

ADVANCE DEVOPS EXP 7

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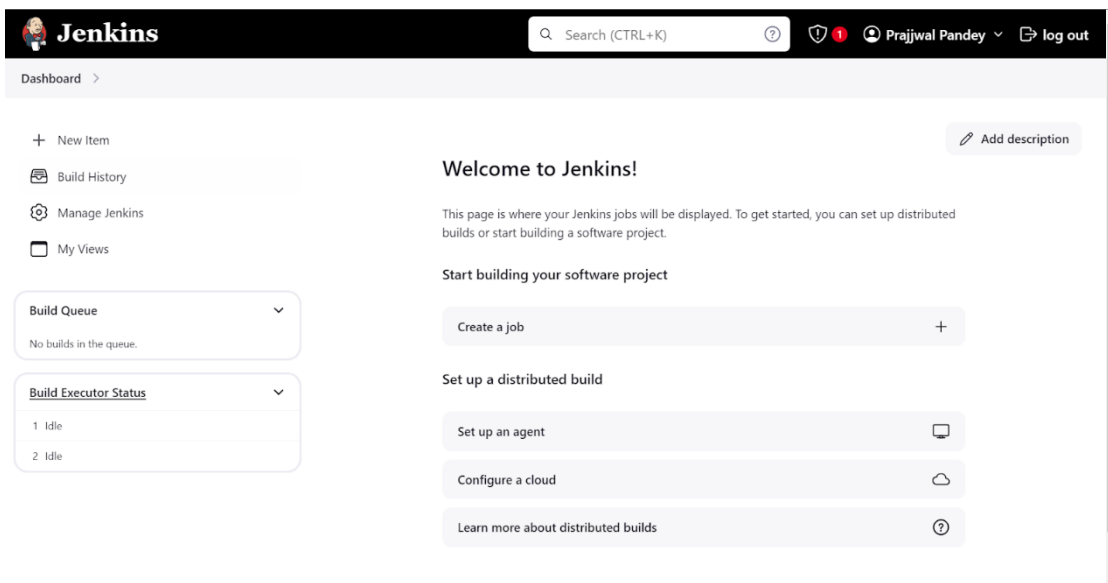
Aim: To understand Static Analysis SAST process and learn to integrate Jenkins SAST to SonarQube/GitLab.

Integrating Jenkins with SonarQube:

- Jenkins installed
- Docker Installed (for SonarQube)
- SonarQube Docker Image

Steps to integrate Jenkins with SonarQube

1. Open up Jenkins Dashboard on localhost, port 8080 or whichever port it is at for you.

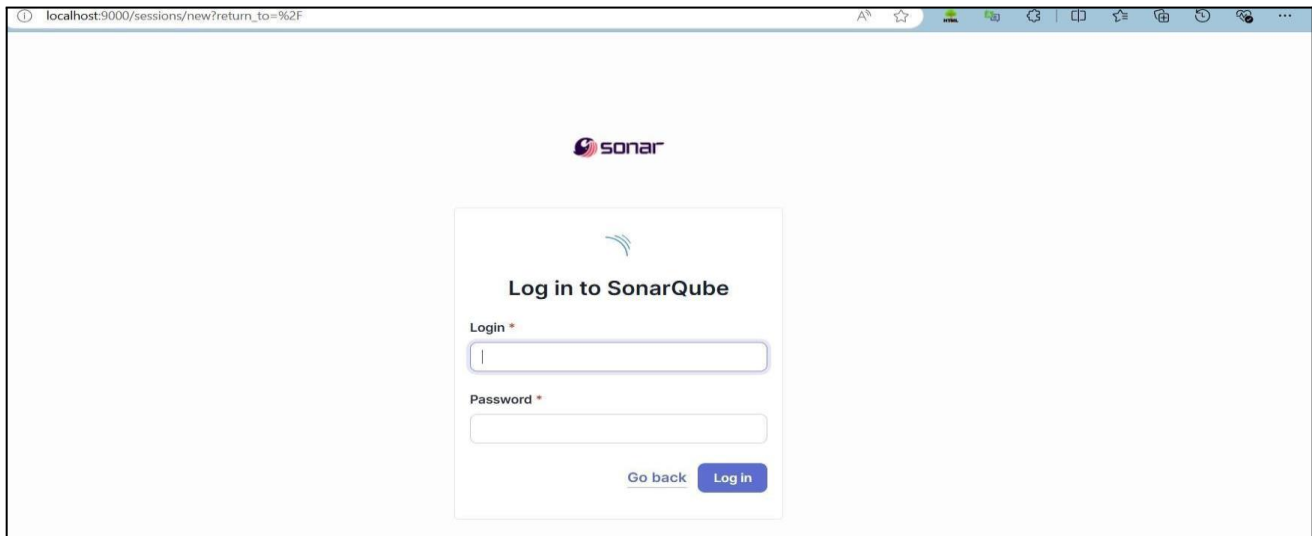


2. Run SonarQube in a Docker container using this command **docker run -d --name sonarqube -e SONAR_ES_BOOTSTRAP_CHECKS_DISABLE=true -p 9000:9000 sonarqube:latest**

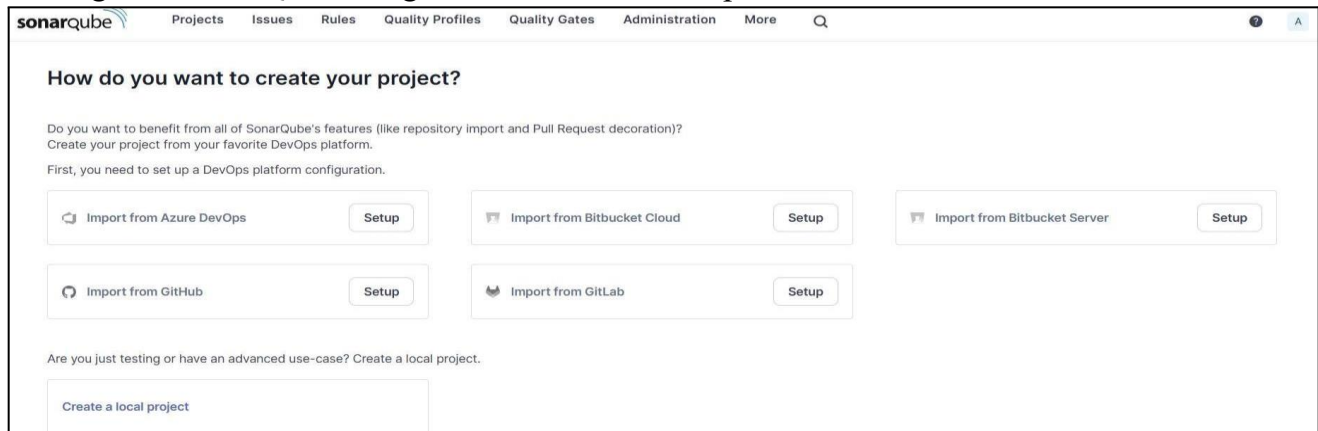
```
C:\Windows\System32>docker run -d --name sonarqube -e SONAR_ES_BOOTSTRAP_CHECKS_DISABLE=true -p 9000:9000 sonarqube:late
st
Unable to find image 'sonarqube:latest' locally
latest: Pulling from library/sonarqube
7478e0ac0f23: Pull complete
90a925ab929a: Pull complete
7d9a34308537: Pull complete
80338217a4ab: Pull complete
1a5fd5c7e184: Pull complete
7b87d6fa783d: Pull complete
bd819c9b5ead: Pull complete
4f4fb700ef54: Pull complete
Digest: sha256:72e9feec71242af83faf65f95a40d5e3bb2822a6c3b2cda8568790f3d31aecde
Status: Downloaded newer image for sonarqube:latest
5bf67120a14329b758ad55b8a8e7495495f619936e93dd5aefd3e624c65e43b6

C:\Windows\System32>
```

