click **agent.jar** > run the first line of command in cmd

Agent eereeda-softwareTest-node

Mark this node temporarily offline

Connect agent to Jenkins one of these ways:

- Launch** Launch agent from browser
- Run from agent command line:
java -jar **agent.jar** -jnlpUrl http://172.31.84.74:8080/computer/eereeda%2DsoftwareTest%2Dnode/jenkins-agent.jnlp -secret 59abb33564c73de66082309072e8a2a3c156584ec38b3b6d56e95692183fd338 -workDir "C:\jenkins"

Run from agent command line, with the secret stored in a file:
echo 59abb33564c73de66082309072e8a2a3c156584ec38b3b6d56e95692183fd338 > secret-file
java -jar **agent.jar** -jnlpUrl http://172.31.84.74:8080/computer/eereeda%2DsoftwareTest%2Dnode/jenkins-agent.jnlp -secret @secret-file -workDir "C:\jenkins"

```
PS C:\Users\Administrator\Downloads> java -jar agent.jar -jnlpUrl http://172.31.84.74:8080/computer/eereeda%2DsoftwareTest%2Dnode/jenkins-agent.jnlp -secret 59abb33564c73de66082309072e8a2a3c156584ec38b3b6d56e95692183fd338 -workDir "C:\jenkins"
Jun 08, 2022 7:05:26 AM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using C:\jenkins\remoting as a remoting work directory
Jun 08, 2022 7:05:26 AM org.jenkinsci.remoting.engine.WorkDirManager setupLogging
INFO: Both error and output logs will be printed to C:\jenkins\remoting
Jun 08, 2022 7:05:27 AM hudson.remoting.jnlp.Main createEngine
INFO: Setting up agent: eereeda-softwareTest-node
Jun 08, 2022 7:05:27 AM hudson.remoting.jnlp.Main$CuilListener <init>
INFO: Jenkins agent is running in headless mode.
Jun 08, 2022 7:05:27 AM hudson.remoting.Engine startEngine
INFO: Using Remoting version: 4.13
Jun 08, 2022 7:05:27 AM org.jenkinsci.remoting.engine.WorkDirManager initializeWorkDir
INFO: Using C:\jenkins\remoting as a remoting work directory
Jun 08, 2022 7:05:28 AM hudson.remoting.jnlp.Main$CuilListener status
INFO: WebSocket connection open
Jun 08, 2022 7:05:29 AM hudson.remoting.jnlp.Main$CuilListener status
INFO: Connected
```

New Item > Selenium-Test-Suits > Copy from Build Job

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

Restrict where this project can be run ?

Label Expression ?

eereeda-softwareTest-node

Label eereeda-softwareTest-node matches 1 node. Permissions or other restrictions provided by plugins may further reduce that list.

Branches to build ?

Branch Specifier (blank for 'any') ?

*/SeleniumTest

Build

Execute Windows batch command ?

Command

```
echo package DevOPS.devOPS; > src\test\java\DevOPS\devOPS\Variables.java
echo public class Variables { >> src\test\java\DevOPS\devOPS\Variables.java
echo     public static final String URL ="http://52.201.254.5:8080/eereeda/login"; >>
src\test\java\DevOPS\devOPS\Variables.java
echo     public static final String UserName ="admin_vp"; >> src\test\java\DevOPS\devOPS\Variables.java
echo     public static final String Password ="admin_vp"; >> src\test\java\DevOPS\devOPS\Variables.java
echo     public static final String ScreenShotPath ="C:\\jenkins\\screenshots"; >>
```

See [the list of available environment variables](#)

Invoke top-level Maven targets ?

