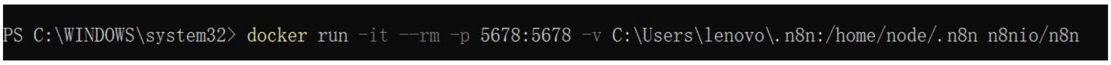
(a) In cloud computing, Infrastructure as a Service (IaaS) provides virtualized resources such as servers, storage, and networking, allowing developers to install operating systems and build fully customized environments, for example running a Jenkins CI server on AWS EC2 or setting up GPU-enabled VMs for machine learning, while Platform as a Service (PaaS) abstracts the infrastructure and provides a ready-to-use platform with runtime environments and scaling features, letting developers focus only on writing and deploying code, such as deploying a web application directly on Heroku or Google App Engine, and Software as a Service (SaaS) delivers fully managed applications accessible through a browser or API, commonly used in software development for collaboration and productivity, for instance using GitHub for source code hosting, Jira for project management, or Sentry for monitoring.

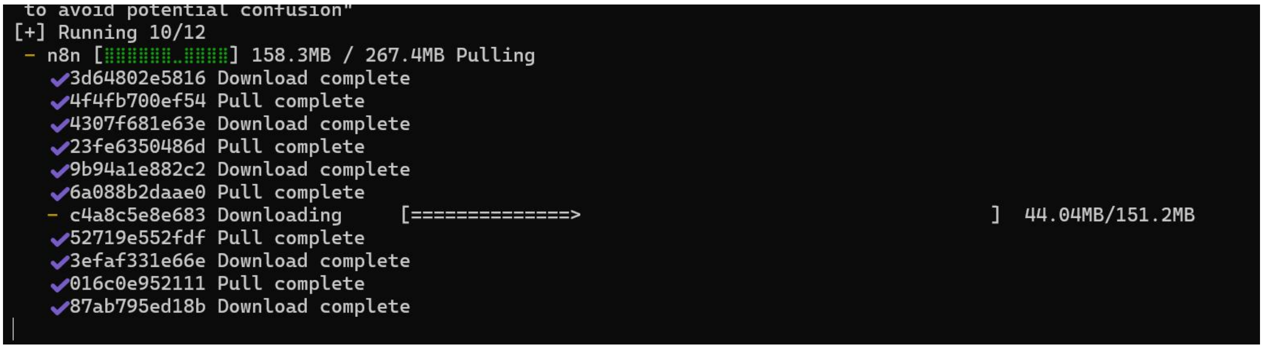
(b) Docker is a containerization technology that packages applications with their dependencies into lightweight, portable units called containers, and a common scenario is developing a microservices-based application with separate services like an API, database, and caching system where developers need consistent environments across Windows, macOS, and Linux, so containers ensure the same configuration runs everywhere, reducing the “it works on my machine” problem, while also speeding up testing in CI/CD pipelines, simplifying deployment to production, and enabling scalable, reliable rollouts with orchestration platforms like Kubernetes.

(c)

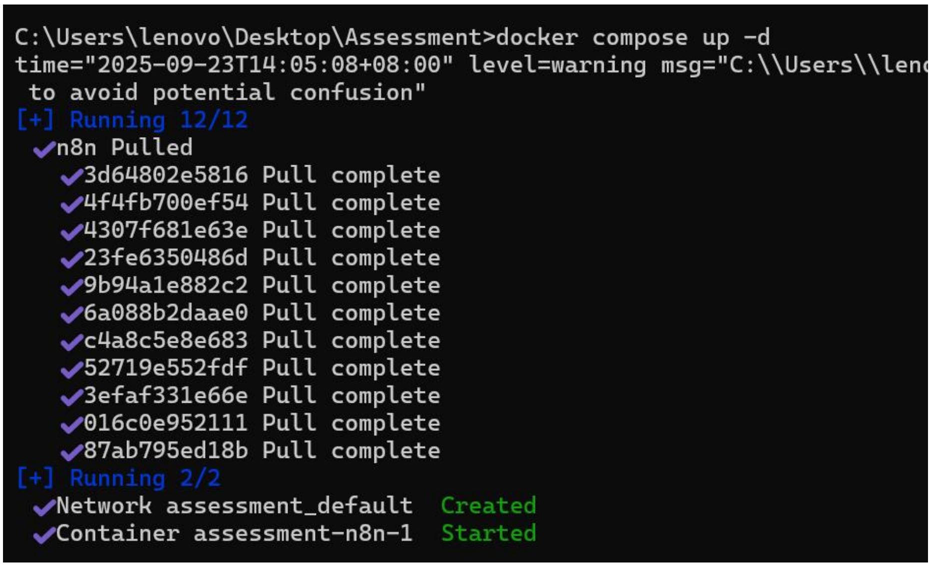
To deploy n8n with Docker, we can directly use the official n8n image without a YAML configuration file by running the following command: docker run -it --rm -p 5678:5678 -v ~/.n8n:/home/node/.n8n n8nio/n8n. This command pulls the latest n8n image from Docker Hub, maps port 5678 of the container to port 5678 on the host machine so that the application can be accessed through http://127.0.0.1:5678, and mounts the local directory ~/.n8n to /home/node/.n8n inside the container to persist configuration and workflows. Once the container is running, opening the browser at http://127.0.0.1:5678 shows the n8n editor interface. This approach simplifies deployment because Docker automatically handles the image retrieval, environment setup, and port mapping, allowing developers to quickly get n8n up and running.



