▧ Complete Docker Image Publishing CheatSheet 🐳 🚀

🌐 What is a Docker Registry?

A **Docker registry** is a **storage for Docker images** 🗄️. You can:

- ☑ **Push** your custom images to it
- 📥 **Pull** images when needed
- 🔐 Optionally **set them private/public**

🏠 Popular Registries:

- 🐳 Docker Hub (hub.docker.com)
- 🔐 GitHub Container Registry (ghcr.io)
- ☁ Google Artifact Registry / Amazon ECR / GitLab / Azure ACR

✨ Structure of Docker Image Name

```
<registry>/<username>/<repo>:<tag>
```

Part	Example	Meaning
Registry	`docker.io` (default)	Where image is stored 🌍
Username	`dpvasani56`	Your DockerHub or GitHub ID 👤
Repo	`node-application`	Your app/project name 📦
Tag	`v1`, `latest`	Version tag 🏷️

🚀 Two Ways to Publish Docker Image to Docker Hub

📦 Step 0: Build the image

```
docker build -t dpvasani56/node-application:v1 .
```

🛠️ Method 1: **Manual Push to Docker Hub**

☑ **Step-by-step:**

1️⃣ **Login to Docker Hub**

```
docker login
```

🧠 Enter your Docker Hub username and password.

2️⃣ **Push your image**

```
docker push dpvasani56/node-application:v1
```

✅ Image will now appear on your Docker Hub at: 📍 `https://hub.docker.com/r/dpvasani56/node-application`

3️⃣ **Pull from any system**

```
docker pull dpvasani56/node-application:v1
```

🎯 Then run:

```
docker run -p 3000:3000 dpvasani56/node-application:v1
```

🧠 Method 2: **Push from GitHub via GitHub Container Registry (ghcr.io)**

🔧 Step-by-step:

1️⃣ **Create a GitHub repo**

Name it like: `node-application`

2️⃣ **Login to GitHub Container Registry**

```
echo <GH_TOKEN> | docker login ghcr.io -u USERNAME --password-stdin
```

> 💡 Use a **Personal Access Token (PAT)** from GitHub with `write:packages` permission.

3️⃣ **Tag your image**

```
docker tag node-application ghcr.io/dpvasani56/node-application:v1
```

4️⃣ Push to GitHub Container Registry

```
docker push ghcr.io/dpvasani56/node-application:v1
```

✅ Image is now available at: 🔗 `https://github.com/dpvasani56/packages`

📌 Tagging Summary

```
# Tag for DockerHub
docker tag node-application dpvasani56/node-application:v1

# Tag for GitHub Registry
docker tag node-application ghcr.io/dpvasani56/node-application:v1
```

🧼 Optional Cleanup

```
docker image rm <image-name>
```

Use this to save space once pushed.

🧠 Bonus: Automate with GitHub Actions

Use this snippet in `.github/workflows/docker.yml`:

```
jobs:
  push_to_registry:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v3
      - name: Log in to GitHub Container Registry
        run: echo "${{ secrets.GH_PAT }}" | docker login ghcr.io -u dpvasani56 --password-stdin

      - name: Build and Push
        run: |
          docker build -t ghcr.io/dpvasani56/node-application:v1 .
          docker push ghcr.io/dpvasani56/node-application:v1
```

✅ Set `GH_PAT` as a GitHub secret with correct permissions.

🔥 Quick Recap Table

Action	Docker Hub	GitHub Container Registry
Login	`docker login`	`docker login ghcr.io`
Tag	`dpvasani56/app:v1`	`ghcr.io/dpvasani56/app:v1`
Push	`docker push dpvasani56/app:v1`	`docker push ghcr.io/dpvasani56/app:v1`
Pull	`docker pull dpvasani56/app:v1`	`docker pull ghcr.io/dpvasani56/app:v1`

🧾 Sample Push Command (Your Request)

```
docker push dpvasani56/node-application:v1
```

✅ This pushes your image to Docker Hub under your account.

🏷️ Step-by-Step: Tag & Push Docker Image to Docker Hub (`dpvasani56/node-application`)

Assume your image is locally named:

```
my-app
```

And you want to push it as: 📦 `dpvasani56/node-application`

🔧 Step 1: Tag the Image

> 🏷️ Think of this as **giving your image a Docker Hub label** 🪪

```
docker tag my-app dpvasani56/node-application
```

✅ This tags your image for Docker Hub upload.

✅ Optional: Add a Version Tag

```
docker tag my-app dpvasani56/node-application:v1
```

🎯 This is better for **version control** in CI/CD and releases.

🔐 Step 2: Login to Docker Hub

```
docker login
```

➡️ Enter Docker Hub credentials for `dpvasani56`.

📤 Step 3: Push the Image

👉 With version tag:

```
docker push dpvasani56/node-application:v1
```

👉 Or default (`latest` tag):

```
docker push dpvasani56/node-application
```

✅ Image now available at: 🔗 https://hub.docker.com/r/dpvasani56/node-application

---

📥 Step 4: Pull & Use It Anywhere

```
docker pull dpvasani56/node-application:v1
```

Run the app:

```
docker run -p 3000:3000 dpvasani56/node-application:v1
```

📦 All Commands Recap

```
# 🔨 Build your image
docker build -t my-app .

# 🏷️ Tag for Docker Hub
docker tag my-app dpvasani56/node-application:v1

# 🔐 Login to Docker Hub
docker login
```

```
# 📤 Push to Docker Hub
docker push dpvasani56/node-application:v1

# 📥 Pull from Docker Hub (anywhere)
docker pull dpvasani56/node-application:v1

# ▶️ Run it
docker run -p 3000:3000 dpvasani56/node-application:v1
```

🧠 Helpful Tips

Command	Use
`docker images`	View tagged images locally 🗂️
`docker rmi <image>`	Remove an image locally 🧹
`docker ps`	View running containers 🚀
`docker stop <id>`	Stop a container manually 🛑
