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CICD Lab Experiment 5

INTEGRATION OF JENKINS WITH SONARQUBE

This experiment revolves around Jenkins and its integration with SonarQube. So we will be inspecting our source code and integrating it simultaneously. Follow the steps given below to complete the process:

Step 1) Start your Jenkins server by typing in the command on your command prompt:

```
>>java -jar Jenkins.war -httpPort=8383
```

```
C:\WINDOWS\system32\cmd.exe - java -jar jenkins.war --httpPorts=8383
2020-10-19 21:06:57.335+0000 [id=1] INFO o.e.j.server.AbstractConnector#doStart: Started ServerConnector@ae13544[HTTP/1.1, (http/1.1)]{0.0.0.0:8383}
2020-10-19 21:06:57.335+0000 [id=1] INFO org.eclipse.jetty.server.Server#doStart: Started @3156ms
2020-10-19 21:06:57.337+0000 [id=25] INFO winstone.Logger#logInternal: Winstone Servlet Engine running: controlPort=disabled
2020-10-19 21:06:57.937+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Started initialization
2020-10-19 21:07:04.674+0000 [id=31] INFO jenkins.InitReactorRunner$1#onAttained: Listed all plugins
2020-10-19 21:07:04.681+0000 [id=41] INFO jenkins.InitReactorRunner$1#onAttained: Prepared all plugins
2020-10-19 21:07:06.333+0000 [id=39] INFO jenkins.InitReactorRunner$1#onAttained: Started all plugins
2020-10-19 21:07:06.421+0000 [id=30] INFO jenkins.InitReactorRunner$1#onAttained: Augmented all extensions
2020-10-19 21:07:06.422+0000 [id=36] INFO jenkins.InitReactorRunner$1#onAttained: System config loaded
2020-10-19 21:07:06.627+0000 [id=32] INFO jenkins.InitReactorRunner$1#onAttained: System config adapted
2020-10-19 21:07:06.627+0000 [id=37] INFO jenkins.InitReactorRunner$1#onAttained: Loaded all jobs
2020-10-19 21:07:06.627+0000 [id=37] INFO jenkins.InitReactorRunner$1#onAttained: Configuration for all jobs updated
2020-10-19 21:07:06.673+0000 [id=58] INFO hudson.model.AsyncPeriodicWork$lambda$doRun$0: Started Download metadata
2020-10-19 21:07:06.683+0000 [id=58] INFO hudson.model.AsyncPeriodicWork$lambda$doRun$0: Finished Download metadata, 9 ms
2020-10-19 21:07:07.069+0000 [id=37] INFO o.s.c.s.AbstractApplicationContext#prepareRefresh: Refreshing org.springframework.web.context.support.StaticWebApplicationContext@363ed5f5: display name [Root WebApplicationContext]; startup date [Tue Oct 20 02:37:07 IST 2020]; root of context hierarchy
2020-10-19 21:07:07.070+0000 [id=37] INFO o.s.c.s.AbstractApplicationContext#obtainFreshBeanFactory: Bean factory for application context [org.springframework.web.context.support.StaticWebApplicationContext@363ed5f5]: org.springframework.beans.factory.support.DefaultListableBeanFactory@14ff1f36
2020-10-19 21:07:07.084+0000 [id=37] INFO o.s.b.f.s.DefaultListableBeanFactory#preInstantiateSingletons: Pre-instantiating singletons in org.springframework.beans.factory.support.DefaultListableBeanFactory@14ff1f36: defining beans [authenticationManager]; root of factory hierarchy
2020-10-19 21:07:07.288+0000 [id=37] INFO o.s.c.s.AbstractApplicationContext#prepareRefresh: Refreshing org.springframework.web.context.support.StaticWebApplicationContext@4750c42c: display name [Root WebApplicationContext]; startup date [Tue Oct 20 02:37:07 IST 2020]; root of context hierarchy
2020-10-19 21:07:07.288+0000 [id=37] INFO o.s.c.s.AbstractApplicationContext#obtainFreshBeanFactory: Bean factory for application context [org.springframework.web.context.support.StaticWebApplicationContext@4750c42c]: org.springframework.beans.factory.support.DefaultListableBeanFactory@7e4f8809
2020-10-19 21:07:07.290+0000 [id=37] INFO o.s.b.f.s.DefaultListableBeanFactory#preInstantiateSingletons: Pre-instantiating singletons in org.springframework.beans.factory.support.DefaultListableBeanFactory@7e4f8809: defining beans [filter, legacy]; root of factory hierarchy
2020-10-19 21:07:07.374+0000 [id=37] INFO jenkins.InitReactorRunner$1#onAttained: Completed initialization
2020-10-19 21:07:07.434+0000 [id=24] INFO hudson.WebAppMain$3#run: Jenkins is fully up and running
```