3. Once the container is up and running, you can check the status of SonarQube at localhost port 9000.



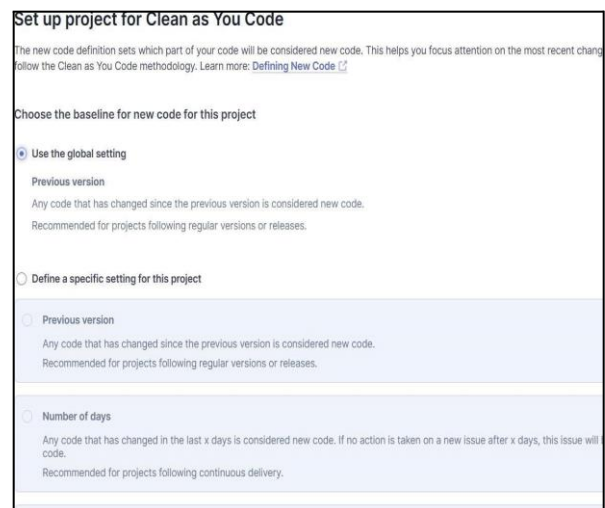
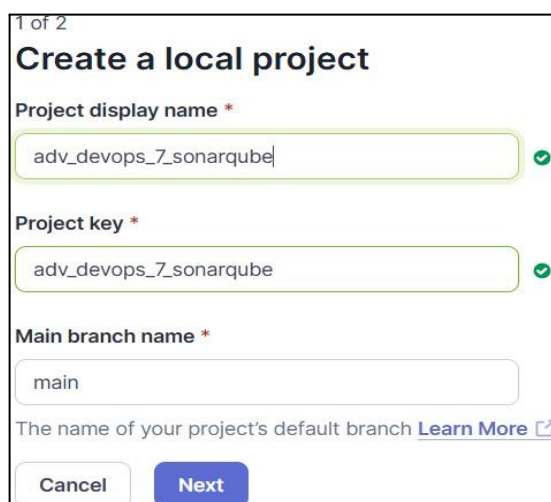
4. Login to SonarQube using username admin and password admin.

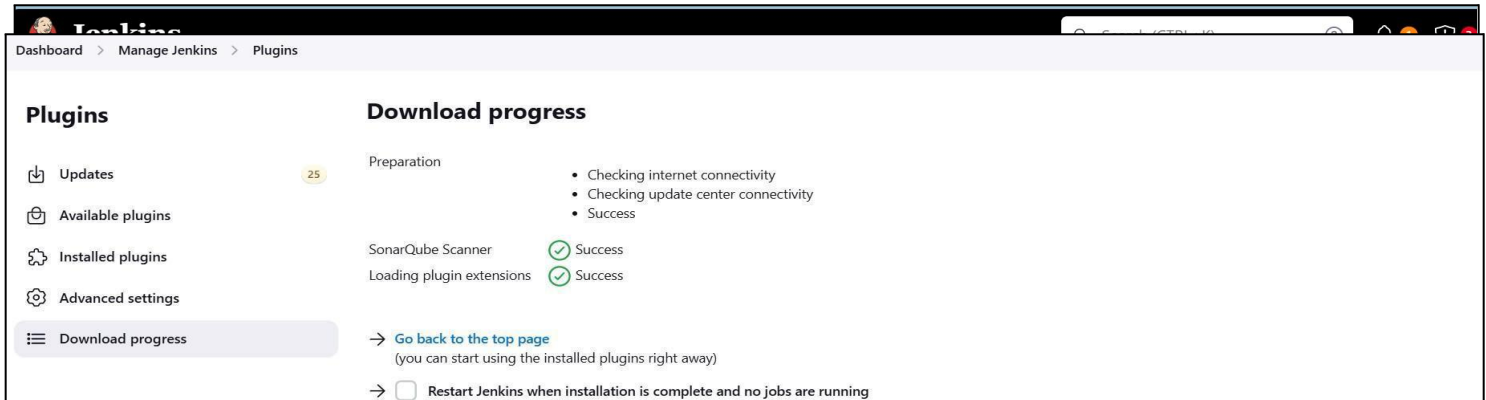


5. Create a manual project in SonarQube with the name sonarqube

Setup the project and come back to Jenkins Dashboard.

Go to Manage Jenkins and search for SonarQube Scanner for Jenkins and install it.





6. Under Jenkins 'Manage Jenkins' then go to 'system', scroll and look for **SonarQube Servers** and enter the details.

Enter the Server Authentication token if needed.

