

POSGRADOS UPS
MAESTRÍA EN SOFTWARE
Diseño De Arquitecturas De Sistemas

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Introducción

Jenkins: es una herramienta de integración continua ampliamente utilizada en el desarrollo de software. Permite automatizar varias tareas relacionadas con la construcción, prueba y entrega de software.

Pipeline: Es un conjunto de pasos automatizados que facilitan el flujo continuo de trabajo desde el desarrollo hasta la entrega del software. Está compuesto por diversas etapas, como construcción, pruebas, implementación y entrega. El pipeline asegura que cada etapa se ejecute secuencialmente y de forma automatizada, lo que permite una entrega rápida y confiable del software.

Objetivo

Verificar que el demo de Pipeline **java_sec_demo-main** se ejecute sin errores con Jenkins.

Desarrollo del práctica

Para la práctica se utilizó:

Máquina host una Mac M2 RAM 32 GB

Servidor Jenkins

Ejecución:

verificamos la versión de java 17

java -version

```
s.corderoc@desarrollo provisioning % java -version
java version "17.0.7" 2023-04-18 LTS
Java(TM) SE Runtime Environment (build 17.0.7+8-LTS-224)
Java HotSpot(TM) 64-Bit Server VM (build 17.0.7+8-LTS-224, mixed mode, sharing)
s.corderoc@desarrollo provisioning %
```

Verificamos la versión de maven 3.6.3

```
s.corderoc@desarrollo pagos % mvn -v
Apache Maven 3.6.3 (cecedd343002696d0abb50b32b541b8a6ba2883f)
Maven home: /usr/local/apache-maven-3.6.3
```

Compilamos el proyecto **java_sec_demo-main/**

Comandos:

mvn clean package

mvn clean package jib:dockerBuild

```
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 6.351 s - in nl.amis.smeetsm.demoservice.Demoser
2023-07-07 23:37:02.344 INFO 46137 --- [extShutdownHook] o.s.s.concurrent.ThreadPoolTaskExecutor : Shutting down Exec
[INFO]
[INFO] Results:
[INFO]
[INFO] Tests run: 1, Failures: 0, Errors: 0, Skipped: 0
[INFO]
[INFO]
[INFO] --- jacoco-maven-plugin:0.8.6:report (report) @ spring-boot-demo ---
[INFO] Loading execution data file /Users/s.corderoc/java_sec_demo-main/target/jacoco.exec
[INFO] Analyzed bundle 'spring-boot-demo' with 2 classes
[INFO]
[INFO] --- maven-jar-plugin:3.2.0:jar (default-jar) @ spring-boot-demo ---
[INFO] Building jar: /Users/s.corderoc/java_sec_demo-main/target/spring-boot-demo-0.0.1-SNAPSHOT.jar
[INFO]
[INFO] --- spring-boot-maven-plugin:2.3.4.RELEASE:repackage (repackage) @ spring-boot-demo ---
[INFO] Replacing main artifact with repackaged archive
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 13.855 s
[INFO] Finished at: 2023-07-07T23:37:03-05:00
[INFO]
```

Levantamos el docker dentro de **/provisioning**

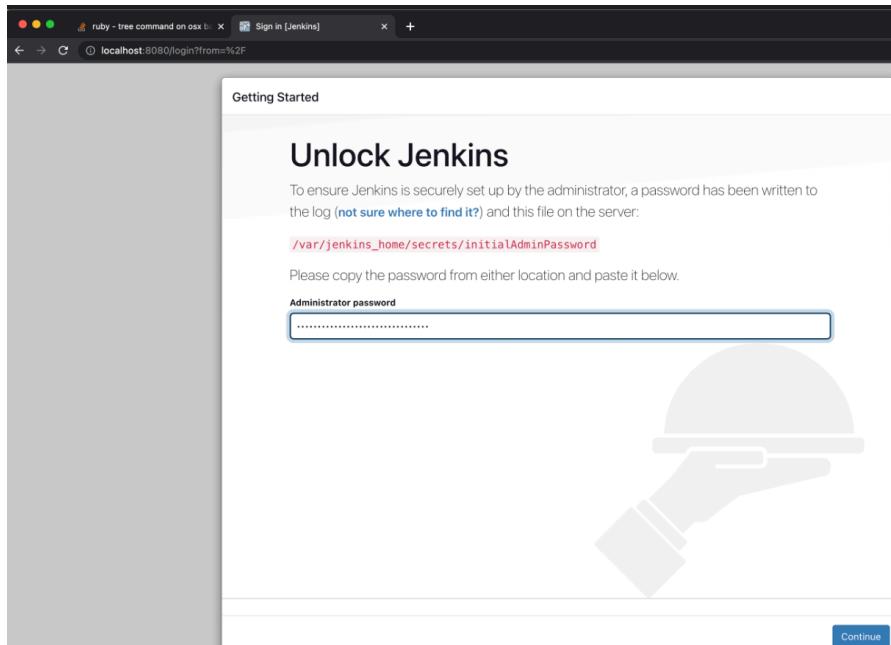
docker-compose up

```
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.p.w.MasterServletFilter] Initializing servlet filter org.sonar.server.authentication.OAuth2CallbackFilter@2d98d07 [pattern=UrlPattern[inclusions=[/oauth2/callback/*], exclusions=[]}]
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.p.w.MasterServletFilter] Initializing servlet filter org.sonar.server.authentication.ResetPasswordFilter@5c1c2b0 [pattern=UrlPattern[inclusions=[/*], exclusions=[*.css, ...]]]
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.p.w.MasterServletFilter] Initializing servlet filter org.sonar.server.authentication.ws.LoginAction@f7f1c05 [pattern=UrlPattern[inclusions=[/api/authentication/login], exclusions=[...]]]
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.p.w.MasterServletFilter] Initializing servlet filter org.sonar.server.authentication.ws.LogoutAction@87e3504d [pattern=UrlPattern[inclusions=[/api/authentication/logout], exclusions=[...]]]
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.p.w.MasterServletFilter] Initializing servlet filter org.sonar.server.authentication.ws.ValidateAction@721d2f5a [pattern=UrlPattern[inclusions=[/api/authentication/validate], exclusions=[...]]]
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [users/user]...
sonarqube | 2023.07.05 23:58:01 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [30s] to [-1]
sonarqube | 2023.07.05 23:58:01 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [30s] to [-1]
sonarqube | 2023.07.05 23:58:01 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [-1] to [30s]
sonarqube | 2023.07.05 23:58:01 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [-1] to [30s]
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [users/user] done | time=518ms
sonarqube | 2023.07.05 23:58:01 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [components/auth/component]...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [components/auth/component] done | time=165ms
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [views/view]...
sonarqube | 2023.07.05 23:58:02 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [30s] to [-1]
sonarqube | 2023.07.05 23:58:02 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [30s] to [-1]
sonarqube | 2023.07.05 23:58:02 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [-1] to [30s]
sonarqube | 2023.07.05 23:58:02 INFO es>[] [o.e.c.s.IndexerScopedSettings] updating [index.refresh.interval] from [-1] to [30s]
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [views/view] done | time=314ms
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Trigger asynchronous indexing of type [issues/auth/issue]...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.i.AsyncIssueIndexingImpl] 0 pending indexing task found to be deleted...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.i.AsyncIssueIndexingImpl] 0 completed indexing task found to be deleted...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.i.AsyncIssueIndexingImpl] Deletion tasks characteristics...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.i.AsyncIssueIndexingImpl] Task characteristics deletion complete.
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.i.AsyncIssueIndexingImpl] 0 branch found in need of issue sync.
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Trigger asynchronous indexing of type [issues/auth/issue] done | time=42ms
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Triggering of types [components/auth], [projectmeasures/auth], [issues/auth]...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Triggering of type [components/auth], [projectmeasures/auth], [issues/auth] done | time=118ms
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.e.IndexerStartupTask] Indexing of type [projectmeasures/auth/projectmeasure]...
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.q.ProjectsInWarningDaemon] Counting number of projects in warning is enabled.
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.p.PlatformLevelStartup] Running Community Edition
sonarqube | 2023.07.05 23:58:02 WARN es>[] [o.e.d.r.a.s.RestSearchAction] [types removal] Specifying types in search requests is deprecated.
sonarqube | 2023.07.05 23:58:02 INFO web[] [o.s.s.p.Platform] WebServer is operational
sonarqube | 2023.07.05 23:58:02 INFO ce>[] [o.s.ce.app.CeServer] /opt/sonarqube/temp/sq-process/0602769961327042746.properties
sonarqube | 2023.07.05 23:58:03 INFO ce>[] [o.s.ce.ProcessingPoint] Starting ce...
sonarqube | 2023.07.05 23:58:03 INFO ce>[] [o.s.ce.app.CeServer] Compute Engine starting up...
sonarqube | 2023.07.05 23:58:04 INFO ce>[] [o.s.s.e.EsClientProvider] Connected to local ElasticSearch: [http://localhost:9001]
sonarqube | 2023.07.05 23:58:04 INFO ce>[] [o.sonar.db.Database] Create JDBC data source for jdbc:mysql://127.0.0.1:3306/sonar
sonarqube | 2023.07.05 23:58:05 WARN ce>[] [o.s.db.dialect.H2] H2 database should be used for evaluation purpose only.
sonarqube | 2023.07.05 23:58:06 INFO ce>[] [o.s.s.p.ServerFilesystemImpl] SonarQube home: /opt/sonarqube
sonarqube | 2023.07.05 23:58:06 INFO ce>[] [o.s.c.e.CePluginRepository] Load plugins
sonarqube | 2023.07.05 23:58:07 INFO ce>[] [o.s.c.e.ComputeEngineContainerImpl] Running Community edition
sonarqube | 2023.07.05 23:58:07 INFO ce>[] [o.s.c.e.ComputeEngineContainerImpl] Compute Engine is operational
sonarqube | 2023.07.05 23:58:08 INFO ce>[] [o.s.s.p.SchedulerImpl] ProcessFor is up
sonarqube | 2023.07.05 23:58:08 INFO ce>[] [o.s.c.e.ComputerImpl] SonarQube is up
sonarqube | 2023.07.05 23:58:09 INFO ce>[] [o.s.c.t.ComWorkerImpl] worker AtkofjeMXDopQLsRN found no pending task (including indexation task). Disabling indexation task lookup for this worker until next SonarQube restart.
```

