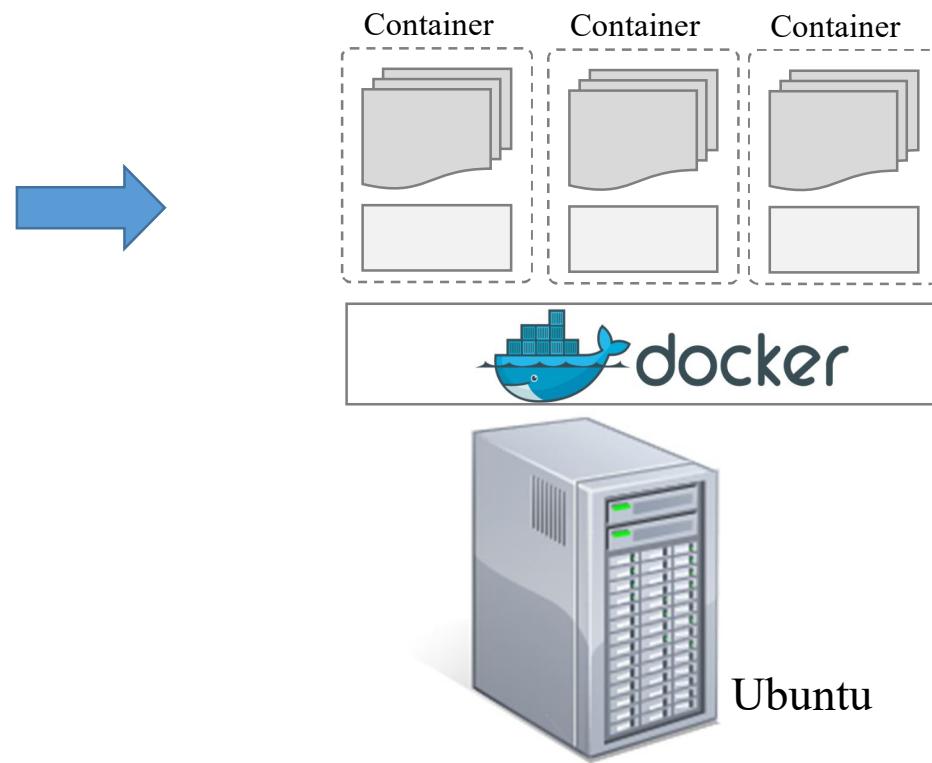
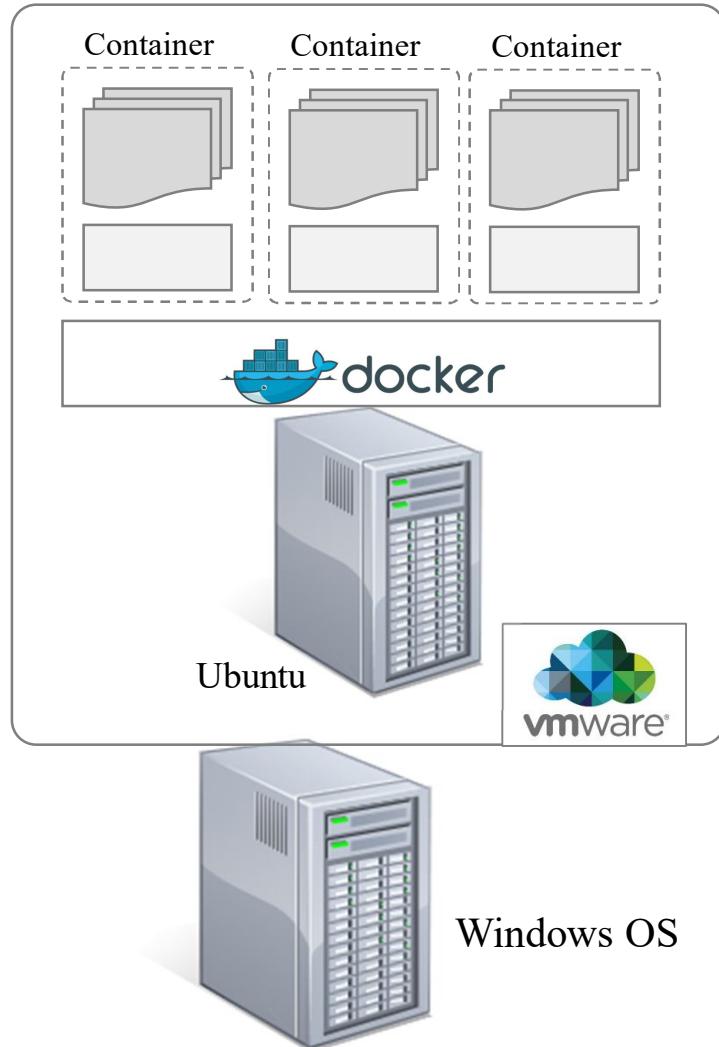
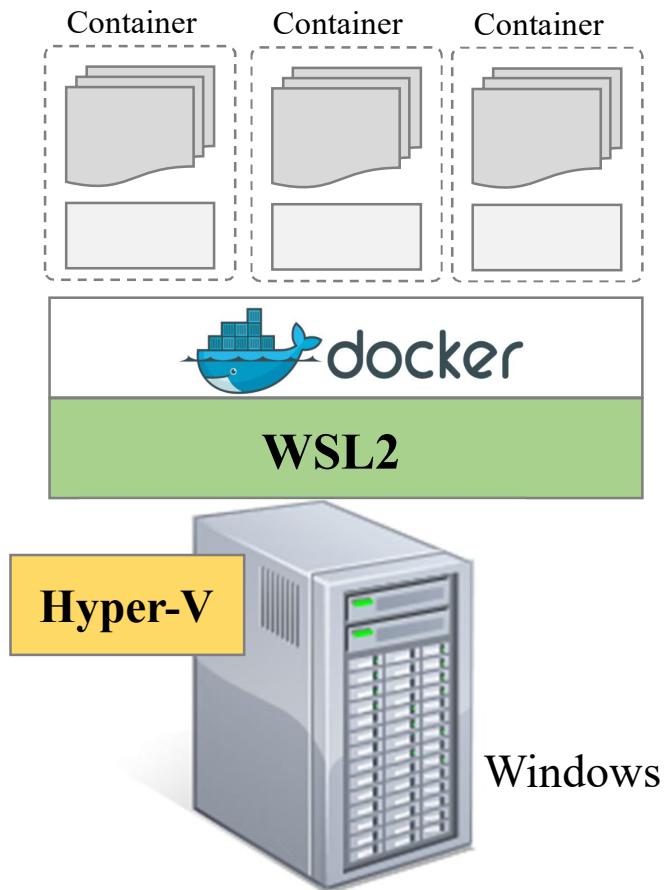


