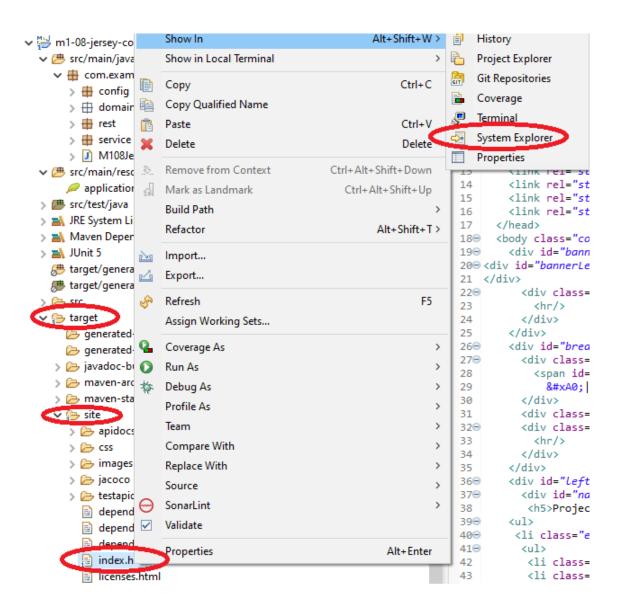
SpotBugs

- 1. He usado el proyecto entregado de Maven porque es la versión que presenta menos errores, y además ya tiene algunas dependencias instaladas. La lista de los plugins necesarios en el pom.xml son:
 - maven-clean-plugin (build)
 - maven-compiler-plugin (build)
 - maven-surefire-plugin (build)
 - maven-site-plugin (build)
 - maven-surefire-report-plugin (reporting)
 - maven-javadoc-plugin (en build con executions y en reporting sin executions)
 - jacoco-maven-plugin (en build con executions y en reporting sin executions)
 - maven-checkstyle-plugin (reporting)

Y los comandos que se ejecutan para clean y site son:

- mvn clean
- mvn install
- mvn clean install
- mvn site
- mvn compile site
- **2.** Una vez que se haya creado todo, se abre el archivo index.html que está dentro de la carpeta site de target.



Hermone	r cena ae moanteactori	po	MITTALIO
apidocs	14/09/2021 12:00	Carpeta de archivos	
css	14/09/2021 11:57	Carpeta de archivos	
images	14/09/2021 11:58	Carpeta de archivos	
jacoco	14/09/2021 11:56	Carpeta de archivos	
🔒 jacoco-aggregate	14/09/2021 11:57	Carpeta de archivos	
testapidocs	14/09/2021 12:00	Carpeta de archivos	
checkstyle.html	14/09/2021 11:57	Firefox HTML Doc	0 KB
💆 cpd.html	14/09/2021 12:00	Firefox HTML Doc	4 KB
dependencies.html	14/09/2021 12:00	Firefox HTML Doc	143 KB
dependency-info.html	14/09/2021 12:00	Firefox HTML Doc	5 KB
dependency-management.html	14/09/2021 12:00	Firefox HTML Doc	411 KB
index.html	14/09/2021 12:00	Firefox HTML Doc	4 KB
licenses.html	14/09/2021 12:00	Firefox HTML Doc	42 KB
plugin-management.html	14/09/2021 12:00	Firefox HTML Doc	9 KB
plugins.html	14/09/2021 12:00	Firefox HTML Doc	8 KB
pmd.html	14/09/2021 12:00	Firefox HTML Doc	4 KB
project-info.html	14/09/2021 12:00	Firefox HTML Doc	6 KB
project-reports.html	14/09/2021 12:00	Firefox HTML Doc	5 KB
scm.html	14/09/2021 12:00	Firefox HTML Doc	4 KB
spotbugs.html	14/09/2021 12:00	Firefox HTML Doc	23 KB
summary.html	14/09/2021 12:00	Firefox HTML Doc	5 KB
surefire-report.html	14/09/2021 12:00	Firefox HTML Doc	20 KB
team.html	14/09/2021 12:00	Firefox HTML Doc	5 KB

3. Dentro de index.html, se abre projects reports, y ahí a SpotBugs.



Generated Reports

This document provides an overview of the various reports that are automatically generated by Maven $\mathscr D$. Each report is briefly described below.

