

# Docker와 함께하는 R

<https://mrchypark.github.io/docker-with-r>

[pdf버전] [문의하기] [의견 및 오류 신고]

스타누르기는 컨텐츠 제작자를 춤추게 합니다.

박찬엽

2017년 11월 28일

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# 박찬엽



- 서울도시가스 선행연구팀 연구원
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- 패스트 캠퍼스 데이터 분석 R 강의
  - 데이터 분석을 위한 중급 R 프로그래밍
- R 네이버 뉴스 크롤러 N2H4 관리자
  - ForkonLP 프로젝트
- **KAKAO@알코홀릭** R 질문방
- **FACEBOOK@mrchypark**
- **GITHUB@mrchypark**

# 우선 공부할 수 있는 자료들

- 초보자를 위한 도커 안내서
- 도커 한글 문서/영상 자료집

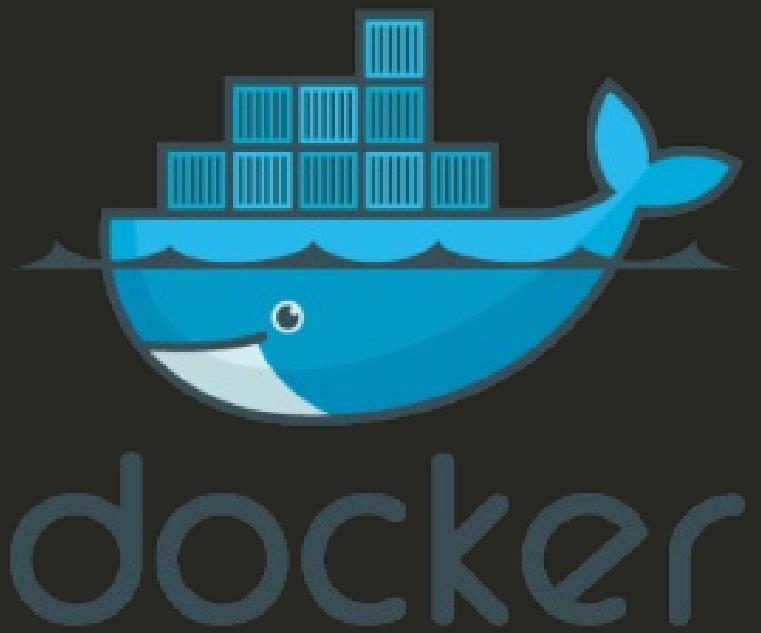
## 다운로드

잘 모르신다면 windows home일 것이므로 toolbox 설치 진행

- windows home > **docker toolbox**
- windows pro > **docker for windows**

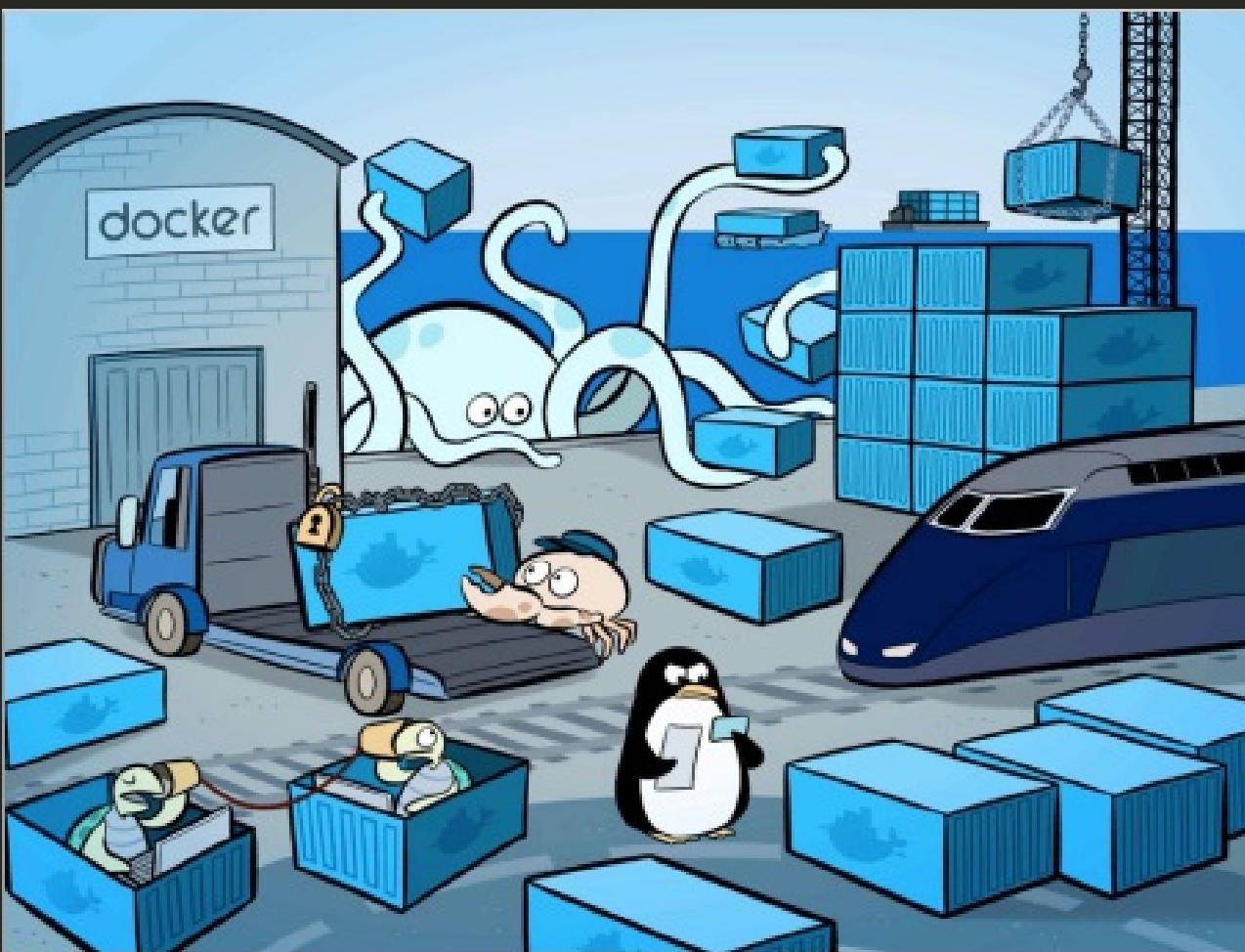
## unix 계열

- mac > **docker for mac**
- linux > **docker**



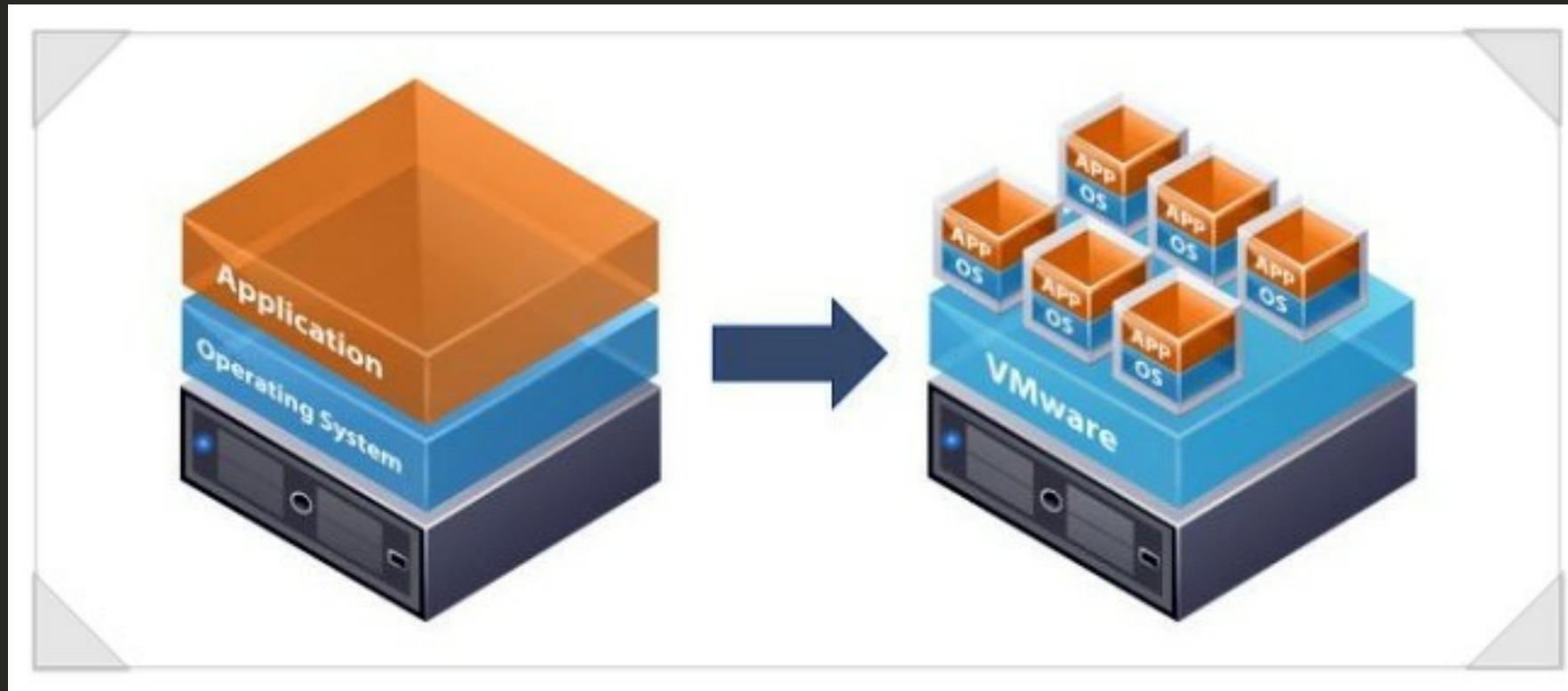
# 도커란

컨테이너 기반의 오픈소스 가상화 플랫폼



# 가상화란

소프트웨어로 물리 컴퓨터를 흉내내어 가상의 컴퓨터가 있는 것으로 자원을 나눠 활용하는 것.