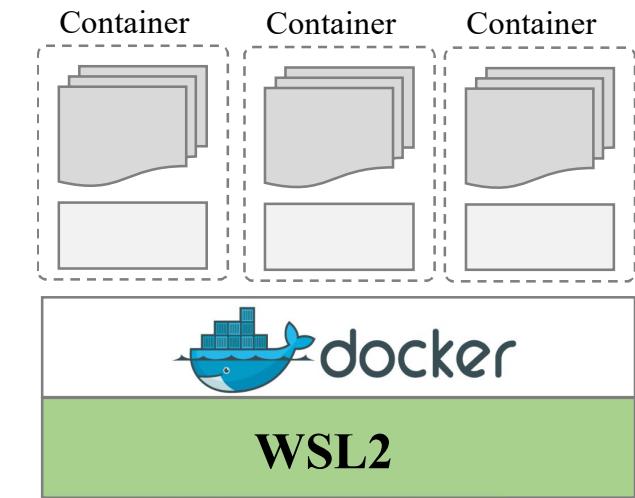
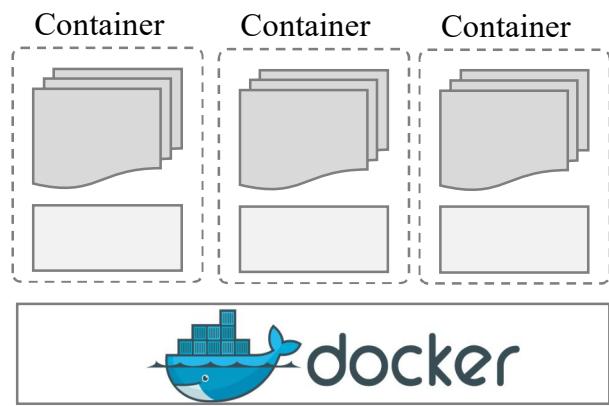
# Docker 실습환경 구성

# Linux 환경에서 Docker 설치



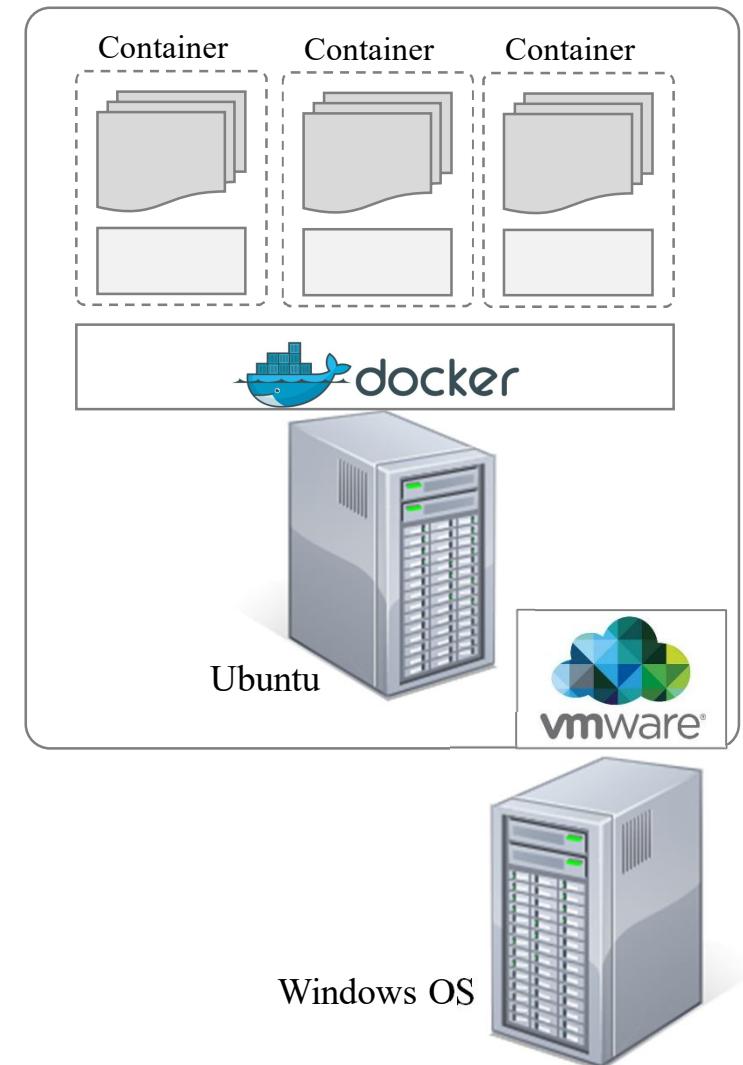
# Windows 환경에서 Docker 설치





# Linux 환경에서 Docker 설치

- 1) VMWare Install
- 2) Ubuntu Install
- 3) Docker Install



<https://docs.docker.com/desktop/install/ubuntu/>

The screenshot shows a web browser displaying the Docker documentation at <https://docs.docker.com/engine/install/ubuntu/>. The page has a blue header with the Docker logo and navigation links for 'Get started', 'Guides', 'Manuals' (which is the active tab), and 'Reference'. A banner at the top right says '+ New Docker Hardened Images are now FREE for every developer. Register for the webinar'. The main content area has a sidebar on the left with a 'OPEN SOURCE' section containing links for Docker Engine, Install, Ubuntu (which is selected and highlighted in grey), Debian, RHEL, Fedora, Raspberry Pi OS (32-bit / armhf), CentOS, SLES (s390x), Binaries, Post-installation steps, Storage, Networking, Containers, CLI, Daemon, Manage resources, and Logs and metrics. The main content on the right is titled 'Install Docker Engine on Ubuntu'. It includes a 'Prerequisites' section and a 'Firewall limitations' section. The 'Firewall limitations' section contains a warning box with the following text:

To get started with Docker Engine on Ubuntu, make sure you meet the [prerequisites](#), and then follow the [installation steps](#).