Goals

```
clean test -Dsurefire.suiteXmlFiles=testng.xml
```

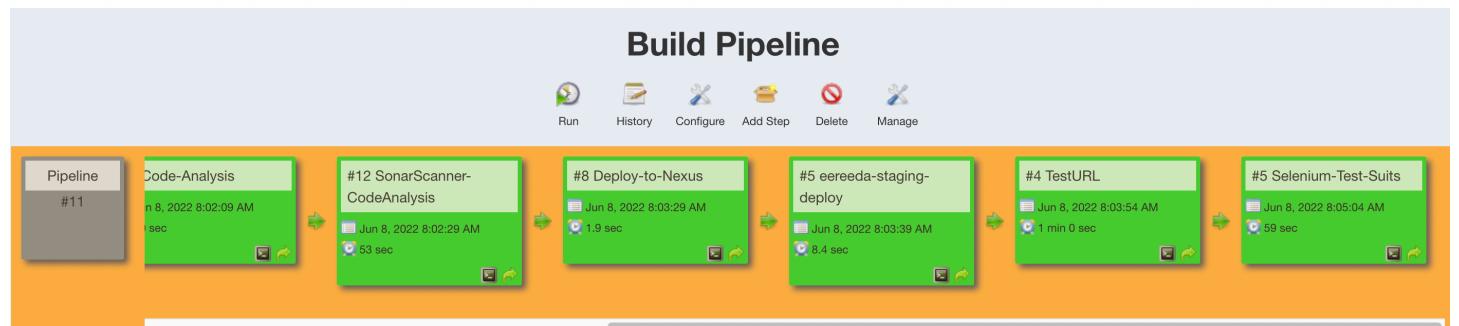
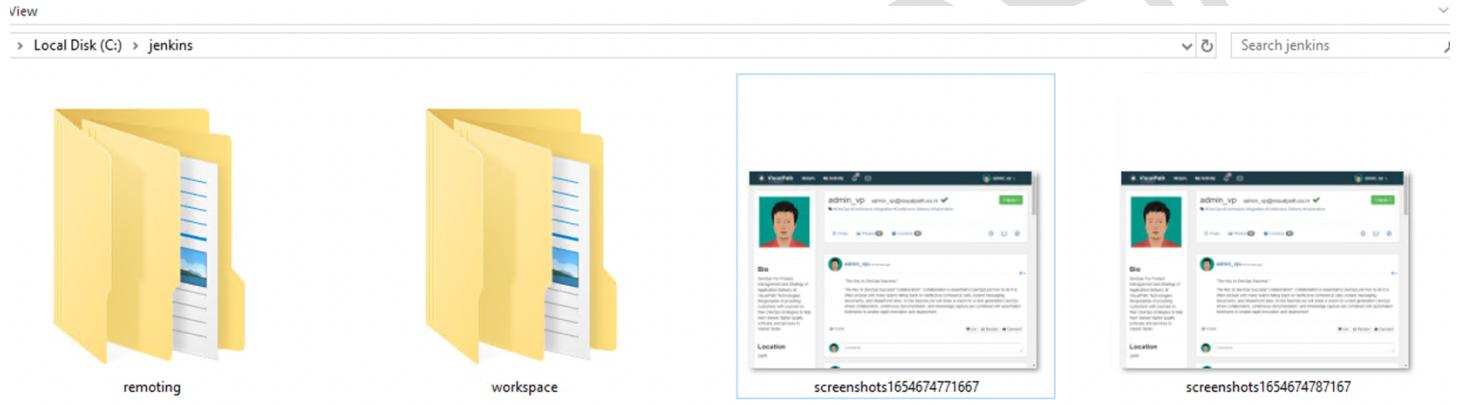
Selenium-Test-Suits

Home Share View

This PC > Local Disk (C:) > jenkins > workspace > Selenium-Test-Suits >

Search Selenium-Tes

	Name	Date modified	Type	Size
:k access	ChromeDriver	6/8/2022 7:52 AM	File folder	
sktop	jenkins_data	6/8/2022 7:40 AM	File folder	
icuments	ScrnShts	6/8/2022 7:40 AM	File folder	
wnloads	src	6/8/2022 7:40 AM	File folder	
tures	target	6/8/2022 7:53 AM	File folder	
PC	test-output	6/8/2022 7:40 AM	File folder	
work	.DS_Store	6/8/2022 7:52 AM	DS_STORE File	7 KB
	pom	6/8/2022 7:40 AM	XML Document	5 KB
	settings	6/8/2022 7:40 AM	XML Document	2 KB
	testng	6/8/2022 7:40 AM	XML Document	1 KB



14. Forward Artifact for Production

New Item > Deploy-to-Nexus-for-Prod > Copy from Deploy-to-Nexus Job

Source Code Management

None

Git [?](#)

Repositories [?](#)

Repository URL [?](#)

```
https://github.com/merajafnan/DevOps_Projects.git
```

Branches to build [?](#)

Branch Specifier (blank for 'any') [?](#)

```
*/CD-Jenkins
```

Build

Execute shell [?](#)

Command

```
cat << EOT > src/main/resources/application.properties
#JDBC Configuration for Database Connection
jdbc.driverClassName=com.mysql.jdbc.Driver
jdbc.url=jdbc:mysql://172.31.26.75:3306/accounts?useUnicode=true&characterEncoding=UTF-8&zeroDateTimeBehavior=convertToNull
jdbc.username=admin
jdbc.password=admin123

#Memcached Configuration For Active and StandBy Host
#for Active Host
memcached.active.host=172.31.26.75
memcached.active.port=11211
#for StandBy Host
memcached.standBy.host=127.0.0.2
memcached.standBy.port=11211

#RabbitMq Configuration
rabbitmq.address=172.31.26.75
rabbitmq.port=5672
rabbitmq.username=test
rabbitmq.password=test

#Elasticsearch Configuration
elasticsearch.host =192.168.1.85
elasticsearch.port =9300
elasticsearch.cluster=vprofile
elasticsearch.node=vprofilenode
```