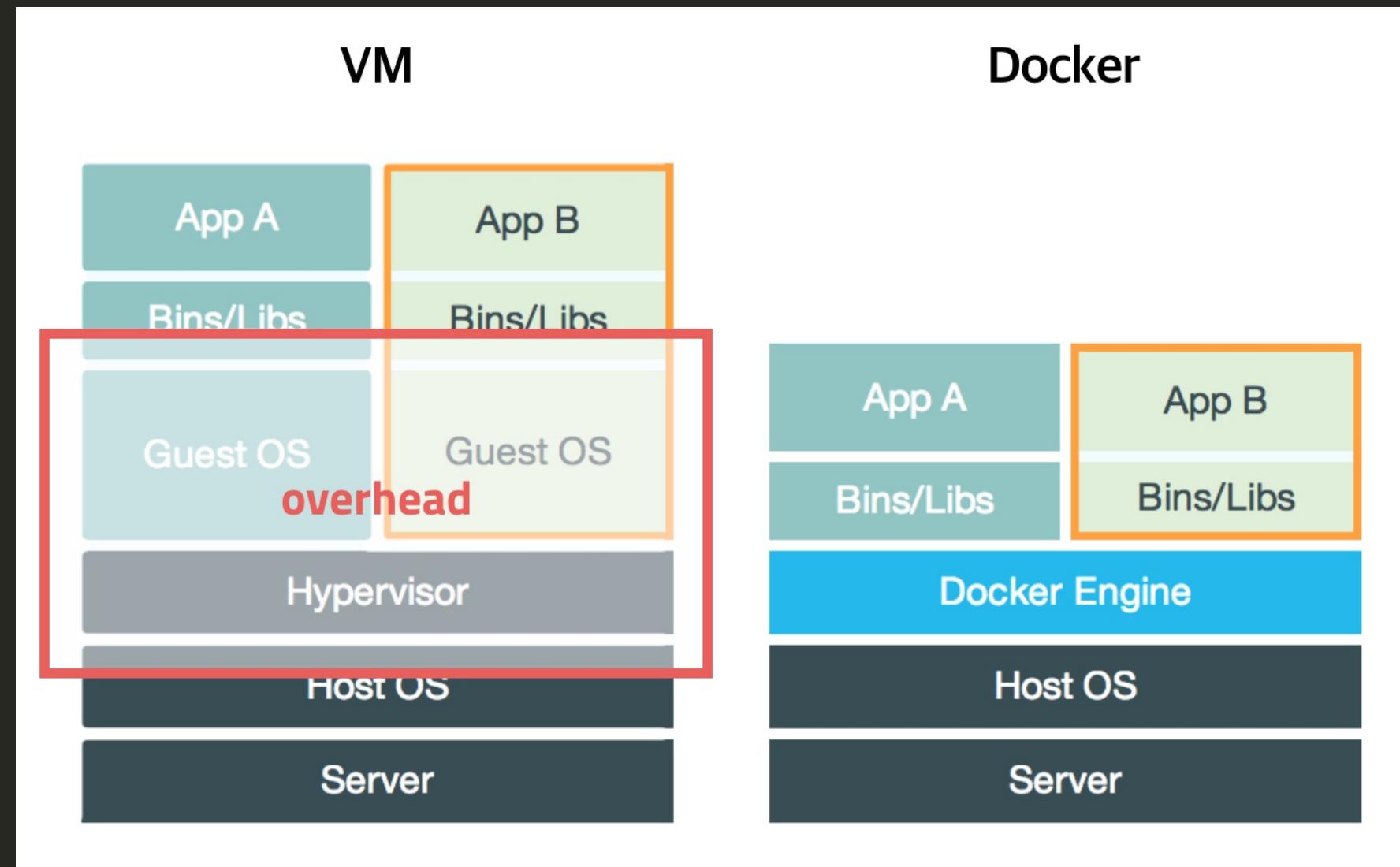


The logo consists of a red square containing the word "Parallels" in white. To the left of the word is a stylized "P" mark, which is a white "P" inside a red parallelogram. A registered trademark symbol (®) is positioned at the top right of the "s".