## Prerequisites

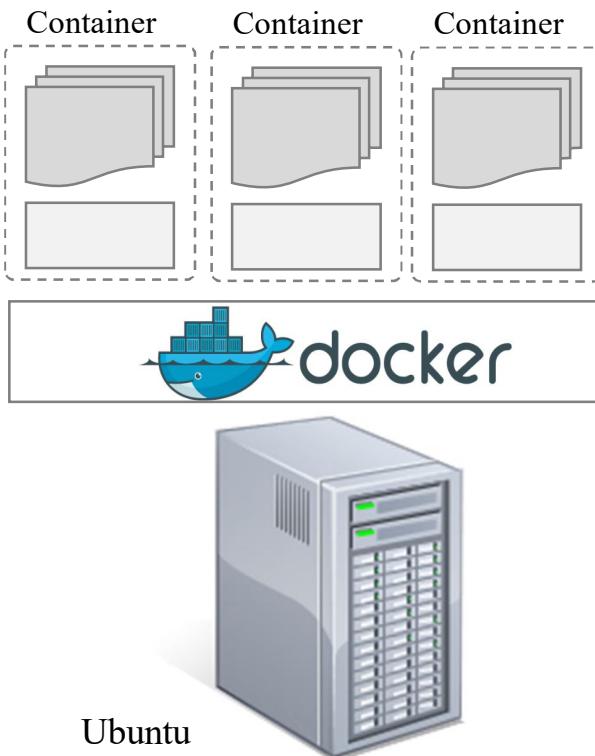
### Firewall limitations

**⚠ Warning**

Before you install Docker, make sure you consider the following security implications and firewall incompatibilities.

- If you use ufw or firewalld to manage firewall settings, be aware that when you expose container ports using Docker, these ports bypass your firewall rules. For more information, refer to [Docker and ufw](#).
- Docker is only compatible with `iptables-nft` and `iptables-legacy`. Firewall rules created with `nft` are not supported on a system with Docker installed. Make sure that any firewall rulesets you use are created with `iptables` or `ip6tables`, and that you add them to the `DOCKER-USER` chain, see [Packet filtering and firewalls](#).

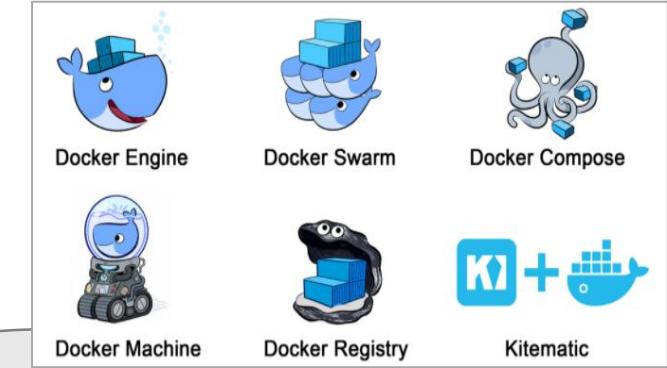
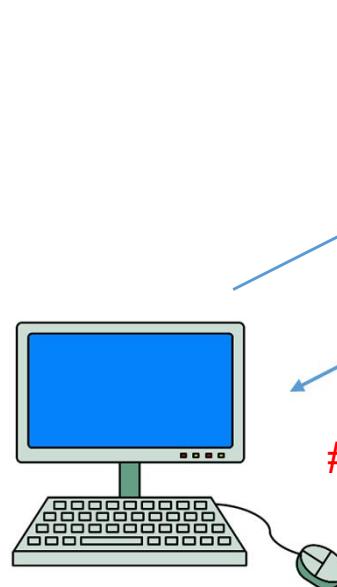
# 리눅스 기반의 Docker 설치 방법



- Repository 를 이용한 설치
- 파일 다운로드 후 설치
  - 네트워크가 연결이 안 될 경우
- Script를 이용한 설치

# Repository를 이용한 Docker Engine 설치

<https://download.docker.com/linux/ubuntu>



Docker Package Repository  
(도커 패키지 저장소)

#apt-get install docker-ce docker-ce-cli containerd.io

# 1단계. Docker 저장소 설정

## ① 유틸리티 파일 설치

```
apt-get update
```

```
apt-get install -y ca-certificates curl
```

## ② Docker 공식 GPG key 추가 (도커 인증서 저장)

```
install -m 0755 -d /etc/apt/keyrings
```

```
curl -fsSL https://download.docker.com/linux/ubuntu/gpg -o etc/apt/keyrings/docker.asc
```

```
chmod a+r /etc/apt/keyrings/docker.asc
```

### ③ Docker Repository URL 등록

```
echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.asc]  
https://download.docker.com/linux/ubuntu
```

```
$(. /etc/os-release && echo "$VERSION_CODENAME") stable" | tee  
/etc/apt/sources.list.d/docker.list > /dev/null
```

```
apt-get update
```