Overview		
Document	Description	
Javadoc	Javadoc API documentation.	
Test Javadoc	Test Javadoc API documentation.	
Surefire Report	Report on the test results of the project.	
JaCoCo	JaCoCo Coverage Report.	
JaCoCo Aggregate	JaCoCo Aggregate Coverage Report.	
CPD	Duplicate code detection.	
PMD	Verification of coding rules.	
SpotBugs	Generates a source code report with the SpotBugs Library.	
		C

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4. Y este es el reporte que ha emitido SpotBugs sobre el proyecto:

SpotBugs Bug Detector Report

The following document contains the results of SpotBugs $\ensuremath{\varnothing}$

SpotBugs Version is 4.3.0

Threshold is medium

Effort is default

Summary

Classes	Bugs	Errors	Missing Classes
25	37	0	0

Files

Class	Bugs
com.example.demo.domain.vehicles.CombustionVehicle	3
com.example.demo.domain.vehicles.ElectricVehicle	3
com.example.demo.domain.vehicles.HybridVehicle	3
com.example.demo.domain.vehicles.Vehicle	9
com.example.demo.rest.CombustionVehicleController	1
com.example.demo.rest.ElectricVehicleController	1
com.example.demo.rest.HybridVehicleController	1
com.example.demo.service.CombustionVehicleServiceImpl	5
com.example.demo.service.ElectricVehicleServiceImpl	6
com.example.demo.service.HybridVehicleServiceImpl	5

com. example. demo. domain. vehicles. Combustion Vehicle

Bug	Category	Details	Line	Priority
com.example.demo.domain.vehicles.CombustionVehicle.getInjection() may expose internal representation by returning CombustionVehicle.injection	MALICIOUS_CODE	EI_EXPOSE_REP 🕏	20	Medium
new com.example.demo.domain.vehicles.CombustionVehicle(Long, String, String, Integer, AirConditioning, Battery, Engine, Injection, Boolean) may expose internal representation by storing an externally mutable object into CombustionVehicle.injection	MALICIOUS_CODE	EI_EXPOSE_REP2 ₺	16	Medium
com.example.demo.domain.vehicles.CombustionVehicle.setInjection(Injection) may expose internal representation by storing an externally mutable object into CombustionVehicle.injection	MALICIOUS_CODE	EI_EXPOSE_REP2 Ø	24	Medium

com. example. demo. domain. vehicles. Electric Vehicle

Bug	Category	Details	Line	Priority
com.example.demo.domain.vehicles.ElectricVehicle.getCharges() may expose internal representation by returning ElectricVehicle.charges	MALICIOUS_CODE	EI_EXPOSE_REP 🕏	30	Medium
new com.example.demo.domain.vehicles.ElectricVehicle(Long, String, String, Integer, AirConditioning, Battery, Engine, Integer, Charges, Boolean) may expose internal representation by storing an externally mutable object into ElectricVehicle.charges	MALICIOUS_CODE	EI_EXPOSE_REP2 ₺	18	Medium
com.example.demo.domain.vehicles.ElectricVehicle.setCharges(Charges) may expose internal representation by storing an externally mutable object into ElectricVehicle.charges	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	34	Medium

com. example. demo. domain. vehicles. Hybrid Vehicle

Bug	Category	Details	Line	Priority
com.example.demo.domain.vehicles.HybridVehicle.getHydrogenTank() may expose internal representation by returning HybridVehicle.hydrogenTank	MALICIOUS_CODE	EI_EXPOSE_REP 🕏	22	Medium
new com.example.demo.domain.vehicles.HybridVehicle(Long, String, String, Integer, AirConditioning, Battery, Engine, HydrogenTank, Boolean) may expose internal representation by storing an externally mutable object into HybridVehicle.hydrogenTank	MALICIOUS_CODE	EI_EXPOSE_REP2 ₺	18	Medium
com.example.demo.domain.vehicles.HybridVehicle.setHydrogenTank(HydrogenTank) may expose internal representation by storing an externally mutable object into HybridVehicle.hydrogenTank	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	26	Medium