|| Parallels®

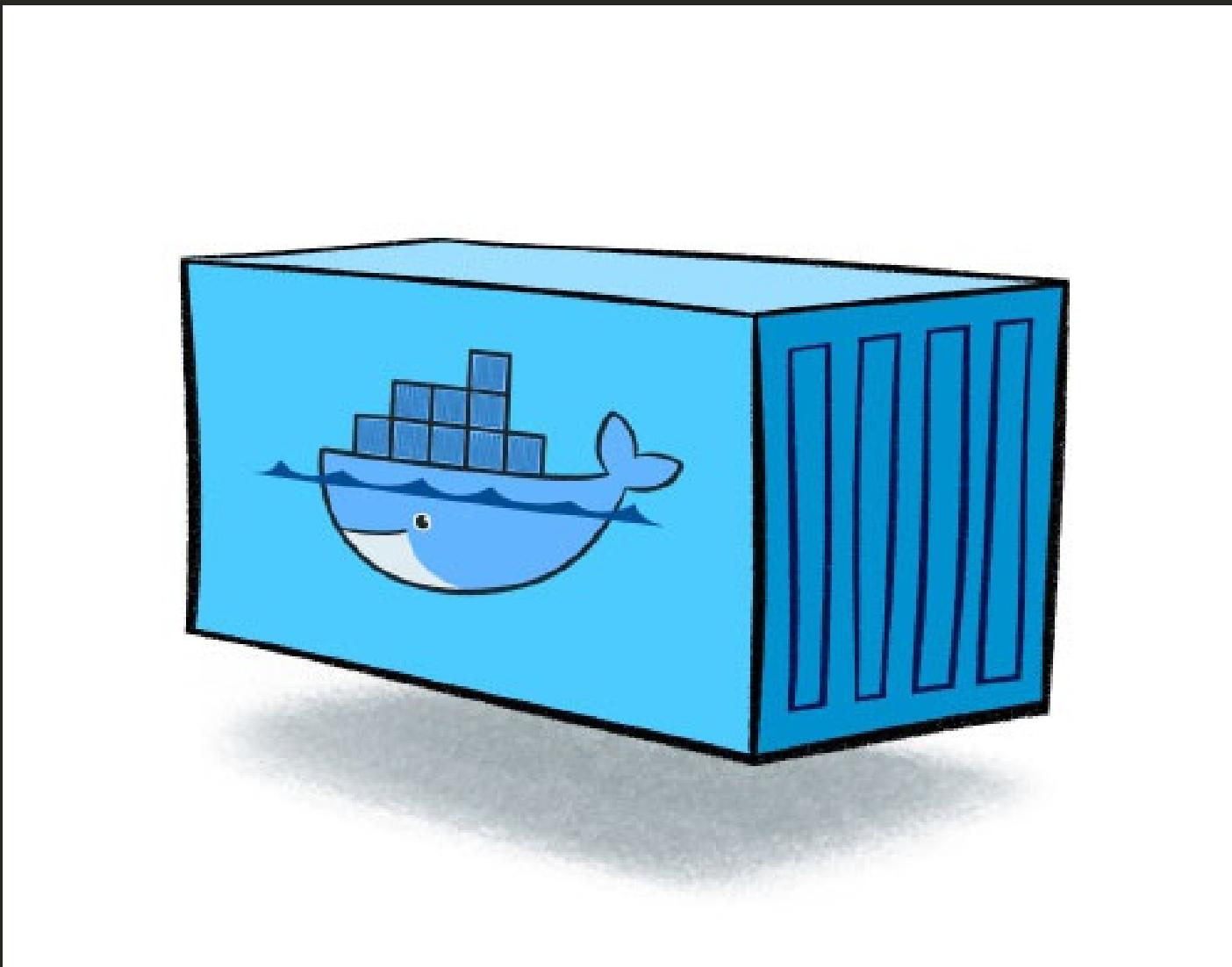
모두 가상화 도구<sup>로</sup>

# vm과 docker의 차이



# 