Here’s a **step-by-step detailed guide** to help you execute the entire process from creating a Node.js app to pushing the Docker image to Docker Hub. It includes all required commands and explanations.

**✅ A) Create an EC2 Instance**

* Launch an **Ubuntu** EC2 instance on AWS.
* Select appropriate key pair and security group (allow port 22, 80, and 3000).

**✅ B) Install Required Packages**

SSH into your EC2 instance:

ssh -i your-key.pem ubuntu@your-ec2-public-ip

Update and install packages:

sudo apt update -y

sudo apt install nginx -y

sudo apt install nodejs -y

sudo apt install npm -y

sudo npm install -g pm2

**✅ C) Create a Node.js App**

**1. Create your app directory and file:**

cd /home/ubuntu

nano hello.js

Paste this code:

const http = require('http');

const hostname = '0.0.0.0';

const port = 3000;

const server = http.createServer((req, res) => {

res.statusCode = 200;

res.setHeader('Content-Type', 'text/plain');

res.end('Hello World!\n');

});

server.listen(port, hostname, () => {

console.log(`Server running at http://${hostname}:${port}/`);

});

Save with Ctrl+O, then Enter, then Ctrl+X.

**2. Run the app with PM2:**

pm2 start hello.js --name app

**✅ D) Set Up Nginx as Reverse Proxy**

Edit Nginx config:

sudo nano /etc/nginx/sites-available/example.com

Paste this (replace with your EC2 public IP):

server {

listen 80;

server\_name YOUR\_EC2\_PUBLIC\_IP;

location / {

proxy\_pass http://localhost:3000;

proxy\_http\_version 1.1;

proxy\_set\_header Upgrade $http\_upgrade;

proxy\_set\_header Connection 'upgrade';

proxy\_set\_header Host $host;

proxy\_cache\_bypass $http\_upgrade;

}

}

Create a symlink:

sudo ln -s /etc/nginx/sites-available/example.com /etc/nginx/sites-enabled/

Restart Nginx:

sudo systemctl restart nginx

Test your app in a browser: http://YOUR\_EC2\_PUBLIC\_IP  
You should see: **Hello World!**

**✅ E) Set Up Docker**

**1. Install Docker and Docker Compose:**

sudo apt install -y docker.io

sudo apt install -y docker-compose

**2. Prepare app directory for Docker:**

mkdir -p /home/ubuntu/node

cd /home/ubuntu/node

Move your hello.js file:

cp /home/ubuntu/hello.js .

**3. Create Dockerfile:**

nano Dockerfile

Paste this:

FROM node:12

WORKDIR /app

COPY . .

RUN npm install

EXPOSE 3000

CMD ["node", "hello.js"]

Save and exit.

**4. Create .dockerignore:**

nano .dockerignore

Paste:

node\_modules

npm-debug.log

**✅ F) Build and Push Docker Image**

**1. Build Docker image:**

sudo docker build -t your\_dockerhub\_username/node-app:latest .

Replace your\_dockerhub\_username with your real Docker Hub username.

**2. Check image is built:**

sudo docker images

**3. Log in to Docker Hub:**

sudo docker login

Enter your Docker Hub username and password.

**4. Push the image:**

sudo docker push your\_dockerhub\_username/node-app:latest

**5. Verify on Docker Hub:**

Go to: <https://hub.docker.com/repositories>  
Check if your image node-app is listed under your username.

Let me know if you’d like a sample GitHub repo or a shell script to automate these steps.