com. example. demo. domain. vehicles. Vehicle

Bug	Category	Details	Line	Priority
com.example.demo.domain.vehicles.Vehicle.getAirAc() may expose internal representation by returning Vehicle.airAc	MALICIOUS_CODE	EI_EXPOSE_REP 🕏	51	Medium
com.example.demo.domain.vehicles.Vehicle.getBattery() may expose internal representation by returning Vehicle.battery	MALICIOUS_CODE	EI_EXPOSE_REP 🕏	55	Medium
com.example.demo.domain.vehicles.Vehicle.getEngine() may expose internal representation by returning Vehicle.engine	MALICIOUS_CODE	EI_EXPOSE_REP 🕏	59	Medium
new com.example.demo.domain.vehicles.Vehicle(Long, String, String, Integer, AirConditioning, Battery, Engine, Boolean) may expose internal representation by storing an externally mutable object into Vehicle.airAc	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	27	Medium
new com.example.demo.domain.vehicles.Vehicle(Long, String, String, Integer, AirConditioning, Battery, Engine, Boolean) may expose internal representation by storing an externally mutable object into Vehicle.battery	MALICIOUS_CODE	EI_EXPOSE_REP2 ₽	28	Medium
new com.example.demo.domain.vehicles.Vehicle(Long, String, String, Integer, AirConditioning, Battery, Engine, Boolean) may expose internal representation by storing an externally mutable object into Vehicle.engine	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	29	Medium
com.example.demo.domain.vehicles.Vehicle.setAirAc(AirConditioning) may expose internal representation by storing an externally mutable object into Vehicle.airAc	MALICIOUS_CODE	EI_EXPOSE_REP2 ₽	79	Medium
$com. example. demo. domain. vehicles. Vehicle. set Battery (Battery) \ may \ expose \ internal \ representation \ by \ storing \ an \ externally \ mutable \ object \ into \ Vehicle. battery$	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	83	Medium
com.example.demo.domain.vehicles.Vehicle.setEngine(Engine) may expose internal representation by storing an externally mutable object into Vehicle.engine	MALICIOUS_CODE	EI_EXPOSE_REP2 ₽	87	Medium

com. example. demo. rest. Combustion Vehicle Controller

Bug	Category	Details	Line	Priority
new com.example.demo.rest.CombustionVehicleController(CombustionVehicleService) may expose internal representation by storing an externally mutable object into	MALICIOUS_CODE	EI_EXPOSE_REP2 ₺	30	Medium
CombustionVehicleController.combustionVehicleService				

com. example. demo. rest. Electric Vehicle Controller

Bug	Category	Details	Line	Priority
new com.example.demo.rest.ElectricVehicleController(ElectricVehicleService) may expose internal	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	30	Medium
representation by storing an externally mutable object into				

com. example. demo. rest. Hybrid Vehicle Controller

Bug	Category	Details	Line	Priority
new com.example.demo.rest.HybridVehicleController(HybridVehicleService) may expose internal representation by storing an externally mutable object into HybridVehicleController.hybridVehicleService	MALICIOUS_CODE	EI_EXPOSE_REP2 🕏	30	Medium

com. example. demo. service. Combustion Vehicle Service Impl

Bug	Category	Details	Line	Priority
Comparison of String parameter using == or != in com.example.demo.service.CombustionVehicleServiceImpl.findByColour(String)	BAD_PRACTICE	ES_COMPARING_PARAMETER_STRING_WITH_EQ &	114	High
Comparison of String parameter using == or != in com.example.demo.service.CombustionVehicleServiceImpl.findByName(String)	BAD_PRACTICE	ES_COMPARING_PARAMETER_STRING_WITH_EQ &	106	High
Suspicious comparison of Long references in com.example.demo.service.CombustionVehicleServiceImpl.findById(Long)	CORRECTNESS	RC_REF_COMPARISON 않	98	High
Suspicious comparison of Integer references in com.example.demo.service.CombustionVehicleServiceImpl.findByNumDoors(Integer)		RC_REF_COMPARISON ₺	122	High
Suspicious comparison of Boolean references in com.example.demo.service.CombustionVehicleServiceImpl.findByOnOff(Boolean)	BAD_PRACTICE	RC_REF_COMPARISON_BAD_PRACTICE_BOOLEAN &	146	Medium