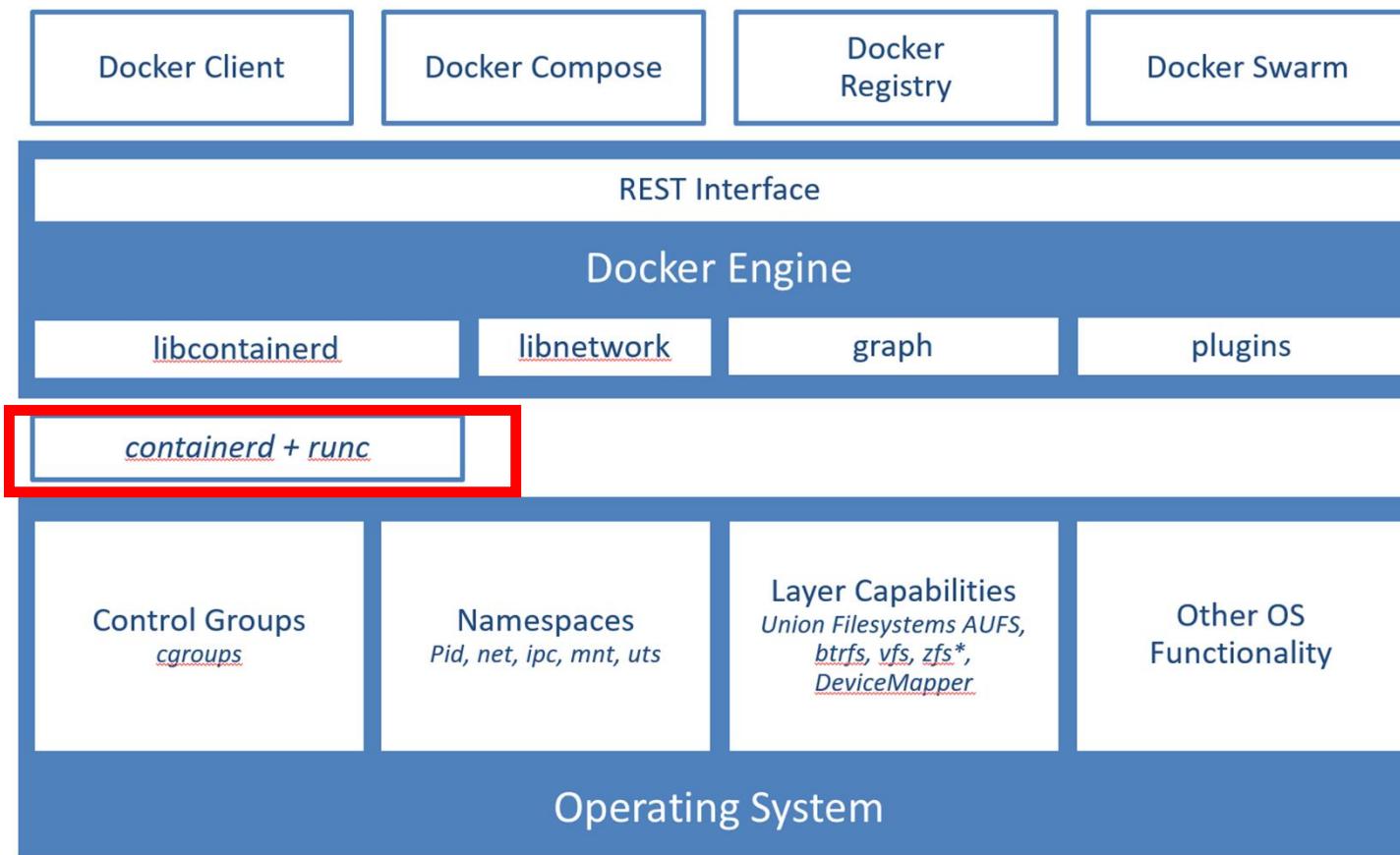
## 2단계. Docker 패키지 설치

apt-get install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin

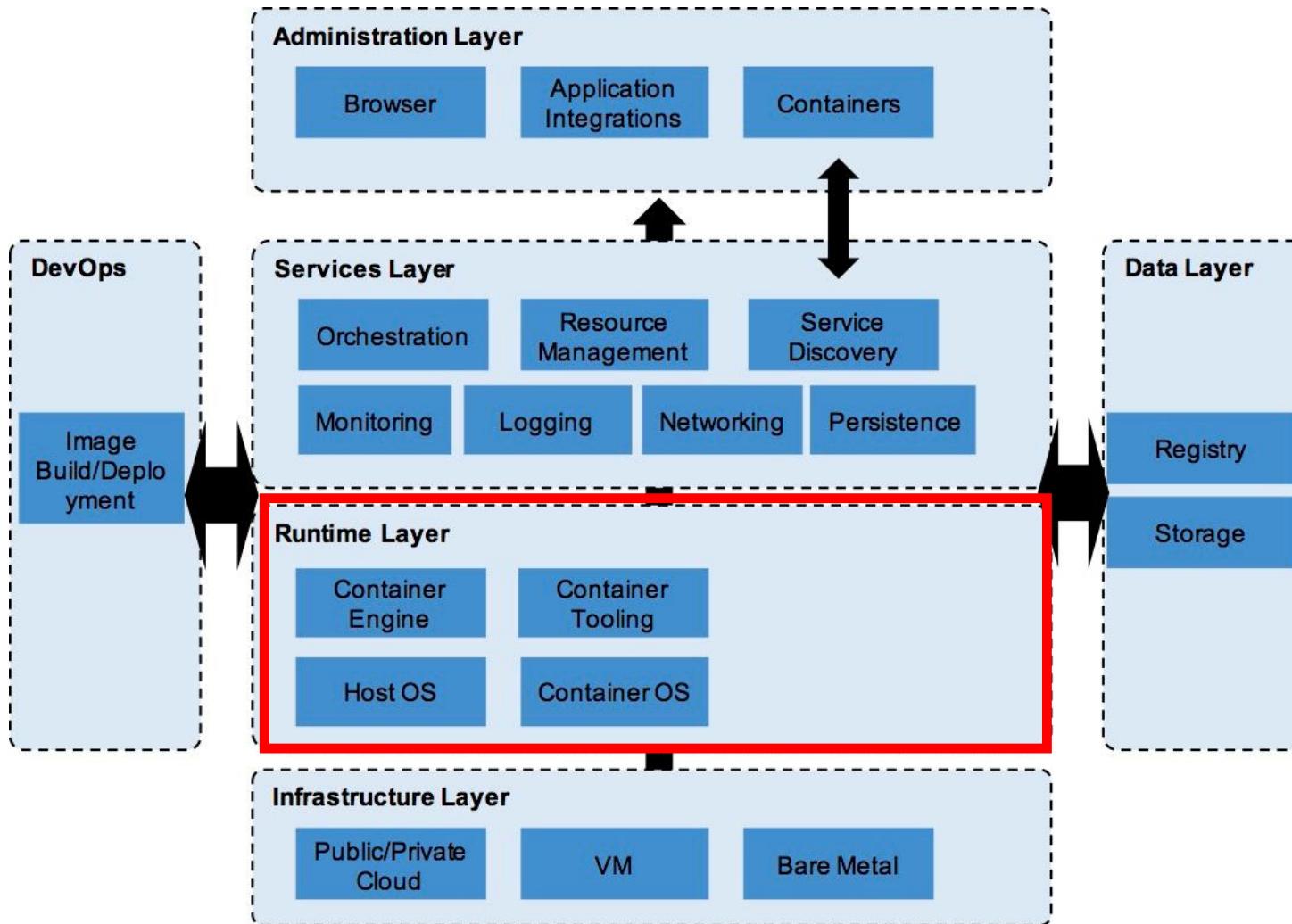


docker-ce-cli	Docker 명령어 도구, docker ps, docker run, docker images 등 사용자와 Docker 데몬(dockerd) 간 인터페이스
docker-ce	Docker Community Edition, Docker 엔진 핵심, dockerd 데몬 제공 컨테이너 생성 / 실행 / 중지 / 삭제, 이미지 관리, 네트워크, 볼륨 제어 systemd 서비스로 동작
containerd.io	컨테이너 런타임 (하부 엔진, 실제 컨테이너 실행 담당) => Docker deamon(프로세스)을 실제로 실행시켜 주는 역할 이미지 pull / push / 저장, 컨테이너 lifecycle 관리, 내부적으로 runc 사용