Iniciamos Jenkins

<https://localhost:8080>

Desbloqueamos Jenkins



Configuramos Jenkins

En un terminal ejecutamos

docker ps

```
s.corderoc@desarrollo provisioning % java -version
java version "17.0.7" 2023-04-18 LTS
Java(TM) SE Runtime Environment (build 17.0.7+8-LTS-224)
Java HotSpot(TM) 64-Bit Server VM (build 17.0.7+8-LTS-224, mixed mode, sharing)
s.corderoc@desarrollo provisioning % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAME
4a8b19d68529 jenkins/jenkins:lts "/usr/bin/tini -- /u..." 21 minutes ago Up 5 minutes 0.0.0.0:8080->8080/tcp, 0.0.0.0:50000->50000/tcp provisioning-jenkins-1
4a2c38e65d00 owasp/zap2docker-stable "zap.sh -daemon -hos..." 21 minutes ago Up 5 minutes (healthy) 0.0.0.0:8085->8080/tcp zap
e8cf1816209 jtux/spring-boot-demo "java -cp /app/resou..." 21 minutes ago Up 5 minutes 8080/tcp myapp
aca0c2ae1a3c sonarqube:8.6-community "bin/run.sh bin/sona..." 21 minutes ago Up 5 minutes 0.0.0.0:9000->9000/tcp sonarqube
```

Ingresamos a la terminal del Jenkins mediante el siguiente comando

docker exec -it 4a8b19d68529 /bin/bash

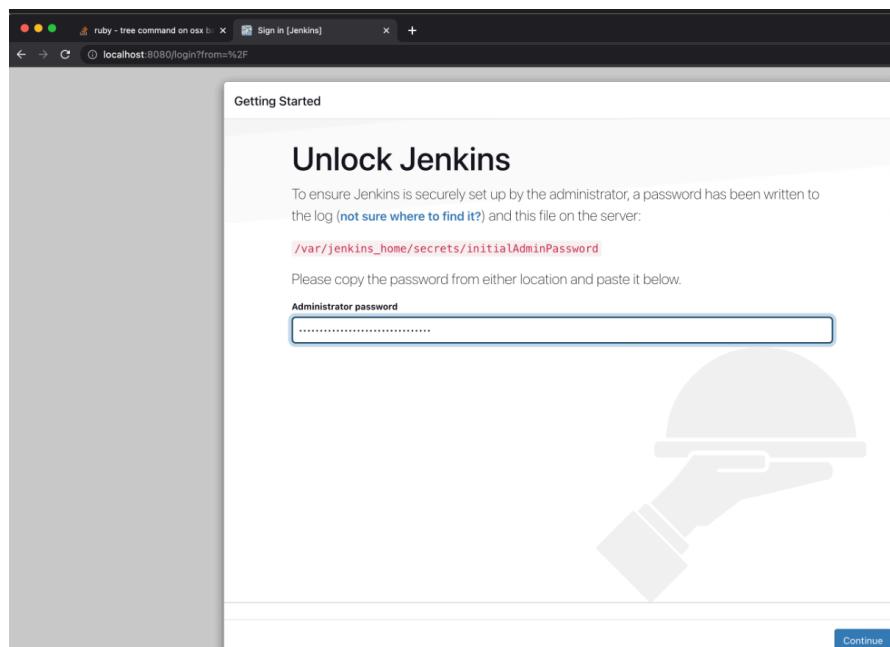
```
s.corderoc@desarrollo provisioning % java -version
java version "17.0.7" 2023-04-18 LTS
Java(TM) SE Runtime Environment (build 17.0.7+8-LTS-224)
Java HotSpot(TM) 64-Bit Server VM (build 17.0.7+8-LTS-224, mixed mode, sharing)
s.corderoc@desarrollo provisioning % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAME
4a8b19d68529 jenkins/jenkins:lts "/usr/bin/tini -- /u..." 21 minutes ago Up 5 minutes 0.0.0.0:8080->8080/tcp, 0.0.0.0:50000->50000/tcp provisioning-jenkins-1
4a2c38e65d00 owasp/zap2docker-stable "zap.sh -daemon -hos..." 21 minutes ago Up 5 minutes (healthy) 0.0.0.0:8085->8080/tcp zap
e8cf1816209 jtux/spring-boot-demo "java -cp /app/resou..." 21 minutes ago Up 5 minutes 8080/tcp myapp
aca0c2ae1a3c sonarqube:8.6-community "bin/run.sh bin/sona..." 21 minutes ago Up 5 minutes 0.0.0.0:9000->9000/tcp sonarqube
s.corderoc@desarrollo provisioning % docker exec -it 4a8b19d68529 /bin/bash
jenkins@4a8b19d68529:/$
```

