

# **SOFTWARE ENGINEERING**

## **UNIT - 4**

### **TOPIC – 3**

## **INSTALLATION OF DOCKER, MINIKUBE, ACCOUNT CREATION IN DOCKERHUB**

### **1. Install Docker**

#### **Windows**

##### **Step 1: Prepare Your Computer**

1. Open **Task Manager** (Ctrl + Shift + Esc).
2. Go to the **Performance** tab.
3. Check if **Virtualization** is enabled. If not:
  - Restart your computer.
  - Enter the BIOS/UEFI settings (press a key like F2, F10, or Del while booting).
  - Enable **Virtualization Technology (VT-x)** or **AMD-V**.

##### **Step 2: Install Docker Desktop**

1. Go to Docker's website and download **Docker Desktop for Windows**.
2. Double-click the downloaded file to start the installation.
3. Follow the steps in the installer:
  - Accept the terms.
  - Choose to enable **WSL2** instead of Hyper-V (if prompted).
  - Click **Install** and wait.

##### **Step 3: Start Docker**

1. Open **Docker Desktop** (search for it in the Start menu).

2. Sign in with your Docker Hub account (create one at [hub.docker.com](https://hub.docker.com) if you don't have one).

#### Step 4: Verify Docker is Working

1. Open **PowerShell** (right-click, select **Run as Administrator**).
2. Type this command:

```
docker --version
```

3. You should see the Docker version number. If yes, Docker is installed and running!

### Mac

#### Step 1: Install Docker Desktop

1. Go to Docker's website.
2. Download **Docker Desktop for Mac**.
3. Open the downloaded **.dmg** file.
4. Drag the **Docker** icon into the **Applications** folder.

#### Step 2: Start Docker

1. Open **Applications** and double-click the **Docker** icon.
2. Docker will start running in the background. Look for the whale icon in the top-right menu bar.

#### Step 3: Verify Docker is Working

1. Open **Terminal** (search for it in Spotlight using Cmd + Space).
2. Type:

```
docker --version
```

3. You'll see the Docker version number. If yes, Docker is ready!

## Linux/Ubuntu

### Step 1: Install Docker

1. Open **Terminal**.
2. Update your system:

```
sudo apt update && sudo apt upgrade -y
```

3. Install required tools:

```
sudo apt install apt-transport-https ca-certificates curl  
software-properties-common -y
```

4. Add Docker's GPG key:

```
curl -fsSL https://download.docker.com/linux/ubuntu/gpg |  
sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-  
keyring.gpg
```

5. Add Docker's repository:

```
echo "deb [arch=$(dpkg --print-architecture) signed-  
by=/usr/share/keyrings/docker-archive-keyring.gpg]  
https://download.docker.com/linux/ubuntu $(lsb_release -  
cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list  
> /dev/null
```

6. Install Docker:

```
sudo apt update  
sudo apt install docker-ce docker-ce-cli containerd.io -y
```

### Step 2: Start Docker

1. Start the Docker service:

```
sudo systemctl start docker
```

2. Enable it to run on startup:

```
sudo systemctl enable docker
```

### **Step 3: Verify Docker is Working**

1. Check the version:

```
docker --version
```

2. You'll see the Docker version number if it's running properly.

## **2. Install Minikube**

### **Windows**

#### **Step 1: Download Minikube**

1. Open **PowerShell** as Administrator.
2. Download Minikube:

```
curl -LO  
https://storage.googleapis.com/minikube/releases/latest/m  
inikube-windows-amd64.exe
```

3. Move it to your system path:

```
move minikube-windows-amd64.exe  
C:\Windows\System32\minikube.exe
```

#### **Step 2: Start Minikube**

1. Start Minikube using Docker:

```
minikube start --driver=docker
```

2. Minikube will set up a Kubernetes cluster using Docker.

## Mac

### Step 1: Install Minikube

1. Open **Terminal**.
2. Download Minikube:

```
curl -LO  
https://storage.googleapis.com/minikube/releases/latest/m  
inikube-darwin-amd64
```

3. Move Minikube to a system path:

```
sudo install minikube-darwin-amd64 /usr/local/bin/minikube
```

### Step 2: Start Minikube

1. Run the command:

```
minikube start --driver=docker
```

## Linux/Ubuntu

### Step 1: Install Minikube

1. Open **Terminal**.
2. Download Minikube:

```
curl -LO  
https://storage.googleapis.com/minikube/releases/latest/m  
inikube-linux-amd64
```

3. Move it to a system path:

```
sudo install minikube-linux-amd64 /usr/local/bin/minikube
```

### Step 2: Start Minikube

1. Start Minikube with Docker:

```
minikube start --driver=docker
```

## Common Steps for All Systems

1. Check Minikube Status:

```
minikube status
```

This tells you if Minikube is running.

2. Use Minikube's Docker:

```
eval $(minikube docker-env)
```

This lets you build and manage Docker containers inside Minikube.

## 3. Create a free account in Docker Hub

### Step 1: Open the Docker Hub Website

1. Open your web browser (like Chrome, Firefox, or Edge).
2. Type **https://hub.docker.com** into the address bar and press **Enter**.

### Step 2: Go to the Sign-Up Page

1. Once the Docker Hub homepage loads, look for a button that says **Sign Up** (usually at the top-right corner).
2. Click on the **Sign-Up** button.

### Step 3: Fill in the Registration Form

You will see a form with fields to enter your details. Fill them out as follows:

1. **Username:**
  - Choose a unique username for your Docker account (e.g., "MyDocker123").

- The username is how others might find you on Docker Hub, so pick something simple and easy to remember.

2. **Email Address:**

- Enter a valid email address that you use frequently (e.g., myemail@example.com).

3. **Password:**

- Create a strong password. It should have a mix of letters, numbers, and symbols (e.g., "Docker@1234").
- Write down or save your password somewhere safe.

4. **Optional (Verify Username Availability):**

- Sometimes, if the username is already taken, you might see a message asking you to pick a different one. Adjust your username until it's accepted.

**Step 4: Accept the Terms**

1. Look for a checkbox that says something like **"I agree to the Terms and Conditions."**
2. Read the terms if you wish, then tick the checkbox to agree.

**Step 5: Complete the CAPTCHA**

1. A CAPTCHA might appear asking you to verify that you're not a robot.
2. Follow the instructions (e.g., selecting images or typing letters/numbers) to complete the verification.

**Step 6: Click Sign Up**

1. After filling in all the fields and completing the CAPTCHA, click the **Sign Up** button.

**Step 7: Verify Your Email Address**

1. Open your email inbox (the one you used for registration).
2. Look for an email from **Docker Hub** with a subject like **"Verify Your Email."**
3. Open the email and click on the verification link inside.
  - If you don't see the email, check your **Spam** or **Promotions** folder.

**Step 8: Log In to Docker Hub**

1. After verifying your email, return to the Docker Hub website.
2. Click on **Log In** (usually at the top-right corner).
3. Enter your username (or email) and password.
4. Click **Log In** to access your account.