# Architecture In Linux



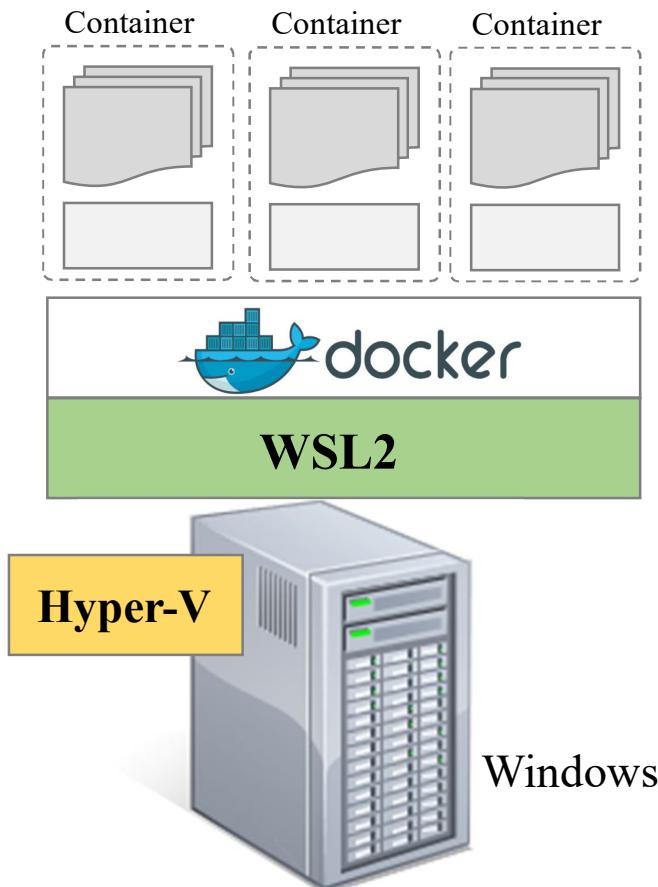
# Container Platform Architecture Reference model



## 3단계. 설치 확인

docker version

# Windows 환경에서 Docker 설치



- 1) Hyper-V 가상화 기능 활성화
- 2) Hub.docker.com 계정 등록
- 3) Docker Desktop 설치
  - WSL2(Windows Subsystem for Linux v.2)를 통해 리눅스 커널 설치
  - Docker 설치
- 4) Docker 동작 상태 확인

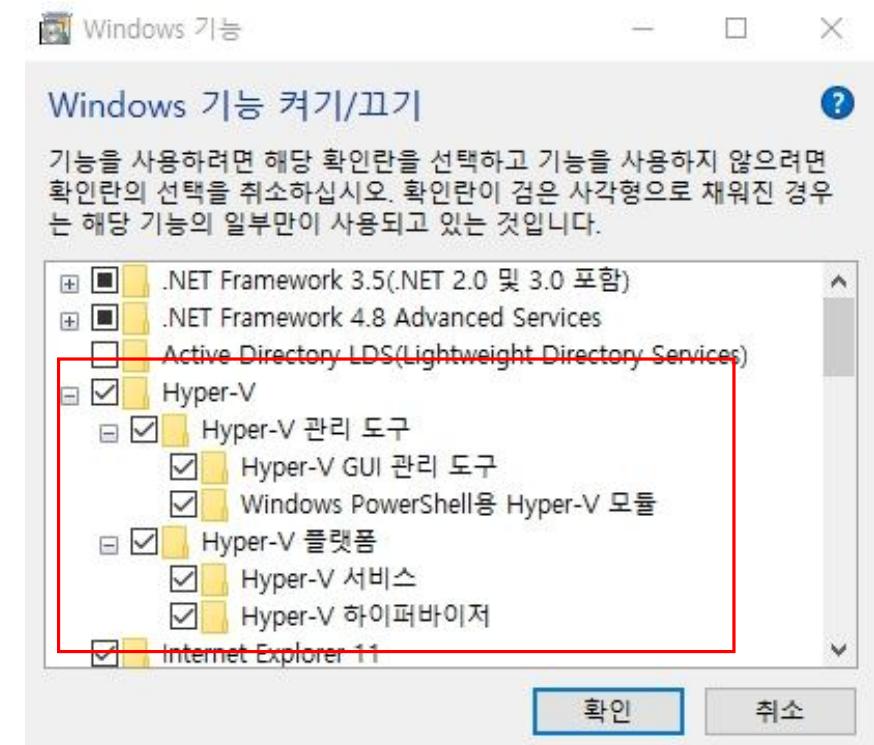
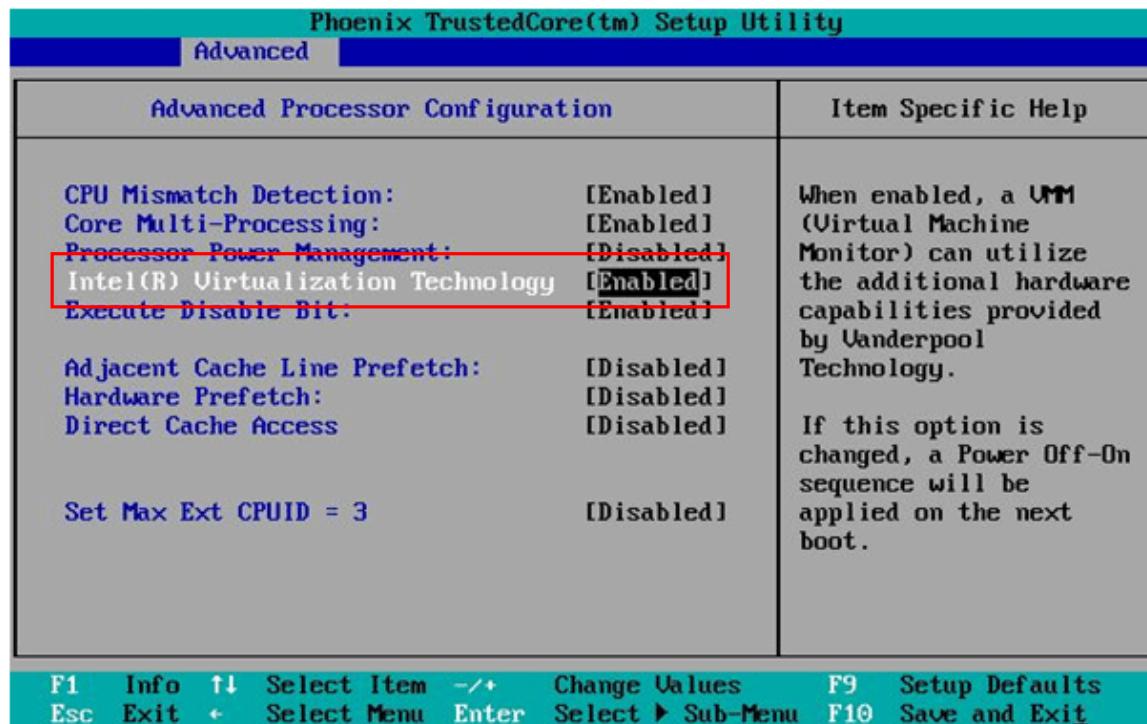
# Docker DeskTop