com. example. demo. service. Electric Vehicle Service Impl

Bug	Category	Details	Line	Priority
Comparison of String parameter using == or != in com.example.demo.service.ElectricVehicleServiceImpl.findByColour(String)	BAD_PRACTICE	ES_COMPARING_PARAMETER_STRING_WITH_EQ &	115	High
Comparison of String parameter using == or != in com.example.demo.service.ElectricVehicleServiceImpl.findByName(String)	BAD_PRACTICE	ES_COMPARING_PARAMETER_STRING_WITH_EQ &	107	High
Suspicious comparison of Long references in com.example.demo.service.ElectricVehicleServiceImpl.findById(Long)	CORRECTNESS	RC_REF_COMPARISON ₺	99	High
Suspicious comparison of Integer references in com.example.demo.service.ElectricVehicleServiceImpl.findByLoadingTime(Integer)		RC_REF_COMPARISON ₺	155	High
Suspicious comparison of Integer references in com.example.demo.service.ElectricVehicleServiceImpl.findByNumDoors(Integer)	CORRECTNESS	RC_REF_COMPARISON ₺	123	High
Suspicious comparison of Boolean references in com.example.demo.service.ElectricVehicleServiceImpl.findByOnOff(Boolean)	BAD_PRACTICE	RC_REF_COMPARISON_BAD_PRACTICE_BOOLEAN ₺	147	Medium

com. example. demo. service. Hybrid Vehicle Service Impl

Bug	Category	Details	Line	Priority
Comparison of String parameter using == or != in com.example.demo.service.HybridVehicleServiceImpl.findByColour(String)	BAD_PRACTICE	ES_COMPARING_PARAMETER_STRING_WITH_EQ 🕏	113	High
Comparison of String parameter using == or != in com.example.demo.service.HybridVehicleServiceImpl.findByName(String)	BAD_PRACTICE	ES_COMPARING_PARAMETER_STRING_WITH_EQ &	105	High
Suspicious comparison of Long references in com.example.demo.service.HybridVehicleServiceImpl.findById(Long)	CORRECTNESS	RC_REF_COMPARISON	97	High
Suspicious comparison of Integer references in com.example.demo.service.HybridVehicleServiceImpl.findByNumDoors(Integer)		RC_REF_COMPARISON	121	High
Suspicious comparison of Boolean references in com.example.demo.service.HybridVehicleServiceImpl.findByOnOff(Boolean)	BAD_PRACTICE	RC_REF_COMPARISON_BAD_PRACTICE_BOOLEAN ₺	145	Medium

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Jenkins

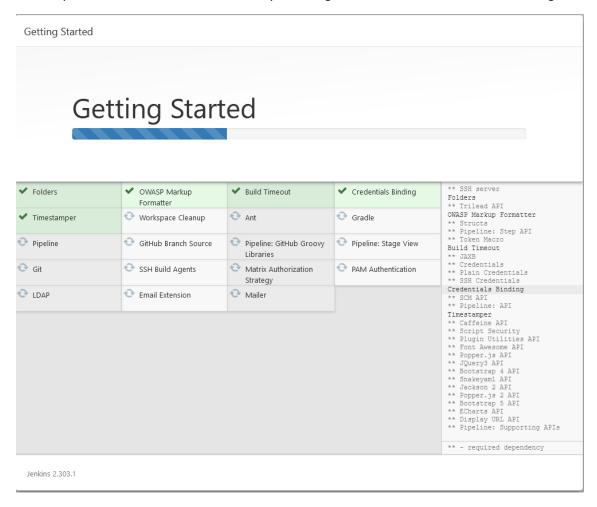
1. Se crea un contenedor de Docker de Jenkins, con los siguientes comandos:

```
docker run --name jenkins -p 8080:8080 -d jenkins/jenkins:lts
docker logs -f jenkins
```

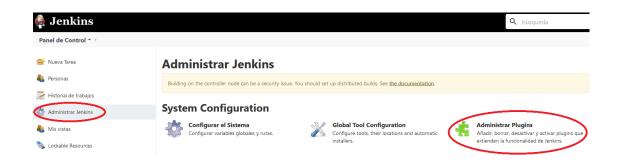
2. Se obtiene la contraseña con el siguiente comando:

```
docker exec -it jenkins cat
/var/jenkins home/secrets/initialAdminPassword
```

3. En localhost:8080, se introduce la contraseña anterior y se instala lo que viene por defecto. Después se crea una cuenta de admin y se configura la instancia con el localhost escogido.