Dentro de la terminal de **Jenkins** ejecutamos

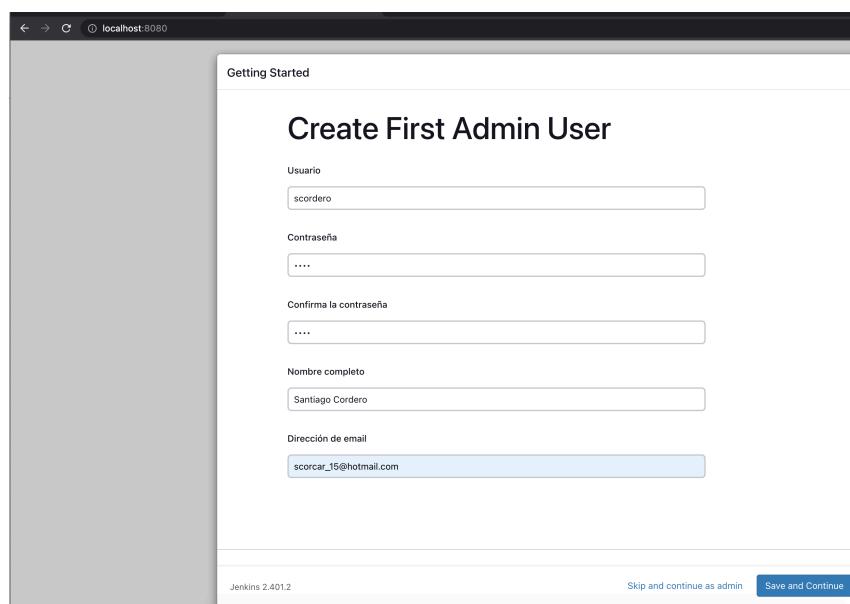
```
cat /var/jenkins_home/secrets/initialAdminPassword
```

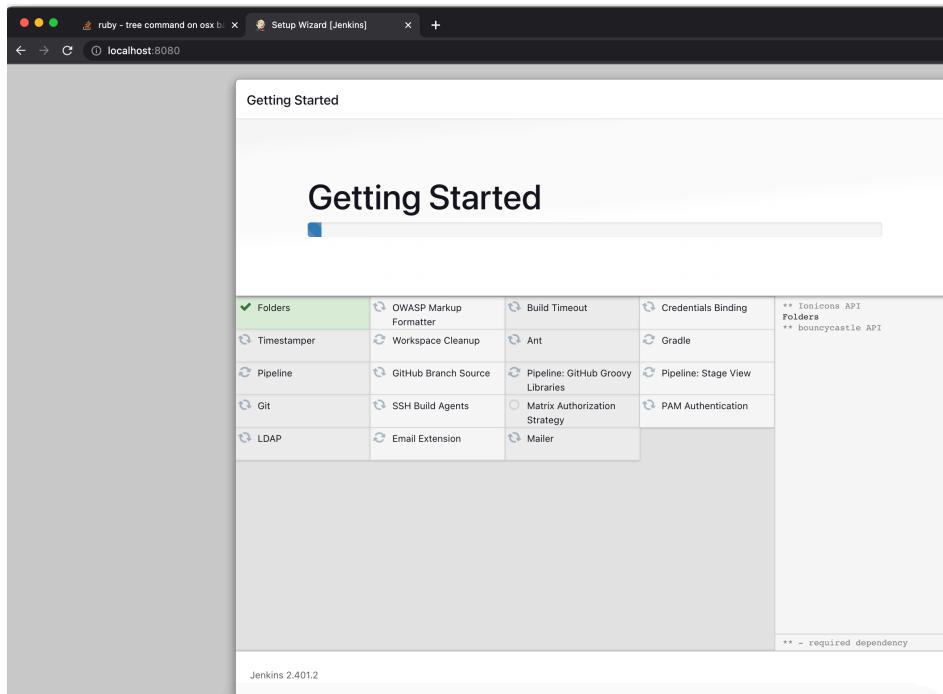
Se genera el token y le pegamos en la siguiente pantalla