Step 2) Start your SonarQube by StartSonar.bat

```
SonarQube
umpOnOutOfMemoryError -Des.path.home=C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\elasticsearch -Des.path.conf=C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\temp\confes -cp lib/* org.elasticsearch.bootstrap.Elasticsearch
jvm 1 | 2020.10.20 00:35:35 INFO app[[o.s.a.SchedulerImpl] Waiting for Elasticsearch to be up and running
jvm 1 | Java HotSpot(TM) 64-Bit Server VM warning: Option UseConcMarkSweepGC was deprecated in version 9.0 and will likely be removed in a future release.
jvm 1 | 2020.10.20 00:35:36 INFO app[[o.e.p.PluginsService] no modules loaded
jvm 1 | 2020.10.20 00:35:36 INFO app[[o.e.p.PluginsService] loaded plugin [org.elasticsearch.transport.Netty4Plugin]
jvm 1 | 2020.10.20 00:35:47 INFO app[[o.s.a.SchedulerImpl] Process(es) is up
jvm 1 | 2020.10.20 00:35:47 INFO app[[o.s.a.ProcessLauncherImpl] Launch process[[key='web', ipcIndex=2, logFilenamePrefix=web]] from [C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762]: C:\Program Files\Java\jdk-11.0.8\bin\java -Djava.awt.headless=true -Dfile.encoding=UTF-8 -Djava.io.tmpdir=C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\temp -XX:-OmitStackTraceInFastThrow --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.base/java.io=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED -Xmx512m -Xms128m -XX:+HeapDumpOnOutOfMemoryError -Dhttp.nonProxyHosts=localhost[127.*][:11] -cp ./lib/common/*;C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\lib\jdbc\h2-1.4.199.jar org.sonar.server.app.WebServer C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\temp\sq-process11079999892687935614properties
jvm 1 | 2020.10.20 00:37:01 INFO app[[o.s.a.SchedulerImpl] Process[web] is up
jvm 1 | 2020.10.20 00:37:01 INFO app[[o.s.a.ProcessLauncherImpl] Launch process[[key='ce', ipcIndex=3, logFilenamePrefix=ce]] from [C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762]: C:\Program Files\Java\jdk-11.0.8\bin\java -Djava.awt.headless=true -Dfile.encoding=UTF-8 -Djava.io.tmpdir=C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\temp -XX:-OmitStackTraceInFastThrow --add-opens=java.base/java.util=ALL-UNNAMED -Xmx512m -Xms128m -XX:+HeapDumpOnOutOfMemoryError -Dhttp.nonProxyHosts=localhost[127.*][:11] -cp ./lib/common/*;C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\lib\jdbc\h2-1.4.199.jar org.sonar.ce.app.CeServer C:\sonarqube-8.4.2.36762\sonarqube-8.4.2.36762\temp\sq-process18097138185376116366properties
jvm 1 | 2020.10.20 00:37:15 INFO app[[o.s.a.SchedulerImpl] Process[ce] is up
jvm 1 | 2020.10.20 00:37:15 INFO app[[o.s.a.SchedulerImpl] SonarQube is up
```

Step 3) Go to your Jenkins server (localhost:8383) and install "SonarQube Scanner" plugin