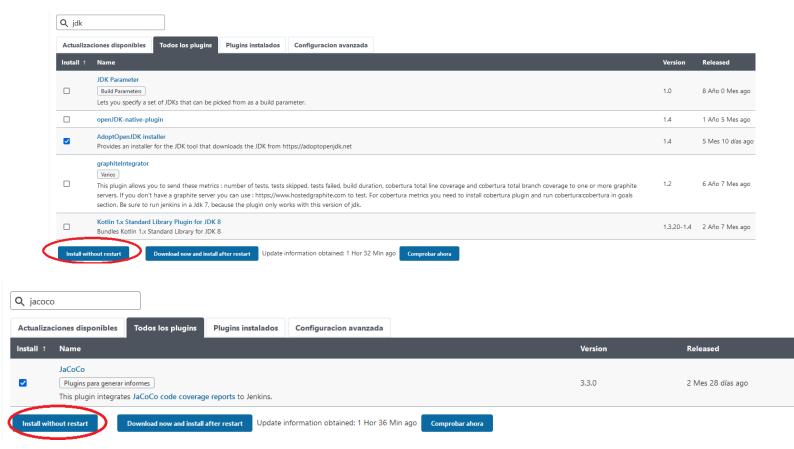


4. En administrar Jenkins, se pincha en administrar plugins:



Se busca en todos los plugins, los siguientes plugins:

- AdoptOpenJDK installer: escribimos jdk en la búsqueda.
- JaCoCo



5. Se reinicia Jenkins, con el siguiente comando en Ubuntu:

Para comprobar la lista de imágenes: docker ps y se pulsa enter.

docker restart Jenkins

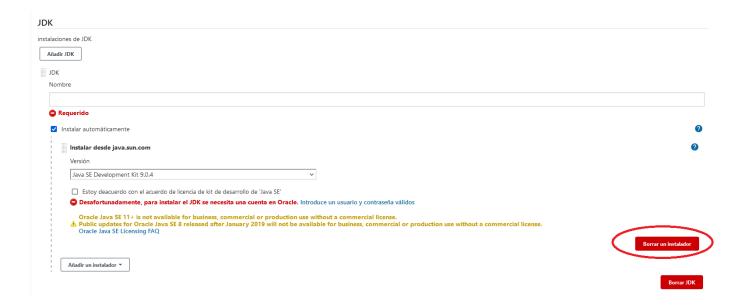
```
marinamadrid@DESKTOP-HP061D8:~$ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS
NAMES
8ea66229c2e4 jenkins/jenkins:lts "/sbin/tini -- /usr/…" 4 days ago Up 2 hours 0.0.0.0:8080->8080/tcp, :::8080
>8080/tcp, 50000/tcp jenkins
marinamadrid@DESKTOP-HP061D8:~$ docker restart jenkins
```

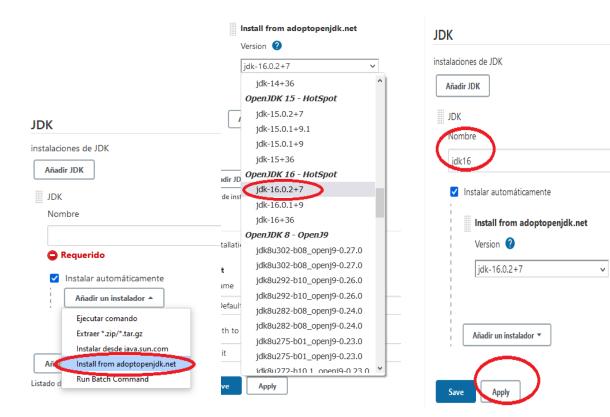
Y volvemos a iniciar sesión en Jenkins.