84a581bee2c547d6bff0327e482515f6

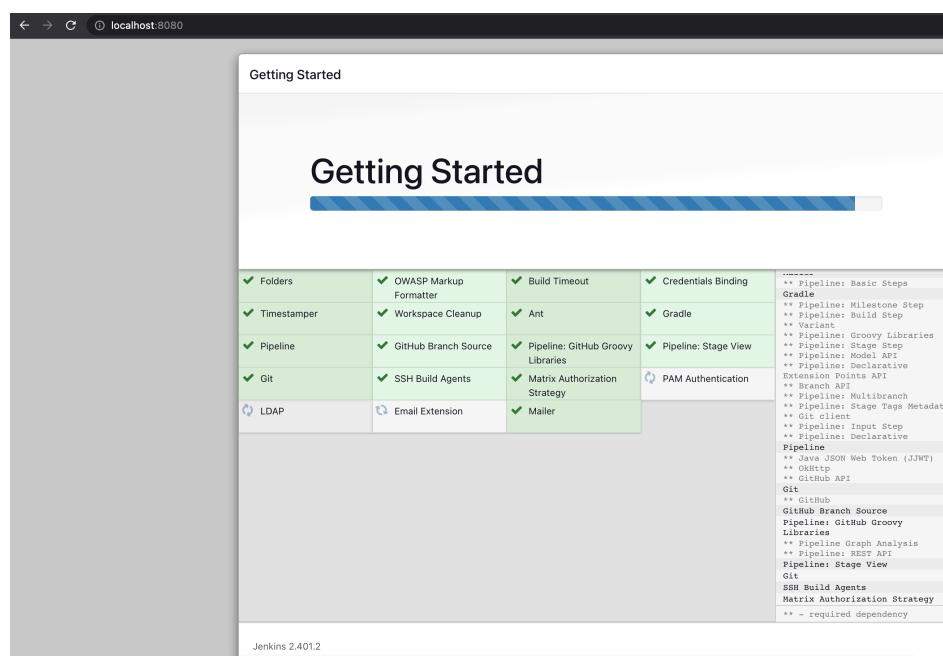


Inicio

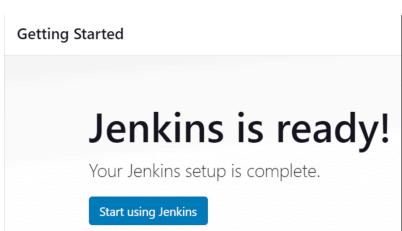




Instalando



Finalizado



Configuración

Agregamos el proyecto a GitHub

Para el proyecto se utilizo la rama **desarrollo**

The screenshot shows a GitHub repository page for 'scordero1234 / java_sec_demo-main'. The 'Code' tab is selected. The main heading is 'java_sec_demo-main' (Public). Below it, there are buttons for 'desarrollo' (selected), '2 branches', '0 tags', 'Go to file', 'Add file', and 'Code'. A note says 'This branch is 10 commits ahead of main.' On the right, there are 'Pin', 'Unwatch', and 'Contribute' buttons. The commit list for the 'desarrollo' branch is shown, starting with 's.corderoc prueba4' (d3e36f3, 3 days ago) which has 12 commits. The commits include 'provisioning', 'src', 'target', '.gitattributes', '.gitignore', 'Jenkinsfile', 'README.md', 'image.png', and 'pom.xml', all marked as 'Initial commit' and occurring 4 days ago.

Commit	Message	Date	Commits
s.corderoc prueba4	d3e36f3 3 days ago	12 commits	
provisioning	Initial commit	4 days ago	
src	Initial commit	4 days ago	
target	Initial commit	4 days ago	
.gitattributes	Initial commit	4 days ago	
.gitignore	Initial commit	4 days ago	
Jenkinsfile	prueba4	3 days ago	
README.md	configuracion del proyecto	3 days ago	
image.png	Create image.png	4 days ago	
pom.xml	Initial commit	4 days ago	

Administración de Jenkins

Usuario: scordero

Contraseña : 2303

The screenshot shows the Jenkins 'Welcome to Jenkins!' login page. It features a cartoon Jenkins head icon holding a coffee cup. The page includes fields for 'Username' and 'Contraseña', a 'Keep me signed in' checkbox, and a large blue 'Sign in' button.

Creamos una tarea

The screenshot shows the Jenkins dashboard. On the left, there's a sidebar with links like 'Nueva Tarea', 'Personas', 'Historial de trabajos', etc. The main area displays a table of build histories. One entry is highlighted: 'santiago' (status: green checkmark), 'Último Éxito: #30', 'Último Fallo: #29', 'Última Duración: 39 Seg', and '# Issues: 3'. Below the table, there are links for 'Icono: S M L', 'Icon legend', 'Atom feed for all', 'Atom feed for failures', and 'Atom feed for just latest builds'.

Agregamos el proyecto desde GitHub

The screenshot shows the configuration page for the 'santiago' job. The top navigation bar shows 'Panel de Control > santiago > Configuration'. The main section is titled 'Configure'. Under the 'General' tab (selected), there are several checkboxes: 'Construir tras otros proyectos', 'Ejecutar periódicamente', 'Build whenever a SNAPSHOT dependency is built', and 'GitHub hook trigger for GITScm polling' (which is checked). There's also a link 'Advanced Project Options'.

Agregamos

The screenshot shows the 'Repositories' configuration page. It has sections for 'Repository URL' (containing 'https://github.com/scordero1234/java_sec_demo-main.git'), 'Credentials' (set to '- none -'), and 'Avanzado'. At the bottom, there's a 'Add Repository' button. Below it is the 'Branches to build' section with a 'Branch Specifier' field containing '/desarrollo' and an 'Add Branch' button. The final section is 'Navegador del repositorio' with a dropdown set to '(Auto)'.

En Tools agregamos en proyecto maven

The screenshot shows the Jenkins 'Tools' configuration page under the 'Panel de Control > Administrar Jenkins > Tools' path. The 'Maven' section is selected. A sub-section titled 'instalaciones de Maven' is shown, with a note indicating it lists Maven installations in the system. An 'Añadir Maven' button is available. A single Maven installation is listed: 'Nombre' is 'mvn-3.6.3', and the 'Instalar automáticamente' checkbox is checked. Underneath, there's an 'Instalar desde Apache' section with 'Versión' set to '3.6.3'. A 'Añadir un instalador' button is also present. At the bottom of the list is another 'Añadir Maven' button.

Ejecutamos el proyecto

The screenshot shows the Jenkins Pipeline interface for the 'Pipeline santiago' job. The top navigation bar includes the Jenkins logo and a search bar labeled 'búsqueda (⌘+K)'. The main area shows the pipeline status: 'Status' (green), 'Changes' (empty), and a 'Construir ahora' (Build now) button. The pipeline name 'Pipeline santiago' is displayed prominently.

Se presenta errores al compilar el proyecto

Panel de Control > santiago > #8

```
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (ZAP)
Stage "ZAP" skipped due to earlier failure(s)
[Pipeline]
[Pipeline] // stage
[Pipeline] stage
[Pipeline] { (SonarQube analysis)
Stage "SonarQube analysis" skipped due to earlier failure(s)
[Pipeline]
[Pipeline] // stage
[Pipeline]
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // withEnv
[Pipeline]
[Pipeline] // node
[Pipeline] End of Pipeline
Also: org.jenkinsci.plugins.workflow.actions.ErrorAction$ErrorId: d167bdda-4148-4fa4-8077-65443e0e3181
java.lang.NoSuchMethodError: No such DSL method 'dependencyCheckPublisher' found among steps [archive, bat,
build, catchError, checkout, deleteDir, dir, echo, emaiext, emaiextrecipients, envVarsForTool, error,
fileExists, findBuildScans, getContext, git, input, isUnix, junit, library, libraryResource, load, mail,
milestone, node, parallel, powershell, properties, publishChecks, pwd, pwsh, readFile, readTrusted,
resolveScm, retry, script, sh, sleep, stage, stash, step, timeout, timestamps, tm, tool, unarchive,
unstable, unstash, validateDeclarativePipeline, waitForBuild, waitUntil, warnError, withChecks, withContext
withCredentials, withEnv, withGradle, withMaven, wrap, writeFile, ws] or symbols [GitUsernamePassword,
agent, all, allBranchesSame, allOf, always, ant, antFromApache, antOutcome, antTarget, any, anyOf, apiToken
apiTokenProperty, architecture, archiveArtifacts, artifactManager, artifactsPublisher, assembla,
authorInChangelog, authorizationMatrix, batchFile, bitbucket, bitbucketServer, booleanParam, branch,
brokenBuildSuspects, brokenTestsSuspects, browser, buildButton, buildDiscarder, buildDiscarders,
buildRetention, buildSingleRevisionOnly, buildUser, buildingTag, builtInNode, caseInsensitive,
```

Solución

Nombre ↓	Activados
OWASP Dependency-Check Plugin 5.4.0	<input checked="" type="checkbox"/>

This plug-in can independently execute a [Dependency-Check](#) analysis and visualize results.