- 컨테이너화된 애플리케이션 및 마이크로서비스를 구축하고 공유할 수 있는 Mac, Linux, Windows 환경용 원클릭 설치 애플리케이션
- 설치된 머신에서 컨테이너, 애플리케이션, 이미지를 관리할 수 있는 간단한 GUI를 제공
- 관련 패키지를 포함
  - Docker Engine, Docker CLI client, Docker Compose, Docker Content Trust, **Kubernetes**, and Credential Helper

# WSL2(Windows Subsystem for Linux 2)

- 윈도우에서 리눅스를 사용할 수 있게 해주는 기능
- 윈도우의 가상화 기능을 활용해서 윈도우 위에서 리눅스를 사용할 수 있게해 줌

# 1단계. Hyper-V 활성화



# systeminfo

```
관리자: 영령 프롬프트
로그온 서버: DESKTOP-M5C3TKU
핫픽스: 14개 설치됨
[01]: KB5013624
[02]: KB5013887
[03]: KB4537759
[04]: KB4557968
[05]: KB5003791
[06]: KB5006120
[07]: KB5007115
[08]: KB5014699
[09]: KB5006753
[10]: KB5007273
[11]: KB5011651
[12]: KB5014032
[13]: KB5014035
[14]: KB5005699
네트워크 카드: NIC 1개 설치됨
[01]: Realtek PCIe GbE Family Controller
연결 이름: 이더넷
DHCP 사용: 예
DHCP 서버: 192.168.35.1
IP 주소
[01]: 192.168.35.70
[02]: fe80::80a2:b12c:29b0:2a3d
Hyper-V 요구 사항:
VM 모니터 모드 확장: 예
펌웨어에 가상화 사용: 아니요
두 번째 수준 주소 변환: 예
데이터 실행 방지 사용 가능: 예
C:\Windows\system32>
```

## 2단계. Hub.docker.com 계정 등록

The screenshot shows the Docker Hub sign-up page at [hub.docker.com/signup](https://hub.docker.com/signup). The page features the Docker logo and a large title "Create your account". It provides several sign-up options: "Continue with Google" (with a Google icon), "Continue with GitHub" (with a GitHub icon), and "Email" (with a placeholder for a username). Below the email field is a "Username" field. A "Password" field includes an "eye" icon for password visibility. At the bottom, there's a checkbox for receiving product updates and announcements, followed by a note about reCAPTCHA and links to the [Privacy Policy](#) and [Terms of Service](#).

hub.docker.com/signup

docker

## Create your account

Continue with Google

Continue with GitHub

OR

Email

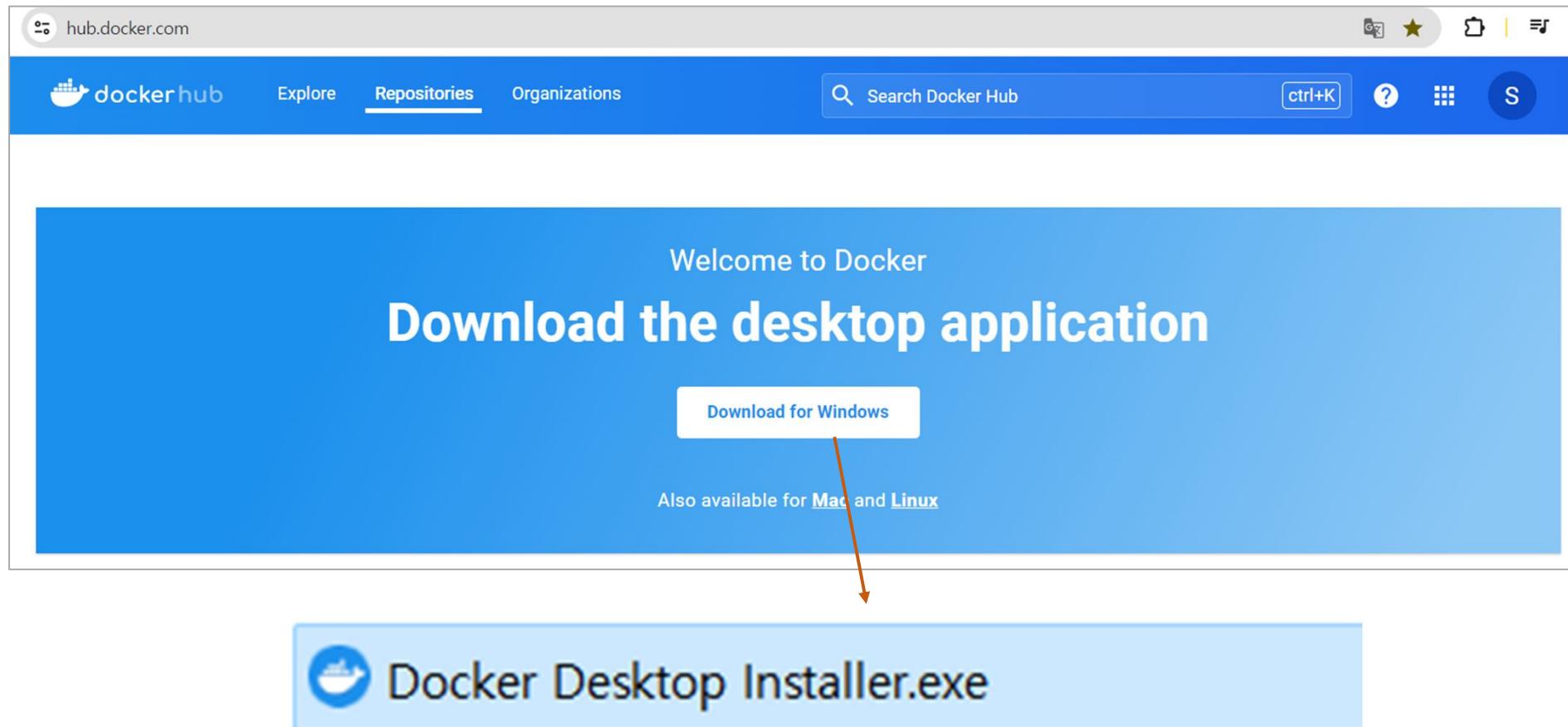
Username

Password

Send me occasional product updates and announcements.