6. En administrar Jenkins, se pincha en Global Tool Configuration, y se configura Maven y JDK, siguiendo los siguientes pasos:

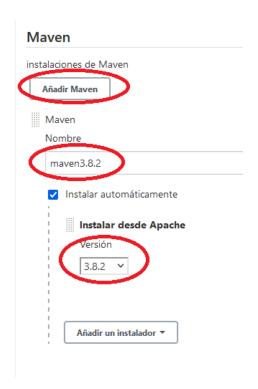


Configuración de JDK





Configuración de Maven



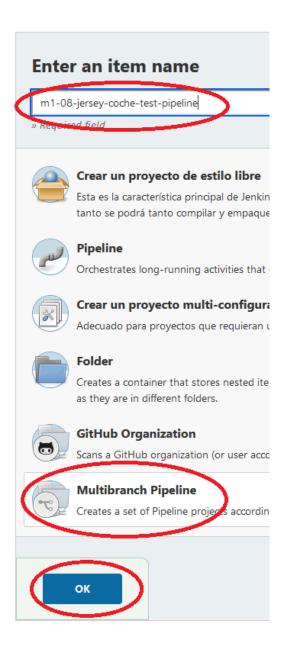
Y para finalizar se da a Save.

7. Se crea el archivo de Jenkinsfile, para ello se clica con el botón derecho del ratón sobre la carpeta del proyecto en Eclipse, y se da New/File, y se le llama Jenkinsfile. Y se añade el siguiente texto:

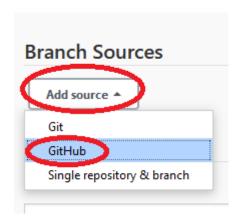
```
pipeline {
    agent any
    tools {
        maven "maven3.8.1"
        <u>jdk</u> "jdk16"
    }
    stages {
        stage("Env Variables") {
            steps {
                sh "printenv"
        stage('Build') {
            steps {
                sh 'mvn -B -DskipTests clean package'
        }
        stage('Test') {
            steps {
                sh 'mvn test'
            }
            post {
                always {
                     junit 'target/surefire-reports/*.xml'
                     archiveArtifacts 'target/*.jar'
                 }
            }
        }
    }
}
```

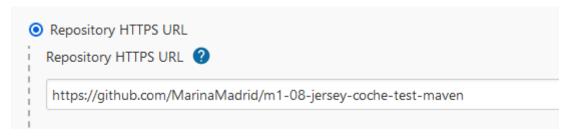
8. Se crea el pipeline, dando a Nueva tarea, y luego Multibranch pipeline.





Y luego se configura la parte de git de la siguiente forma:





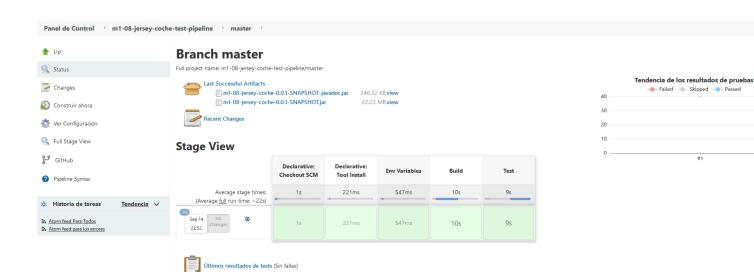
9. Se escanea y construye automáticamente.



```
[Tue Sep 14 20:21:46 UTC 2021] Starting branch indexing...
20:21:48 Connecting to https://api.github.com with no credentials, anonymous access
Examining MarinaMadrid/m1-08-jersey-coche-test-maven
 Checking branches...
 Getting remote branches...
   Checking branch master
 Getting remote pull requests...
     'Jenkinsfile' found
   Met criteria
Scheduled build for branch: master
  1 branches were processed
 Checking pull-requests...
 0 pull requests were processed
Finished examining MarinaMadrid/m1-08-jersey-coche-test-maven
[Tue Sep 14 20:21:49 UTC 2021] Finished branch indexing. Indexing took 2.6 sec
Finished: SUCCESS
```



Branches (1)	Pull Requests (0)					Disable Multibranch Pipeline
s	w	Name 1	Último Éxito	Último Fallo	Última Duración	
⊘	ΙỘΙ	master	1 Min 58 Seg - #1	N/D	22 Seg	Ø
Icono: S M L				Guía de iconos 🔊 Ato	om feed para todos 🔊 Atom feed para fallas	Atom feed para los más recientes