<input type="text" value="SonarQ"/>				
<div>Updates Available Installed Advanced</div>				
Enabled	Name	Version	Previously installed version	Uninstall
<input checked="" type="checkbox"/>	Credentials Plugin This plugin allows you to store credentials in Jenkins.	2.3.13		<button>Uninstall</button>
<input checked="" type="checkbox"/>	Plain Credentials Plugin Allows use of plain strings and files as credentials.	1.7		<button>Uninstall</button>
<input checked="" type="checkbox"/>	SonarQube Scanner for Jenkins This plugin allows an easy integration of SonarQube , the open source platform for Continuous Inspection of code quality.	2.12		<button>Uninstall</button>

Got to manage Jenkins>> global tool configuration and enter all the details related to SonarQube under that section:

Global properties

☐ Disable deferred wipeout on this node

☐ Environment variables

☐ Tool Locations

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

Server URL

Default is http://localhost:9000

Server authentication token

SonarQube authentication token. Mandatory when anonymous access is disabled.

List of SonarQube installations

Step 4) Make a maven project. Save it. Commit on github.

main 1 branch 0 tags

Go to file Add file Code

vanshika1009 Add files via upload 5ec298a 1 hour ago 2 commits

src/main/java/sonar	Add files via upload	1 hour ago
target	Add files via upload	1 hour ago
README.md	Initial commit	1 hour ago
pom.xml	Add files via upload	1 hour ago

README.md


CICD_lab45

Step 5) Make a "new item" on Jenkins and put in the specification just as given below:


Enter an item name

EXP_5


» Required field




Freestyle project
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.



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



Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.



Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific

OK

Folder

General

Source Code Management

Build Triggers

Build Environment

Pre Steps

Build

Post Steps

Build Settings

Post-build Actions

☒ Git

Repositories

Repository URLhttps://github.com/vanshika1009/CICD_lab45.git

Credentials- none -Add

Advanced...

Add Repository

Branches to build

Branch Specifier (blank for 'any')*/main

Add Branch

Repository browser

(Auto)

Additional Behaviours

Add

☐ Subversion

Save

Apply

General

Source Code Management

Build Triggers

Build Environment

Pre Steps

Build

Post Steps

Build Settings

Post-build Actions

Add pre-build step

Build

Root POMpom.xml

Goals and optionsclean install sonar:sonar -Dsonar.host.url=http://localhost:9002 -Dsonar.analysis.mode=publish

Advanced...

Post Steps

☐ Run only if build succeeds☐ Run only if build succeeds or is unstable☒ Run regardless of build result

Should the post-build steps run only for successful builds, etc.

Add post-build step

Build Settings

Save

Apply

Save the changes and "build now".

Step 6)