Dependency-Check is a utility that identifies project dependencies and checks if there are any known, publicly disclosed, vulnerabilities.

[Report an issue with this plugin](#)

Se presenta errores al compilar el proyecto

```
Panel de Control > santiago > #10
[Pipeline]
[Pipeline] // node
[Pipeline] End of Pipeline
Also:   org.jenkinsci.plugins.workflow.actions.ErrorAction$ErrorId: e8ec8470-e709-4fe5-9ffa-36ef384fdd50
java.lang.NoSuchMethodError: No such DSL method 'publishHTML' found among steps [archive, bat, build,
catchError, checkout, deleteDir, dependencyCheckPublisher, dir, echo, emailext, emailextrecipients,
envVarsForTool, error, fileExists, findBuildScans, getContext, git, input, isUnix, junit, library,
libraryResource, load, mail, milestone, node, parallel, powershell, properties, publishChecks,
publishIssues, pwd, pws, readFile, readTrusted, recordIssues, resolveScm, retry, scanForIssues, script, sh,
sleep, stage, stash, step, timeout, timestamps, tm, tool, unarchive, unstable, unstash,
validateDeclarativePipeline, waitForBuild, waitUntil, warnError, withChecks, withContext, withCredentials,
withEnv, withGradle, withMaven, wrap, writeFile, ws] or symbols [GitUsernamePassword, PVSStudio, acuCobol,
agent, ajc, all, allBranchesSame, allOf, always, analysisParser, androidLintParser, ansibleLint, ant,
antFromApache, antOutcome, antTarget, any, anyOf, apiToken, apiTokenProperty, aquaScanner, architecture,
archiveArtifacts, armCc, artifactManager, artifactsPublisher, assembla, authorInChangelog,
authorizationMatrix, axivion, axivionSuite, batchFile, bitbucket, bitbucketServer, bluepearl, booleanParam,
brakeman, branch, brokenBuildSuspects, brokenTestsSuspects, browser, buckminster, buildButton,
buildDiscarder, buildDiscarders, buildRetention, buildSingleRevisionOnly, buildUser, buildingTag,
builtInNode, cadence, cargo, caseInsensitive, ccm, certificate, cgit, changeRequest,
changelog, changelogBase, changelogToBranch, changeset, checkStyle, checkoutOption, checkoutToSubdirectory,
choice, choiceParam, clair, clang, clangAnalyzer, clangTidy, cleanAfterCheckout, cleanBeforeCheckout,
cleanWs, clock, cloneOption, cmake, codeAnalysis, codeChecker, codeGeneratorParser, codeNarc, command,
concordianPublisher, configFile, configServiceProvider, contributor, coolflux, cpd, cppCheck, cppLint,
credentials, cron, crumb, csslint, culprits, dart, defaultFolderConfiguration, defaultView, demand,
dependenciesFingerprintPublisher, dependencyCheck, dependencyCheck, detekt, developers,
diabC, disableConcurrentBuilds, disableRestartFromStage, disableResume, discoverOtherRefs,
discoverOtherRefsTrait, discoverReferenceBuild, docFx, dockerlint, downstream, doxygen, drMemory, dscanner,
dumb, dupFinder, durabilityHint, eclipse, email-ext, embeddedEngineerParser, envVars, envVarsFilter,
environment, equals, erlc, errorProne, eslint, excludeCategory, excludeFile, excludeMessage, excludeModule,
excludeNamespace, excludePackage, excludeType, experimentalFlags, expression, extendedEmailPublisher, file,
fileParam, filePath, findBugs, findbugsPublisher, fingerprint, fingerprints, fisheye, flake8, flawfinder,
flexSdk, frameOptions, freeStyle, freeStyleJob, fromScm, fromSource, fxcop, gcc, gcc3, gcc4, gendarme,
ghsMulti, git, gitBranchDiscovery, gitHooks, gitHubBranchDiscovery, gitHubBranchHeadAuthority,
gitHubExcludeArchivedRepositories, gitHubExcludeForkedRepositories, gitHubExcludePrivateRepositories,
gitHubExcludePublicRepositories, gitHubForkDiscovery, gitHubIgnoreDraftPullRequestFilter,
```

Solución

[HTML Publisher plugin 1.31](#)

This plugin publishes HTML reports.

[Report an issue with this plugin](#)



Se presentan error al compilar el proyecto

Panel de Control > santiago > #11

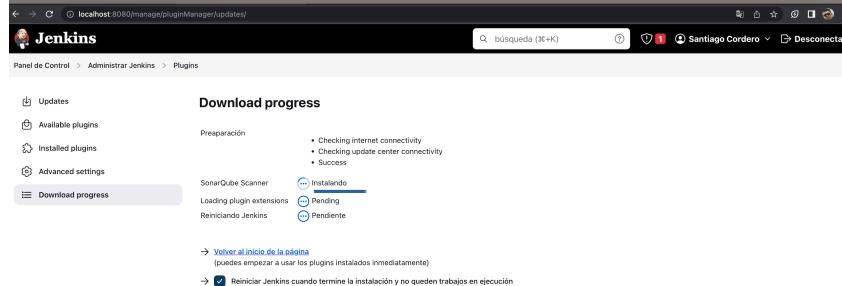
```
[Pipeline] envvarsForTool
[Pipeline] withEnv
[Pipeline] {
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
Also: org.jenkinsci.plugins.workflow.actions.ErrorAction$ErrorId: 21a558fa-5ddf-45d8-a981-e1f63ad4e020
java.lang.NoSuchMethodError: No such DSL method 'withSonarQubeEnv' found among steps [archive, bat, build, catchError, checkout, deleteDir, dependencyCheckPublisher, dir, echo, emailext, emailextrecipients, envVarsForTool, error, fileExists, findBuildScans, getContext, git, input, isUnix, junit, library, libraryResource, load, mail, milestone, node, parallel, powershell, properties, publishChecks, publishHTML, publishIssues, pwd, pwsh, readFile, readTrusted, recordIssues, resolveScm, retry, scanForIssues, script, sh, sleep, stage, stash, step, timeout, timestamps, tm, tool, unarchive, unstable, unstash, validateDeclarativePipeline, waitForBuild, waitUntil, throwError, withChecks, withContext, withCredentials, withEnv, withGradle, withMaven, wrap, writeFile, wsl] or symbols [GitUsernamePassword, PVSStudio, acuCobol, agent, ajc, all, allBranchesSame, allOf, always, analysisParser, androidLintParser, ansibleLint, ant, antFromApache, antOutcome, antTarget, any, anyOf, apiToken, apiTokenProperty, aquaScanner, architecture, archiveArtifacts, armCc, artifactManager, artifactsPublisher, assembla, authorInChangelog, authorizationMatrix, axivion, axivionSuite, batchFile, bitbucket, bitbucketServer, bluepearl, booleanParam, brakeman, branch, brokenBuildSuspects, brokenTestsSuspects, browser, buckminster, buildButton, buildDiscarder, buildDiscarders, buildRetention, buildSingleRevisionOnly, buildUser, buildingTag, builtInNode, cadence, cargo, caseInsensitive, caseSensitive, ccm, certificate, cgit, changeRequest, changelog, changelogBase, changelogToBranch, changeset, checkStyle, checkoutOption, checkoutToSubdirectory,
```

Solución

Nombre ↓	Activados
SonarQube Scanner for Jenkins 2.15	<input checked="" type="checkbox"/>

This plugin allows an easy integration of [SonarQube](#), the open source platform for Continuous Inspection of code quality.