In SonarQube installations: Under **Name** add <project name of sonarqube>, here we have named it as **adv_devops_7_sonarqube**

In **Server URL** Default is <http://localhost:9000>

7. Search for SonarQube Scanner under Global Tool Configuration.

Choose the latest configuration and choose Install automatically.

Dashboard > Manage Jenkins > Tools



The screenshot shows the Jenkins 'Tools' configuration page. At the top, there is a breadcrumb trail: 'Dashboard > Manage Jenkins > Tools'. Below this, there are several sections, each with an 'Add' button and a dropdown menu:

- Add Git** (dropdown arrow)
- Gradle installations**
 - Add Gradle**
- SonarScanner for MSBuild installations**
 - Add SonarScanner for MSBuild**
- SonarQube Scanner installations**
 - Add SonarQube Scanner**
- Ant installations**

Check the “Install automatically” option. → Under name any name as identifier →

Check the “Install automatically” option.



The screenshot shows the 'SonarQube Scanner installations' configuration form. At the top, there is a breadcrumb trail: 'Dashboard > Manage Jenkins > Tools > SonarQube Scanner installations'. Below this, there is an 'Add SonarQube Scanner' button. The form itself is titled 'SonarQube Scanner' and contains the following fields:

- Name**: A text input field with the value 'sonarqube_exp7'.
- Install automatically**: A checkbox that is checked, with a help icon (?) next to it.
- Install from Maven Central**: A section with a title bar and a close button (X). It contains a **Version** dropdown menu with the value 'SonarQube Scanner 6.1.0.4477'.
- Add Installer**: A dropdown button.

8. After the configuration, create a New Item in Jenkins, choose a freestyle project.

adv_devops_exp7

» Required field



Freestyle project

Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.



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 builds, etc.



Folder

Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

OK

branch Pipeline

Consistent set of Pipeline projects according to detected branches in one SCM repository.

9. Choose this GitHub repository in Source Code Management.

https://github.com/shazforiot/MSBuild_firstproject.git

It is a sample hello-world project with no vulnerabilities and issues, just to test the integration.



The screenshot shows the 'Source Code Management' configuration window. At the top, there are two radio buttons: 'None' and 'Git'. The 'Git' option is selected. Below this, there is a section titled 'Repositories' with a help icon. Inside this section, there is a 'Repository URL' field containing the URL 'https://github.com/shazforiot/MSBuild_firstproject.git'. Below the URL field is a 'Credentials' dropdown menu currently showing '- none -'. There is a '+ Add' button and an 'Advanced' dropdown menu. At the bottom of the 'Repositories' section is an 'Add Repository' button.

10. Under **Select project → Configuration → Build steps → Execute**

SonarQube Scanner, enter these Analysis properties. Mention the SonarQube Project Key, Login, Password, Source path and Host URL.

Configure

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

Build Environment

Filter

Execute SonarQube Scanner

Execute Windows batch command

Execute shell

Invoke Ant

Invoke Gradle script

Invoke top-level Maven targets

Run with timeout

Set build status to "pending" on GitHub commit

SonarScanner for MSBuild - Begin Analysis

SonarScanner for MSBuild - End Analysis

Add build step ^

Post-build Actions

Execute SonarQube Scanner

JDK ?

JDK to be used for this SonarQube analysis

(Inherit From Job)

Path to project properties ?

Analysis properties ?

```
sonar.projectKey=adv_devops_7_sonarqube
sonar.host.url=http://localhost:9000
sonar.login=admin
sonar.sources=.
```

Additional arguments ?

JVM Options ?

Then save

Status

adv_devops_exp7

Changes

Workspace

Build Now

Configure

Delete Project

SonarQube

Rename

SonarQube

Permalinks

- Last build (#2), 1 day 20 hr ago
- Last stable build (#2), 1 day 20 hr ago
- Last successful build (#2), 1 day 20 hr ago
- Last completed build (#2), 1 day 20 hr ago

Add description

Disable Project

11. Go to http://localhost:9000/<user_name>/permissions and allow Execute Permissions to the Admin user

sonarqube

[Projects](#)
[Issues](#)
[Rules](#)
[Quality Profiles](#)
[Quality Gates](#)
[Administration](#)
[More](#)

Administration

[Configuration](#)
[Security](#)
[Projects](#)
[System](#)
[Marketplace](#)

Global Permissions

Grant and revoke permissions to make changes at the global level. These permissions include editing Quality Profiles, executing analysis, and performing global system administration.