Back to Project

Status

Changes

Console Output

View as plain text

Edit Build Information

Git Build Data

No Tags

Monitor Maven Process

Console Output

Started by user [vanshika](#)
Running as SYSTEM
Building in workspace C:\Users\Dell\.jenkins\workspace\EXP_5
The recommended git tool is: NONE
No credentials specified
Cloning the remote Git repository
Cloning repository https://github.com/vanshika1009/CICD_lab45.git
> C:\Program Files\Git\cmd\git.exe init C:\Users\Dell\.jenkins\workspace\EXP_5 # timeout=10
Fetching upstream changes from https://github.com/vanshika1009/CICD_lab45.git
> C:\Program Files\Git\cmd\git.exe --version # timeout=10
> git --version # 'git version 2.25.1.windows.1'
> C:\Program Files\Git\cmd\git.exe fetch --tags --force --progress -- https://github.com/vanshika1009/CICD_lab45.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> C:\Program Files\Git\cmd\git.exe config remote.origin.url https://github.com/vanshika1009/CICD_lab45.git # timeout=10
> C:\Program Files\Git\cmd\git.exe config --add remote.origin.fetch +refs/heads/*:refs/remotes/origin/* # timeout=10
Avoid second fetch
> C:\Program Files\Git\cmd\git.exe rev-parse "refs/remotes/origin/main^{commit}" # timeout=10
> C:\Program Files\Git\cmd\git.exe rev-parse "refs/remotes/origin/origin/main^{commit}" # timeout=10
Checking out Revision 5ec298aa9a77ae3751bad6cfcf76955fb3664222 (refs/remotes/origin/main)
> C:\Program Files\Git\cmd\git.exe config core.sparsecheckout # timeout=10
> C:\Program Files\Git\cmd\git.exe checkout -f 5ec298aa9a77ae3751bad6cfcf76955fb3664222 # timeout=10
Commit message: "Add files via upload"
First time build. Skipping changelog.
Parsing POMs
Discovered a new module Sonar:sonar-sonar
Modules changed, recalculating dependency graph
Established TCP socket on 52626
[EXP_5] \$ "C:\Program Files\Java\jdk-11.0.8\bin\java" -cp C:\Users\Dell\.jenkins\plugins\maven-plugin\WEB-INF\lib\maven35-agent-1.13.jar;C:\apache-maven-3.6.3\boot\plexus-classworlds-2.6.0.jar;C:\apache-maven-3.6.3\conf\logging-jenkins-maven35-agent\Maven35Main C:\apache-maven-3.6.3 C:\Users\Dell\.jenkins\war\WEB-INF\lib\remoting-4.3.jar C:\Users\Dell\.jenkins\plugins\maven-plugin\WEB-

```
[INFO] Sensor XML Sensor [xml]
[INFO] 1 source files to be analyzed
[INFO] Sensor XML Sensor [xml] (done) | time=393ms
[INFO] 1/1 source files have been analyzed
[INFO] ----- Run sensors on project
[INFO] Sensor Zero Coverage Sensor
[INFO] Sensor Zero Coverage Sensor (done) | time=30ms
[INFO] Sensor Java CPD Block Indexer
[INFO] Sensor Java CPD Block Indexer (done) | time=96ms
[INFO] SCM Publisher SCM provider for this project is: git
[INFO] SCM Publisher 2 source files to be analyzed
[INFO] SCM Publisher 2/2 source files have been analyzed (done) | time=388ms
[INFO] CPD Executor 1 file had no CPD blocks
[INFO] CPD Executor Calculating CPD for 0 files
[INFO] CPD Executor CPD calculation finished (done) | time=0ms
[INFO] Analysis report generated in 216ms, dir size=81 KB
[INFO] Analysis report compressed in 61ms, zip size=13 KB
[INFO] Analysis report uploaded in 501ms
[INFO] ANALYSIS SUCCESSFUL, you can browse http://localhost:9002/dashboard?id=Sonar%3Asonar
[INFO] Note that you will be able to access the updated dashboard once the server has processed the submitted analysis report
[INFO] More about the report processing at http://localhost:9002/api/ce/task?id=AXVC7b9SUH4IXD7eAwIc
[INFO] Analysis total time: 40.141 s
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 01:00 min
[INFO] Finished at: 2020-10-20T03:44:39+05:30
[INFO] -----
Waiting for Jenkins to finish collecting data
[JENKINS] Archiving C:\Users\Dell\.jenkins\workspace\EXP_5\pom.xml to Sonar\sonar\0.0.1-SNAPSHOT\sonar-0.0.1-SNAPSHOT.pom
[JENKINS] Archiving C:\Users\Dell\.jenkins\workspace\EXP_5\target\sonar-0.0.1-SNAPSHOT.jar to Sonar\sonar\0.0.1-SNAPSHOT\sonar-0.0.1-SNAPSHOT.jar
channel stopped
Finished: SUCCESS
```

Step 7) Go to your SonarQube server to checkout the reviews

sonarqube

ProjectsIssuesRulesQuality ProfilesQuality Gates

?

Search for projects...

Log in

sonar

master

Last analysis had 2 warnings

October 20, 2020, 1:04 AM

Version 0.0.1-SNAPSHOT

Overview

Issues

Security Hotspots

Measures

Code

Activity

Project Information

QUALITY GATE STATUS ⓘ

MEASURES

Passed

All conditions passed.

New Code

Overall Code

0

Bugs

Reliability

A

0

Vulnerabilities

Security

A

0

Security Hotspots ⓘ

Reviewed

Security Review

A

10min

Debt

2

Code Smells

Maintainability

A