This site is protected by reCAPTCHA and the Google [Privacy Policy](#) and [Terms of Service](#) apply.

## 3단계. Docker Desktop 다운로드

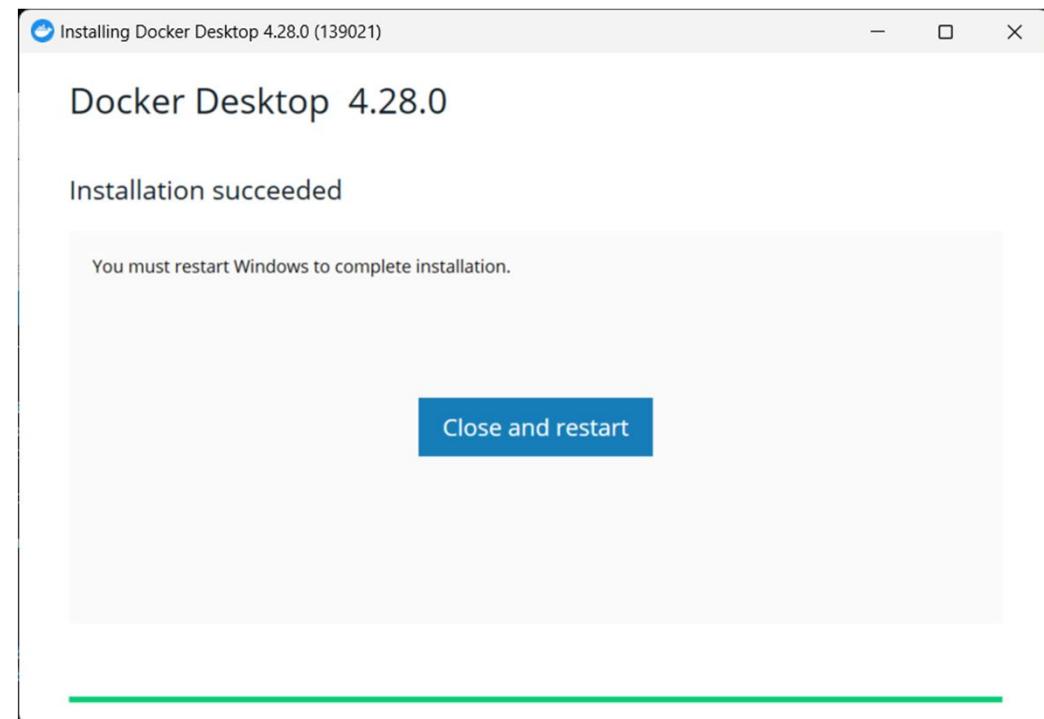
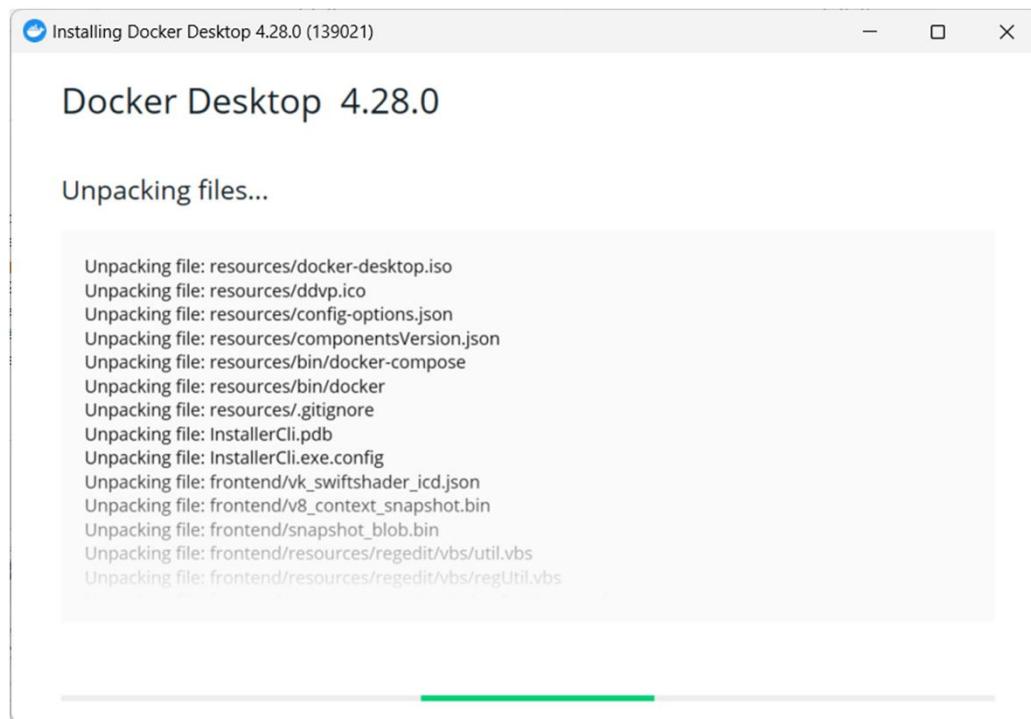


The screenshot shows the Docker Docs homepage at [docs.docker.com](https://docs.docker.com). The top navigation bar includes links for Guides, Manuals, Reference, Samples, and FAQ. A prominent 'Get started' button is visible. Below the navigation, there's a section titled 'Browse by section' with two main items: 'Docker Desktop' and 'Docker Engine'. The 'Docker Desktop' section is highlighted with a red box. It contains a brief description: 'Manage containers, applications, and images directly from your machine.' followed by three links: 'Overview', 'Explore Docker Desktop', and 'Release notes'.

