🚀 Setting Up a Persistent Jenkins Environment in Docker 🏗️

📌 Overview

This document details how to set up **Jenkins inside a Docker container** with **persistent storage** to ensure that plugins and configurations remain intact even after restarting the container.

🔹 Why Use Persistent Storage for Jenkins?

✅ No need to reinstall plugins every time 🎯
✅ Faster setup & recovery 🔄
✅ Seamless CI/CD pipeline execution 🚀
✅ Better portability & scalability 🌍

🏗️ Setup Instructions

1️⃣ Install Docker

Ensure that Docker is installed on your machine. If not, install it using:

```
sudo apt update && sudo apt install docker.io -y
```

Verify installation:

```
docker --version
```

2️⃣ Pull the Jenkins Docker Image

```
docker pull jenkins/jenkins:lts
```

3️⃣ Create a Volume for Persistent Storage

```
docker volume create jenkins_data
```

This volume will store Jenkins data persistently.

4️⃣ Run Jenkins in a Container

```
docker run -d \
  --name jenkins \
  -p 8080:8080 \
  -p 50000:50000 \
  -v /root/jenkins_data:/var/jenkins_home \
  jenkins/jenkins:lts
```

Explanation:

- `-p 8080:8080` → Exposes Jenkins UI
- `-p 50000:50000` → Allows agent communication
- `-v jenkins_data:/var/jenkins_home` → Mounts persistent volume

5️⃣ Access Jenkins

Open your browser and navigate to:

```
http://localhost:8080
```

To retrieve the initial admin password, run:

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

🛠️ Managing the Jenkins Container

Stop Jenkins

```
docker stop jenkins
```

Start Jenkins

```
docker start jenkins
```

Remove Jenkins (without losing data)

```
docker rm jenkins
```

Delete Volume (if needed)

```
docker volume rm jenkins_data
```

📌 Tech Stack Used

✅ **Docker** – Containerized Jenkins instance
✅ **Jenkins** – CI/CD automation tool
✅ **Volumes** – Persistent storage
✅ **CI/CD Pipelines** – Automated builds & deployments

💡 Conclusion

This approach ensures **Jenkins runs smoothly inside a Docker container** while retaining all configurations and plugins across restarts. 🚀

Let’s connect and discuss more DevOps solutions! 💬

#DevOps #Jenkins #Docker #CI/CD #Automation