[Report an issue with this plugin](#)



Se presentan error al compilar el proyecto

Panel de Control > santiago > #12

```
plugin:findbugs results in pipeline screen.  
[withMaven] jgivenPublisher - Jenkins JGiven Plugin not found, do not archive jgiven reports.  
[withMaven] Jenkins Task Scanner Plugin not found, don't display results of source code scanning for 'TODO' and 'FIXME' in pipeline screen.  
[withMaven] Publishers: Pipeline Graph Publisher: 1 ms, Generated Artifacts Publisher: 4 ms  
[Pipeline] // withMaven  
[Pipeline] }  
[Pipeline] // withEnv  
[Pipeline] }  
[Pipeline] // stage  
[Pipeline] stage  
[Pipeline] { (SonarQube analysis)  
[Pipeline] tool  
[Pipeline] envVarsForTool  
[Pipeline] tool  
[Pipeline] envVarsForTool  
[Pipeline] withEnv  
[Pipeline] {  
[Pipeline] withSonarQubeEnv  
[Pipeline] // withSonarQubeEnv  
[Pipeline] }  
[Pipeline] // withEnv  
[Pipeline] }  
[Pipeline] // withEnv  
[Pipeline] }  
[Pipeline] // withEnv  
[Pipeline] }  
[Pipeline] // node  
[Pipeline] End of Pipeline  
ERROR: SonarQube installation defined in this job (sonarqube-server) does not match any configured  
installation. Number of installations that can be configured: 0.  
If you want to reassign jobs to a different SonarQube installation, check the documentation under  
https://redirect.sonarsource.com/plugins/jenkins.html  
Finished: FAILURE
```

localhost:8080/job/santiago/

Panel de Control > santiago >

Configurar

Borrar Pipeline

Full Stage View

Rename

Pipeline Syntax

GitHub Hook Log

Historia de tareas Tendencia

Filter builds...

Average stage times:

	Declarative: Checkout SCM	Declarative: Tool Install	Build	OWASP Dependency-Check Vulnerabilities	PMD SpotBugs	ZAP	SonarQube analysis
#10	14s	3s	21s	25s	9s	6s	20ms
#9	621ms	77ms	4s	4s	4s	30s	
#8	632ms	80ms	5s	4s	41s failed	45ms failed	23ms failed
#7	741ms	78ms	1min 35s	1min 58s failed	50ms failed	25ms failed	24ms failed
#6	26s	15s	171ms failed	44ms failed	30ms failed	29ms failed	20ms failed
#5	42s	43ms	94ms failed	17ms failed	16ms failed	16ms failed	16ms failed
#4							

Atom feed Para Todos
Atom feed para los errores

The screenshot shows the Jenkins Pipeline santiago stage view. On the left, there's a sidebar with various options like Status, Changes, Build now, Configuration, Delete Pipeline, Full Stage View, Rename, Pipeline Syntax, and GitHub Hook Log. The main area has a "Stage View" header and a table showing average stage times for different stages: Declarative: Checkout SCM (11s), Declarative: Tool Install (2s), Build (18s), OWASP Dependency-Check Vulnerabilities (21s), PMD SpotBugs (8s), ZAP (8s), and SonarQube analysis (44ms). Below this is a grid of build history for builds #11 to #5. Each row contains a timestamp, a "No Changes" note, and a duration. The last build (#5) failed after 1min 58s.

	Declarative: Checkout SCM	Declarative: Tool Install	Build	OWASP Dependency-Check Vulnerabilities	PMD SpotBugs	ZAP	SonarQube analysis
Average stage times:	11s	2s	18s	21s	8s	8s	44ms
#11 jul 05 22:09	661ms	88ms	4s	4s	4s	13s	140ms failed
#10 jul 05 22:02	621ms	77ms	4s	4s	4s	40s failed	41ms failed
#9 jul 05 21:51	632ms	80ms	5s	4s	41s failed	45ms failed	23ms failed
#8 jul 05 21:42	741ms	78ms	1min 35s	1min 58s failed	50ms failed	25ms failed	24ms failed
#7 jul. 2023 02:29							
#6 jul. 2023 02:29							
#5 jul. 2023 02:26							

Solución

The screenshot shows a browser window with the address bar set to "localhost". The main content is a login form for SonarQube. It features two input fields: "Login" and "Password", and two buttons at the bottom: "Log in" and "Cancel".

Usuario : admin

Contrasena: admin123

Generamos un proyecto con el nombre **sonarqube-server**

The screenshot shows the SonarQube interface for the 'sonarqube-server' project. At the top, there's a header with the project name 'sonarqube-server', a star icon, and a 'master' branch indicator. Below the header, a navigation bar includes 'Overview' (which is underlined), 'Issues', 'Security Hotspots', 'Measures', 'Code', and 'Activity'. A main section titled 'Analyze your project' contains the message 'We initialized your project on SonarQube, now it's up to you to launch analyses!'. Below this, a step-by-step guide starts with '1 Provide a token'. It offers two options: 'Generate a token' (selected) and 'Use existing token'. A text box for entering a token value 'sonarqube-server' is followed by a 'Generate' button. A note below explains that the token identifies the user for analyses and can be revoked from the 'user account'. The URL in the browser address bar is 'localhost:9000/dashboard?id=sonarqube-server'.

Generamos un token con el mismo nombre **sonarqube-server**

The screenshot shows the SonarQube interface for the 'java_sec_demo-main' project. The header includes the project name 'java_sec_demo-main', a star icon, and a 'master' branch indicator. The navigation bar has 'Overview' (underlined), 'Issues', 'Security Hotspots', 'Measures', 'Code', and 'Activity'. A 'Project Settings' dropdown and a 'Project Information' link are also present. The main area displays the message 'Analyze your project' and 'We initialized your project on SonarQube, now it's up to you to launch analyses!'. A step-by-step guide shows '1 Provide a token' with a generated token value '84a581bee2c547d6bff0327e482515f6:d5db0194b1f3d30dd7d5cc3c155f9154d17fcc44'. Step '2 Run analysis on your project' asks 'What is your build technology?' with options for 'Maven', 'Gradle', '.NET', and 'Other (for JS, TS, Go, Python, PHP, ...)'. A footer note states 'Embedded database should be used for evaluation purposes only'. The URL in the browser address bar is 'localhost:9000/dashboard?id=java_sec_demo-main'.