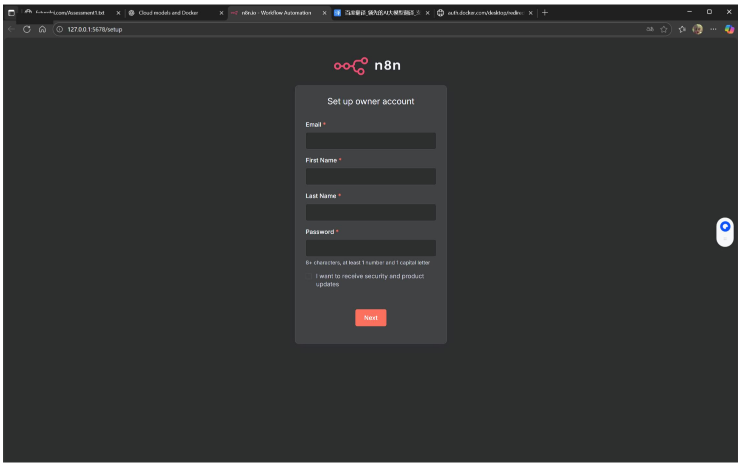
```
PS C:\WINDOWS\system32> docker run -it --rm -p 5678:5678 -v C:\Users\lenovo\.n8n:/home/node/.n8n n8nio/n8n
```



```
 to avoid potential confusion"
[+] Running 10/12
 - n8n [⣿⣿⣿⣿⣿⣿⣿⣀⣿⣿⣿⣿⣿] 158.3MB / 267.4MB Pulling
   ✓3d64802e5816 Download complete
   ✓4f4fb700ef54 Pull complete
   ✓4307f681e63e Download complete
   ✓23fe6350486d Pull complete
   ✓9b94a1e882c2 Download complete
   ✓6a088b2daae0 Pull complete
   - c4a8c5e8e683 Downloading     [==============>                                    ]  44.04MB/151.2MB
   ✓52719e552fdf Pull complete
   ✓3efaf331e66e Download complete
   ✓016c0e952111 Pull complete
   ✓87ab795ed18b Download complete
```



```
C:\Users\lenovo\Desktop\Assessment>docker compose up -d
time="2025-09-23T14:05:08+08:00" level=warning msg="C:\\Users\\lenc
 to avoid potential confusion"
[+] Running 12/12
 ✓n8n Pulled
   ✓3d64802e5816 Pull complete
   ✓4f4fb700ef54 Pull complete
   ✓4307f681e63e Pull complete
   ✓23fe6350486d Pull complete
   ✓9b94a1e882c2 Pull complete
   ✓6a088b2daae0 Pull complete
   ✓c4a8c5e8e683 Pull complete
   ✓52719e552fdf Pull complete
   ✓3efaf331e66e Pull complete
   ✓016c0e952111 Pull complete
   ✓87ab795ed18b Pull complete
[+] Running 2/2
 ✓Network assessment_default  Created
 ✓Container assessment-n8n-1  Started
```



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Cloud models and Docker
n8n.io - Workflow Automation
百度翻译_领先的AI大模型翻译_支
auth.docker.com/desktop/redirec
127.0.0.1:5678/setup
n8n

Set up owner account

Email *

First Name *

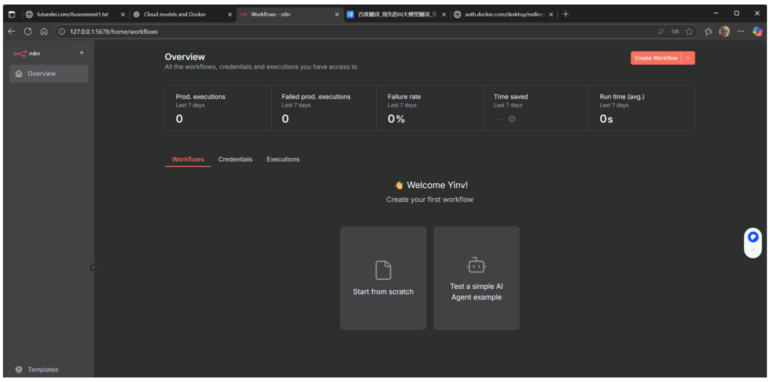
Last Name *

Password *

8+ characters, at least 1 number and 1 capital letter

□ I want to receive security and product updates

Next



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Cloud models and Docker
Workflows - n8n
百度翻译_领先的AI大模型翻译_支
auth.docker.com/desktop/redirec
127.0.0.1:5678/home/workflows
n8n
Overview
Templates
Create Workflow

Overview
All the workflows, credentials and executions you have access to

Prod. executions Last 7 days	Failed prod. executions Last 7 days	Failure rate Last 7 days	Time saved Last 7 days	Run time (avg.) Last 7 days
0	0	0%	--	0s

Workflows Credentials Executions

👋 Welcome Yinv!
Create your first workflow

Start from scratch

Test a simple AI Agent example