그럼 컨테이너란

격리된 공간에서 환경을 구축하여 프로세스가 동작하는 기술



# 정말 컨테이너는 어떤 의미였을까

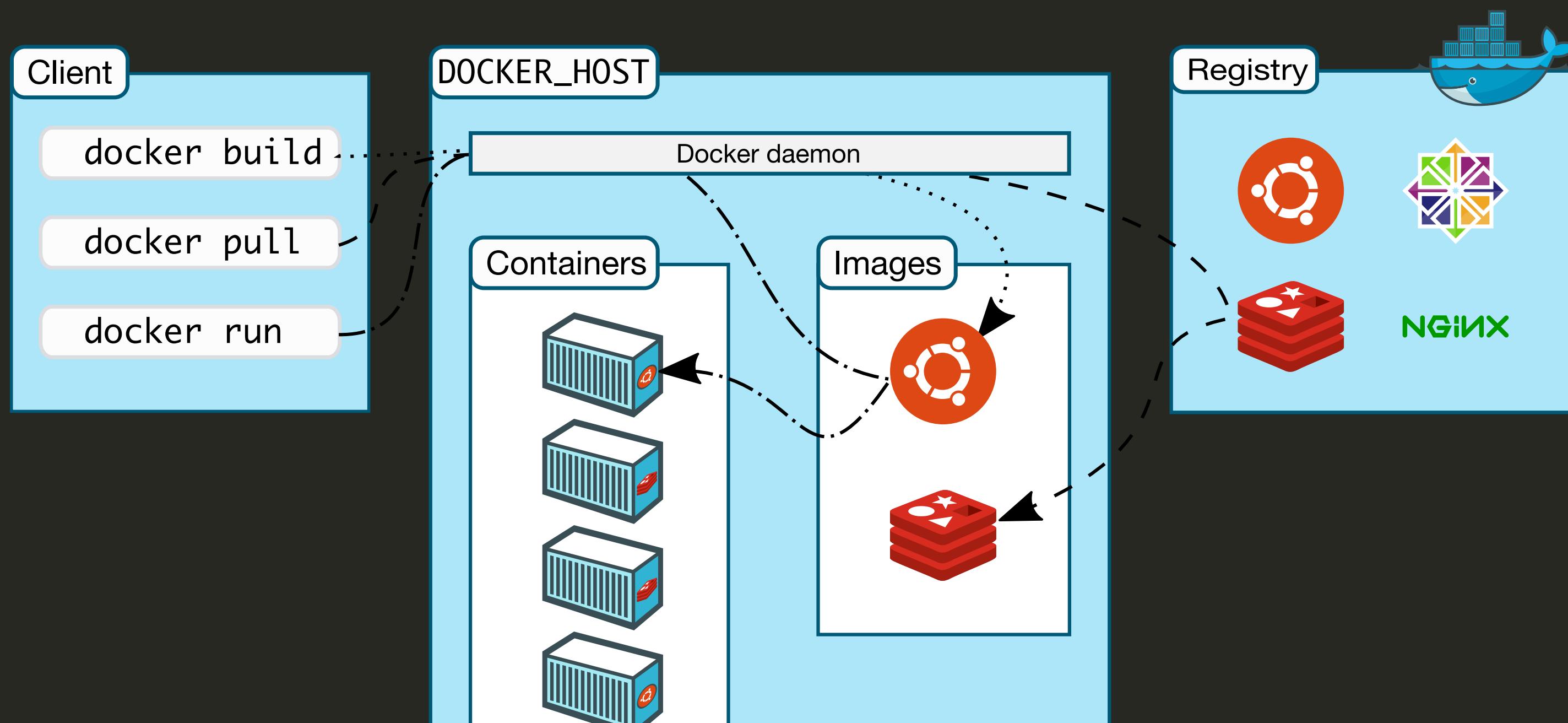