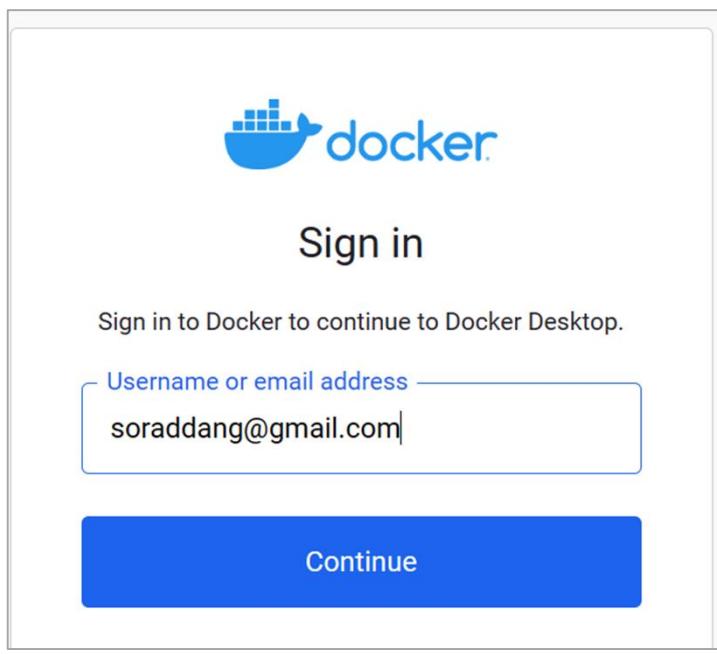
https://docs.docker.com/desktop/install/windows-install/

The screenshot shows a detailed view of the 'Install Docker Desktop on Windows' page. The URL in the browser is <https://docs.docker.com/desktop/install/windows-install/>. The page has a blue header with 'Manuals' selected. The breadcrumb navigation shows: Manuals / Docker Desktop / Install Docker Desktop / Install on Windows. The main title is 'Install Docker Desktop on Windows'. Below the title, there's a section titled 'Docker Desktop terms' with a note about commercial use requiring a paid subscription. The page also lists other installation options like 'Install on Mac' and 'Understand permission requirements for Mac'. Under the 'Install on Windows' heading, it says 'Understand permission requirements for Windows' and lists 'Install on Linux', 'Installation per Linux distro', 'Sign in', and 'Explore Docker Desktop'. A large blue button labeled 'Docker Desktop for Windows' is present, along with a note about checksums and release notes.

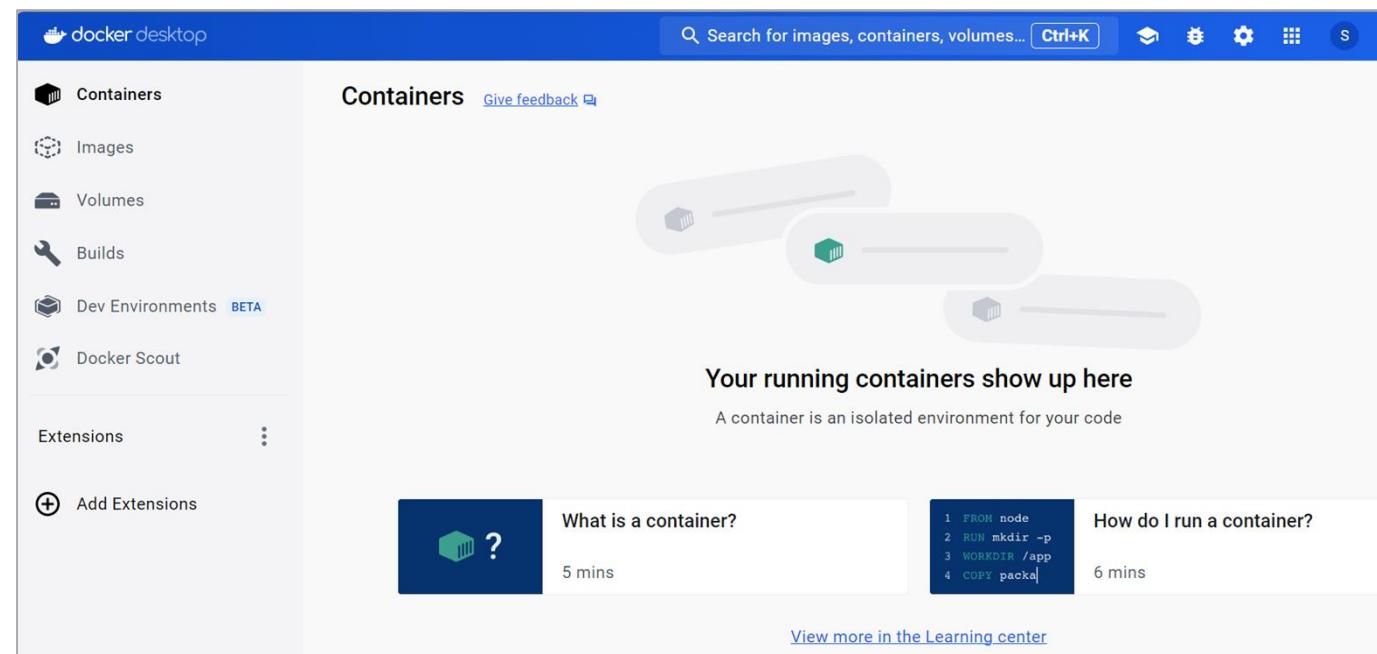
## 4단계. Docker Desktop 설치



## 5단계. Docker Hub 로그인 후 Docker Engine 활성화



The sign-in screen for Docker Desktop. It features the Docker logo at the top left. Below it is the title "Sign in". A sub-instruction "Sign in to Docker to continue to Docker Desktop." follows. A text input field is present, labeled "Username or email address" with the value "soraddang@gmail.com". At the bottom is a large blue "Continue" button.



The Docker Desktop home screen. The title bar says "docker desktop". On the left is a sidebar with icons for "Containers", "Images", "Volumes", "Builds", "Dev Environments (BETA)", "Docker Scout", "Extensions", and "Add Extensions". The main area is titled "Containers" with a sub-instruction "Your running containers show up here" and the text "A container is an isolated environment for your code". Below this are three cards: "What is a container?", "How do I run a container?", and a snippet of Dockerfile code. A search bar at the top right contains "Search for images, containers, volumes... Ctrl+K".

## 6단계. PowerShell을 이용한 Docker 확인

```
PS C:\> docker version
Client:
  Cloud integration: v1.0.35+desktop.11
  Version:          25.0.3
  API version:      1.44
  Go version:       go1.21.6
  Git commit:       4debf41
  Built:            Tue Feb  6 21:13:02 2024
  OS/Arch:          windows/amd64
  Context:          default

Server: Docker Desktop 4.28.0 (139021)
Engine:
  Version:          25.0.3
  API version:      1.44 (minimum version 1.24)
  Go version:       go1.21.6
  Git commit:       f417435
  Built:            Tue Feb  6 21:14:25 2024
  OS/Arch:          linux/amd64
```