Revisamos la ip que se utiliza para poder configurar en el Jenkins

```
s.corderoc@desarrollo provisioning % docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
4a8b19d68529 jenkins/jenkins:lts "/usr/bin/tini -- /u..." 4 hours ago Up 26 minutes 0.0.0.0:8080->8080/tcp, 0.0.0.0:50000->50000/tcp provisioning-jenkins-
4a2c38e65d60 owasp/zap2docker-stable "zap.sh -daemon -hos..." 4 hours ago Up 26 minutes (healthy) 0.0.0.0:8085->8080/tcp zap
e&cf1d1816209 jtux/spring-boot-demo "java -cp /app/resou..." 4 hours ago Up 26 minutes 8080/tcp myapp
aca0c2ae1a3c sonarqube:8.6-community "bin/run.sh bin/sona..." 4 hours ago Up 26 minutes 0.0.0.0:9000->9000/tcp sonarqube
s.corderoc@desarrollo provisioning % docker inspect aca0c2ae1a3c
```

```
-zsh
{
    "Networks": {
        "provisioning_cicd": {
            "IPAMConfig": null,
            "Links": null,
            "Aliases": [
                "sonarqube",
                "sonarqube",
                "aca0c2ae1a3c"
            ],
            "NetworkID": "9264a517415798bbdd374491f261172a0bfdb36df529a5a2a9f5f0731153be56",
            "EndpointID": "97a529f741d7ee302b4574bc157ef694549ffc27300db6ba7fd130b0d9a5b128",
            "Gateway": "172.19.0.1",
            "IPAddress": "172.19.0.4",
            "IPPrefixLen": 16,
            "IPv6Gateway": "",
            "GlobalIPv6Address": "",
            "GlobalIPv6PrefixLen": 0,
            "MacAddress": "02:42:ac:13:00:04",
            "DriverOpts": null
        }
    }
}
s.corderoc@desarrollo provisioning %
```

Instalación de SonarQube en Jenkins siguiendo estos pasos:

1. Administración de Jenkins en tu navegador web.
2. Haz clic en "Administrar Jenkins" en el menú lateral.
3. En la página de administración de Jenkins, busca la sección "Configurar el sistema" y haz clic en ella.
4. Desplázate hacia abajo hasta encontrar la sección "SonarQube"
5. Clic en "Añadir SonarQube" para añadir una nueva instalación.

The screenshot shows the Jenkins System Configuration page under the 'Variables de entorno' tab. In the 'SonarQube servers' section, there is a checkbox labeled 'If checked, job administrators will be able to inject a SonarQube server configuration as environment variables in the build.' followed by a checked checkbox labeled 'Environment variables' with the subtext 'Enable injection of SonarQube server configuration as build environment variables'. Below this, there is a table for managing SonarQube installations. A new entry is being added with the following details:

Name	sonarqube-server
URL del servidor	Por defecto es http://localhost:9000 http://172.19.0.4:9000
Server authentication token	SonarQube authentication token. Mandatory when anonymous access is disabled. sonarqube-secret
Add <input type="button" value="▼"/>	
Avanzado <input type="button" value="▼"/>	

Credencial agregada

The screenshot shows the Jenkins Credentials page under the 'Global credentials (unrestricted)' tab. It displays a single credential entry:

ID	Name	Kind	Description
sonarqube-secret	sonarqube-secret	Secret text	

Below the table, there is a note: 'Credentials that should be available irrespective of domain specification to requirements matching.' At the bottom left, there are icons for 'S' (Small), 'M' (Medium), and 'L' (Large). At the top right, there is a blue button labeled '+ Add Credentials'.

Jenkins

búsqueda (⌘+K) ? ! ! ! Santiago Cordero Desconectar

Panel de Control > Administrar Jenkins > Credentials > System > Global credentials (unrestricted) > sonarqube-secret

Update Delete Move

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

Secret

ID ? sonarqube-secret

Description ?

Save

Una vez configurado volvemos a realizar la ejecución

Jenkins

búsqueda (⌘+K) ? ! ! Santiago Cordero Desconectar

Panel de Control > santiago >

Status Changes Construir ahora añadir descripción Desactivar el Proyecto

Configurar Borrar Pipeline

Full Stage View Rename Pipeline Syntax GitHub Hook Log

Historia de tareas Tendencia Filter builds...

Pipeline santiago

Stage View

	Average stage times:	Declarative: Checkout SCM	Declarative: Tool Install	Build	OWASP Dependency-Check Vulnerabilities	PMD SpotBugs	ZAP	SonarQube analysis	
#30	jul 06 00:03	No Changes	592ms	38ms	4s	4s	4s	13s	9s
#29	jul 05 23:58	No Changes	629ms	35ms	4s	4s	3s	13s	83ms failed
#28	jul 05 23:57	No Changes	610ms	37ms	4s	4s	3s	13s	88ms failed
#27	jul 05 23:53	No Changes	613ms	36ms	4s	4s	3s	13s	70ms failed

localhost:8080/job/santiago/

Panel de Control > santiago >

</> Changes Construir ahora añadir descripción Desactivar el Proyecto

Configurar Borrar Pipeline Full Stage View Rename Pipeline Syntax GitHub Hook Log

Stage View

	Declarative: Checkout SCM	Declarative: Tool Install	Build	OWASP Dependency-Check Vulnerabilities	PMD SpotBugs	ZAP	SonarQube analysis
Average stage times: (Average full run time: ~39s)	666ms	39ms	4s	3s	3s	11s	1s
#30 jul 06 00:03 No Changes	592ms	38ms	4s	4s	4s	13s	11s
#29 jul 05 23:58 No Changes	629ms	35ms	4s	4s	3s	13s	83ms failed
#28 jul 05 23:57 No Changes	610ms	37ms	4s	4s	3s	13s	88ms failed
#27 jul 05 23:53 No Changes	613ms	36ms	4s	4s	3s	13s	70ms failed
#26 jul 05 23:50 1 commit	932ms	50ms	5s	4s	3s	12s	69ms failed
#25 jul 05 23:48 1 commit	690ms	43ms	4s	56ms	18ms	22ms	23ms

Historia de tareas Tendencia Filter builds... #30 #29 #28 #27 #26 #25 #24 #23 #22 #21 #20 #19

sonarqube-server

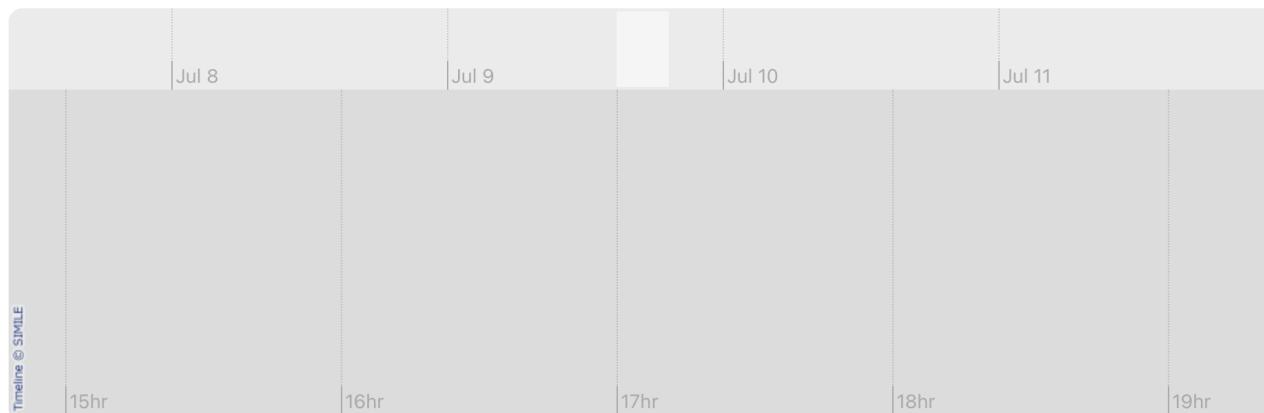
Project's Main Branch is not analyzed yet. Configure analysis