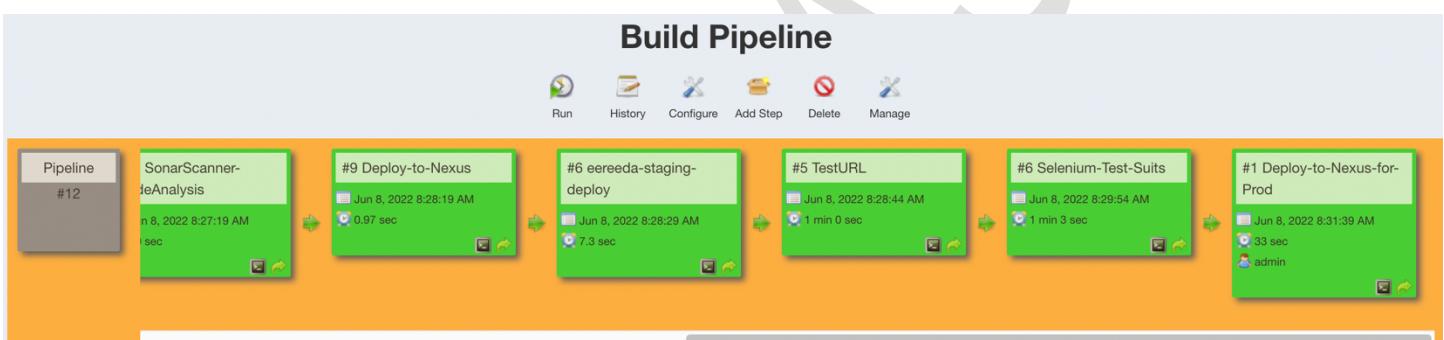
[Screenshot](#)

Properties [?](#)

```
SNAP-REPO=eereeda-snapshot
NEXUS-USER=admin
NEXUS-PASS=admin123
RELEASE-REPO=eereeda-release
CENTRAL-REPO=eereeda-central
NEXUS-GRP-REPO=eereeda-maven-group
NEXUSIP=172.31.87.153
NEXUSPORT=8081
```



Manually Click on Deploy-to-Nexus-for-Prod for Pipeline to proceed



Not Secure | 54.165.78.211:8081/#browse/browse:eereeda-release:PROD

Apps Gmail YouTube LinkedIn DevOps CR Learning TALENT Ration GITHUB YT DWN aaDhar

Sonatype Nexus Repository Manager OSS 3.39.0-01

Search components

Browse

- Welcome
- Search
- Browse

Browse / eereeda-release

HTML View

- com
- PROD
 - eereeda-22-06-08-08-31
 - V1
 - eereeda-22-06-08-08-31-V1.war
 - eereeda-22-06-08-08-31-V1.war.md5
 - eereeda-22-06-08-08-31-V1.war.sha1
 - QA

Slack Log



Jenkins APP 13:55
Build - #12 Started by user admin ([Open](#)) 13:56
Build - #12 Success after 8.9 sec ([Open](#)) 13:56
Test - #9 Started by upstream project "Build" build number 12 ([Open](#)) 13:56
Test - #9 Success after 19 sec ([Open](#)) 13:56
Integration Test - #6 Started by upstream project "Test" build number 9 ([Open](#)) 13:56
Integration Test - #6 Success after 21 sec ([Open](#)) 13:57
Code-Analysis - #10 Started by upstream project "Integration Test" build number 6 ([Open](#)) 13:57
Code-Analysis - #10 Success after 7.6 sec ([Open](#)) 13:57
SonarScanner-CodeAnalysis - #13 Started by upstream project "Code-Analysis" build number 10 ([Open](#)) 13:58
SonarScanner-CodeAnalysis - #13 Success after 50 sec ([Open](#)) 13:58
Deploy-to-Nexus - #9 Started by upstream project "SonarScanner-CodeAnalysis" build number 13 ([Open](#)) 13:58
Deploy-to-Nexus - #9 Success after 0.97 sec ([Open](#)) 13:58
eereeda-staging-deploy - #6 Started by upstream project "Deploy-to-Nexus" build number 9 ([Open](#)) 13:58
eereeda-staging-deploy - #6 Success after 7.3 sec ([Open](#)) 13:58
TestURL - #5 Started by upstream project "eereeda-staging-deploy" build number 6 ([Open](#)) 13:59
TestURL - #5 Success after 1 min 0 sec ([Open](#)) 13:59
Selenium-Test-Suits - #6 Started by upstream project "TestURL" build number 5 ([Open](#)) 14:00
Selenium-Test-Suits - #6 Success after 1 min 3 sec ([Open](#)) 14:01
Deploy-to-Nexus-for-Prod - #1 Started by user admin ([Open](#)) 14:02
Deploy-to-Nexus-for-Prod - #1 Success after 33 sec ([Open](#)) 14:02



15. References

The following table summarizes the documents referenced in this plan.

DOCUMENT NAME	INSTRUCTOR	LOCATION
DevOps Beginners to Advanced	Imran Teli	https://www.udemy.com/course/decodingdevops/learn/lecture/28273912?start=0#overview

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