Enlaces permanentes

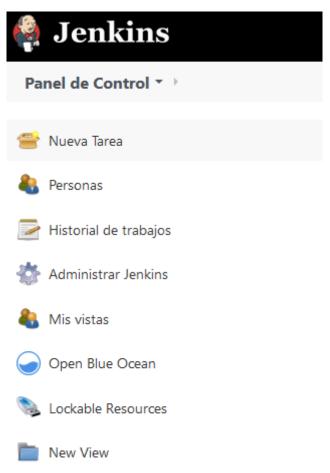
• "Última ejecución (#1) hace 2 Min 18 Seg"
• "Última ejecución estable (#1) hace 2 Min 18 Seg"
• "Última ejecución correcta (#1) hace 2 Min 18 Seg"
• "Last completed build (#1) hace 2 Min 18 Seg"

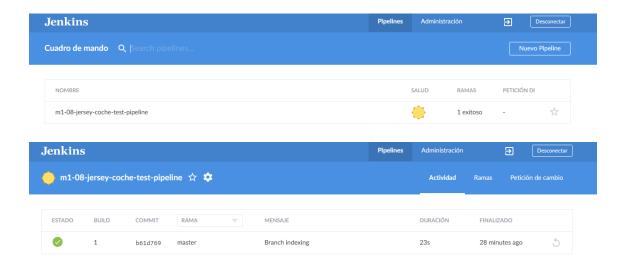
Blue Ocean

1. Se instala el plugin de Blue Ocean y luego se reinicia Jenkins.



2. Se pincha en Open Blue Ocean, que aparece en la barra lateral izquierda.















Test - 9s	Restart Test 🗾 🛂
> maven3.8.2 — Use a tool from a predefined Tool Installation	<1s
> Fetches the environment variables for a given tool in a list of 'FOO=bar' strings suitable for the withEnv step.	<1s
→ jdk16 — Use a tool from a predefined Tool Installation	<1s
> Fetches the environment variables for a given tool in a list of 'FOO=bar' strings suitable for the withEnv step.	<1s
✓ ➤ mvn test — Shell Script	9s
> target/surefire-reports/*.xml — Archive JUnit-formatted test results	<1s
> target/*jar — Guardar los archivos generados	<1s

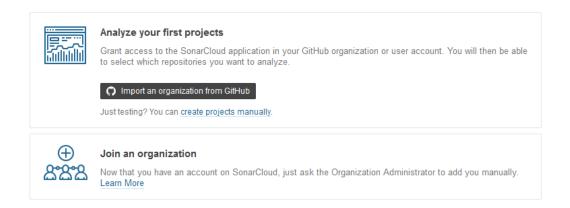
SonarCloud

- 1. Se entra en https://sonarcloud.io/welcome y inicia sesión con nuestra cuenta de Github (hay que darle permisos)
- 2. Se pincha en "Import an organization from GitHub", se selecciona solamente el repositorio donde se está trabajando (o si se desea se puede importar todos los repositorios de Github) y se crea una organización eligiendo la key y el plan gratuito.



Welcome to SonarCloud

Let us help you get started in your journey to code quality

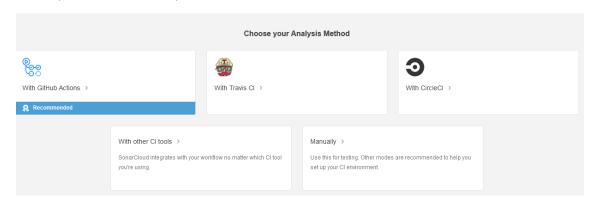


3. Se selecciona Set up.

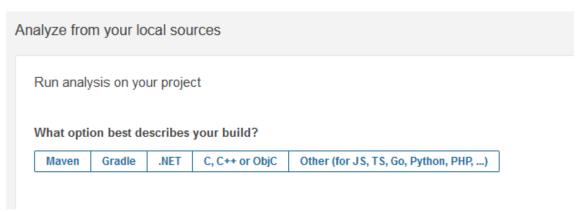
Analyze projects - Select repositories



4. Se pincha en "Manually".



5. Y se elige la opción de Maven.



Execute the SonarScanner for Maven from your computer

Update your pom.xml file with the following properties:

Run the following command in the project folder:

 $mvn\ verify\ org. sonar source. scanner. maven: sonar-maven-plugin: sonar\ -D sonar. project Key=Marina Madrid_m1-08-jersey-coche-test-maven-plugin: sonar\ -D sonar$

If you wish, you can shorten this command (to myn verify sonar:sonar , for example) by specifying a prefix for the plugin.