spring-boot-demo Passed Last analysis: 3 days ago

Bugs 0 A	Vulnerabilities 2 C	Hotspots Reviewed - A	Code Smells 3 A	Coverage 33.3%	Duplications 0.0%	Lines 258 XS XML, Java
---------------	--------------------------	----------------------------	----------------------	---------------------	------------------------	-----------------------------

Historial de tareas

Historia de las tareas ejecutadas en Jenkins



S	Ejecución	Tiempo desde ↑	Estado	
✓	santiago #30	3 días 12 Hor	vivió a normal	»
✗	santiago #29	3 días 12 Hor	fallido desde la ejecución #26	»
✗	santiago #28	3 días 12 Hor	fallido desde la ejecución #26	»
✗	santiago #27	3 días 12 Hor	fallido desde la ejecución #26	»
✗	santiago #26	3 días 12 Hor	fallido desde la ejecución #26	»
✗	santiago #25	3 días 12 Hor	cancelado	»
✗	santiago #24	3 días 12 Hor	fallido durante un largo periodo	»

Log de Ejecución

```

Started by user Santiago Cordero
Obtained Jenkinsfile from git https://github.com/scordero1234/java_sec_demo-main.git
[Pipeline] Start of Pipeline
[Pipeline] node
Running on Jenkins in /var/jenkins_home/workspace/santiago
[Pipeline]
[Pipeline] stage
[Pipeline] { (Declarative: Checkout SCM)
[Pipeline] checkout
The recommended git tool is: git
No credentials specified
> git rev-parse --resolve-git-dir /var/jenkins_home/workspace/santiago/.git # timeout=10
Fetching changes from the remote Git repository
> git config remote.origin.url https://github.com/scordero1234/java_sec_demo-main.git #
timeout=10
Fetching upstream changes from https://github.com/scordero1234/java_sec_demo-main.git

```

```

> git --version # timeout=10
> git --version # 'git version 2.30.2'
> git fetch --tags --force --progress -- https://github.com/scordero1234/java_sec_demo-
main.git +refs/heads/*:refs/remotes/origin/* # timeout=10
> git rev-parse refs/remotes/origin/desarrollo^{commit} # timeout=10
Checking out Revision d3e36f3c2a7515bb0b2ae6495d053d526cf97918 (refs/remotes/origin/
desarrollo)
> git config core.sparsecheckout # timeout=10
> git checkout -f d3e36f3c2a7515bb0b2ae6495d053d526cf97918 # timeout=10
Commit message: "prueba4"
> git rev-list --no-walk d3e36f3c2a7515bb0b2ae6495d053d526cf97918 # timeout=10
[Pipeline]
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Declarative: Tool Install)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] }
[Pipeline] // stage
[Pipeline] withEnv
[Pipeline] {
[Pipeline] stage
[Pipeline] { (Build)
[Pipeline] tool
[Pipeline] envVarsForTool
[Pipeline] tool
[Pipeline] envVarsForTool

```

..... SE ENCUENTRA VERSIONADO TODO EL LOG.....

```

[INFO] Sensor Zero Coverage Sensor (done) | time=0ms
[INFO] Sensor Java CPD Block Indexer
[INFO] Sensor Java CPD Block Indexer (done) | time=5ms
[INFO] SCM Publisher SCM provider for this project is: git
[INFO] SCM Publisher 7 source files to be analyzed
[INFO] SCM Publisher 7/7 source files have been analyzed (done) | time=51ms
[INFO] CPD Executor 4 files 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 22ms, dir size=117 KB
[INFO] Analysis report compressed in 11ms, zip size=26 KB
[INFO] Analysis report uploaded in 345ms
[INFO] ANALYSIS SUCCESSFUL, you can browse http://172.19.0.4:9000/dashboard?
id=n1.amis.smeetsm%3Aspring-boot-demo
[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://172.19.0.4:9000/api/ce/task?
id=AYkplaff_HV4ekKFztq5
[INFO] Analysis total time: 6.550 s
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 10.850 s
[INFO] Finished at: 2023-07-06T05:03:41Z
[INFO] -----
[INFO] [jenkins-event-spy] Generated /var/jenkins_home/workspace/santiago@tmp/
withMavenbb4047c0/maven-spy-20230706-050330-1525146975806725885863.log
[Pipeline] }
[withMaven] artifactsPublisher - Archive artifact pom.xml under n1/amis/smeetsm/spring-
boot-demo/0.0.1-SNAPSHOT/spring-boot-demo-0.0.1-SNAPSHOT.pom
[withMaven] Jenkins FindBugs Plugin not found, don't display org.codehaus.mojo:findbugs-
maven-plugin:findbugs results in pipeline screen.
[withMaven] jgivenPublisher - Jenkins JGiven Plugin not found, do not archive jgiven
reports.
[withMaven] Jenkins Task Scanner Plugin not found, don't display results of source code
scanning for 'TODO' and 'FIXME' in pipeline screen.
[withMaven] Publishers: Pipeline Graph Publisher: 1 ms, Generated Artifacts Publisher: 2
ms, Findbugs Publisher: 1 ms
[Pipeline] // withMaven

```

```
[Pipeline] }
[Pipeline] // withSonarQubeEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
```

Finished: SUCCESS

Conclusión

Al finalizar la práctica se pudo evidenciar el potencial de implementar una pipeline en Jenkins ya que permite automatizar y mejorar tu proceso de desarrollo de software, proporcionando una mayor eficiencia, calidad y confiabilidad en cada etapa.

Con la flexibilidad y personalización que ofrece Jenkins, se puede realizar un pipeline según los requisitos de software esto permitiendo realizar un análisis rápido y confiable. Se ha realizado 30 interacciones para poder obtener el resultado esperado, durante el proceso se instaló varios plugins para que se pueda finalizar el proceso.

Se realizó las configuración correspondientes en SonarQube para que permita realizar el análisis.

Se versionó el proyecto en un repositorio público para mayor agilidad.

PROYECTO GITHUB

https://github.com/scordero1234/java_sec_demo-main.git

Referencias

- *Docker Acquires Mutagen for Continued Investment in Performance and Flexibility of Docker Desktop.*
<https://forums.docker.com/>
- <https://www.redhat.com/en/topics/devops/what-cicd-pipeline>
- <https://www.jenkins.io/doc/pipeline/tour/deployment/>