All Users Groups

Search for users or groups...

	Administer System ?	Administer ?	Execute Analysis ?	Create ?
<div>sonar-administrators</div> <div>System administrators</div>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Quality Gates <input checked="" type="checkbox"/> Quality Profiles	<input type="checkbox"/>	<input checked="" type="checkbox"/> Projects
<div>sonar-users</div> <div>Every authenticated user automatically belongs to this group</div>	<input type="checkbox"/>	<input type="checkbox"/> Quality Gates <input type="checkbox"/> Quality Profiles	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Projects
<div>Anyone DEPRECATED</div> <div>Anybody who browses the application belongs to this group. If authentication is not enforced, assigned permissions also apply to non-authenticated users.</div>	<input type="checkbox"/>	<input type="checkbox"/> Quality Gates <input type="checkbox"/> Quality Profiles	<input type="checkbox"/>	<input type="checkbox"/> Projects
<div>Administrator admin</div>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Quality Gates <input type="checkbox"/> Quality Profiles	<input checked="" type="checkbox"/>	<input type="checkbox"/> Projects

4 of 4 shown

IF CONSOLE OUTPUT FAILED:

Step 1: Generate a New Authentication Token in SonarQube

1. Login to SonarQube:

- Open your browser and go to **http://localhost:9000**.
- Log in with your admin credentials (default username is **admin**, and the password is either **admin** or your custom password if it was changed).

2. Generate a New Token:

- Click on your **username** in the top-right corner of the SonarQube dashboard.
- Select **My Account** from the dropdown menu.
- Go to the **Security** tab.
- Under **Generate Tokens**, type a name for the token (e.g., "Jenkins-SonarQube").
- Click **Generate**.
- Copy the token and save it securely. You will need it in Jenkins.

Step 2: Update the Token in Jenkins

1. Go to Jenkins Dashboard:

- Open Jenkins and log in with your credentials.

2. Configure the Jenkins Job:

- Go to the job that is running the SonarQube scanner (**adv_devops_exp7**). ◦ Click **Configure**.

3. Update the SonarQube Token:

- In the SonarQube analysis configuration (either in the pipeline script or under "Build" section, depending on your job type), update the **sonar.login** parameter with the new token.

Execute SonarQube Scanner

JDK ?

JDK to be used for this SonarQube analysis

(Inherit From Job)

Path to project properties ?

Analysis properties ?

sonar.projectKey=adv_devops_7_sonarqube
sonar.host.url=http://localhost:9000
-Dsonar.login=sqp_568834b7b5e77a92843e4b3072e044643ce921c1
sonar.sources=.

Additional arguments ?

JVM Options ?

12.Run the Jenkins build.

Status

adv_devops_exp7

Changes

Workspace

Build Now

Configure

Delete Project

SonarQube

Rename

Build History

trend

Filter...

#10

Sep 18, 2024, 2:36 PM

SonarQube

Permalinks

- Last build (#10), 19 sec ago
- Last stable build (#10), 19 sec ago
- Last successful build (#10), 19 sec ago
- Last failed build (#8), 22 min ago
- Last unsuccessful build (#8), 22 min ago
- Last completed build (#10), 19 sec ago

Add description

Disable Project

Check the console Output

Dashboard > adv_devops_exp7 > #3 > Console Output

Status

Console Output

Edit Build Information

Delete build '#3'

Timings

Git Build Data

Console Output

Download

Copy

View as plain text

Started by user Prajjwal Pandey

Running as SYSTEM

Building in workspace C:\ProgramData\Jenkins\jenkins\workspace\adv_devops_exp7

The recommended git tool is: NONE

No credentials specified

> git.exe rev-parse --resolve-git-dir C:\ProgramData\Jenkins\jenkins\workspace\adv_devops_exp7\.git # timeout=10

Fetching changes from the remote Git repository

> git.exe config remote.origin.url https://github.com/shazforiot/MSBuild_firstproject.git # timeout=10

Fetching upstream changes from https://github.com/shazforiot/MSBuild_firstproject.git

> git.exe --version # timeout=10

13. Once the build is complete, check project on SonarQube