See the SonarScanner for Maven documentation for more details.

6. Se coloca la propiedad anterior en el pom.xml, y se ejecuta el comando de arriba desde la terminal de dicho proyecto en Eclipse.

Me ha aparecido el siguiente error:

```
| MANNING | D:\Bibliotecas\Marina\Documentos\GitHub\m1-88-jersey-coche-test-maven\src\main\java\com\example\demo\rest\ElectricVehicleController.java:84: warning: no @param for id | MANNING | MANNING | multimate | multimate
```

Parece que se ha arreglado añadiendo en el pom.xml, lo siguiente:

```
<!-- https://mvnrepository.com/artifact/org.sonarsource.scanner.maven/sonar-maven-plugin -->
      <groupId>org.sonarsource.scanner.maven</groupId>
      <artifactId>sonar-maven-plugin</artifactId>
      <version>3.8.0.2131
   </dependency>
</dependencies>
       <plugin>
            <groupId>org.sonarsource.scanner.maven</groupId>
            <artifactId>sonar-maven-plugin</artifactId>
            <version>3.8.0.2131
       </plugin>
       <plugin>
            <groupId>org.codehaus.mojo</groupId>
            <artifactId>sonar-maven-plugin</artifactId>
            <version>3.0.2
       </plugin>
```

• Ahora se está construyendo --- sonar-maven-plugin:3.8.0.2131:sonar, pero vuelve a salir otro error.

```
[INFO] 21:58:22.1167172 Tarjam found 0 components
[INFO] 21:58:22.1187165 Variable type analysis: done
[INFO] Analyzing 2 ucfgs to detect vulnerabilities.
[INFO] Tain analysis starting. Entrypoints: 3
[INFO] Running symbolic analysis for 'J5'
[INFO] Running symbolic analysis for 'J5'
[INFO] Running symbolic analysis for 'J5'
[INFO] Sensor JSSecuritySensor [security] (done) | time=360ms
[INFO] Sensor JSSecuritySensor [security] (done) | time=260ms
[INFO] Sensor Zero Coverage Sensor
[INFO] Sensor Zero Coverage Sensor
[INFO] Sensor Zero Coverage Sensor
[INFO] Sensor Java CPD Block Indexer
[INFO] Sensor Java CPD Block Indexer
[INFO] Sensor Java CPD Block Indexer
[INFO] Sensor Java CPD Block Indexer (done) | time=2ms
[INFO] Sensor Java CPD Block Indexer
[INFO] SCM Publisher 33/34 source files to be analyzed
[INFO] SCM Publisher 33/34 source files to be analyzed
[INFO] SCM Publisher 33/34 source files have been analyzed (done) | time=306ms
[MANINN] Inits may lead to missing/broken features in SonarCloud
[INFO] CPD Executor CPD calculation for 19 files
[MANINN] Inits may lead to missing/broken features in SonarCloud
[INFO] CPD Executor CPD calculation finished (done) | time=14ms
[INFO] CPD Executor CPD calculation finished (done) | time=14ms
[INFO] Total time: 32.764 s
[INFO] To see the full stack trace of the errors, re-run Maven with the -e switch.
[ERROR] Falled to execute goal org.sonarosonce.scanner.maven:sonar-maven:plugin:3.8.0.2131:sonar (default-cli) on project ml-08-jersey-coche: Cennot invoke org. sonar-suppl.batch.fs.t.jupit=165status.ordinal()* because "status" is null -> [Help 1]
[ERROR] To see the full stack trace of the errors, re-run Maven with the -e switch.
[ERROR] For more information about the errors and possible solutions, please read the following articles:
[ERROR] [File] 1] http://oxiki.apache.org/confluence/display/MAVEN/MojotxecutionException
[ERROR] [File] 1] http://oxiki.apache.org/confluence/display/MAVEN/M
```

7.