## 컨테이너의 표준화

- 짐이 최초로 컨테이너에 들어가는 순간부터 나오는 마지막까지 중간 운송 인프라에 의해 운송 비용이 매우 저렴해짐

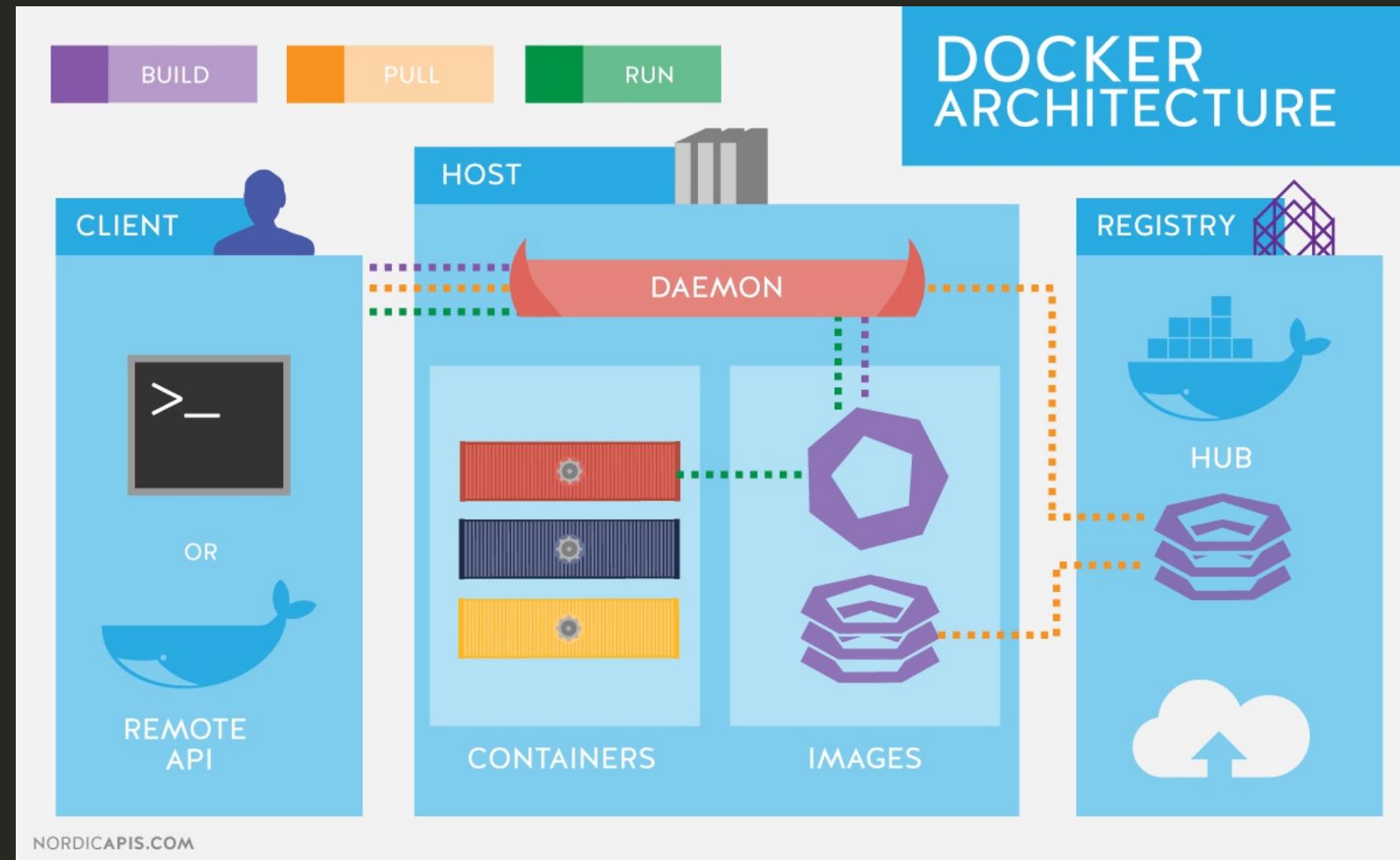


# 도커 컨테이너에 의해서

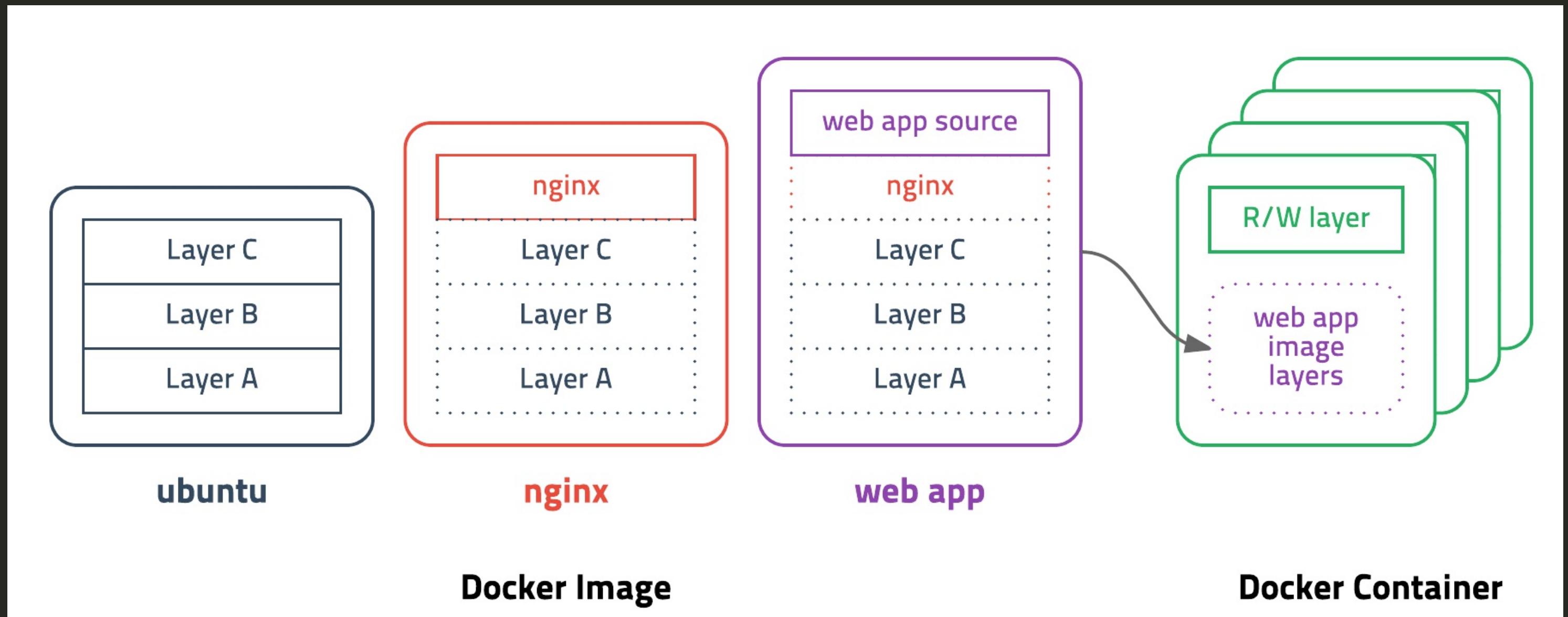
- 컨테이너의 재현성 보장
- 개발환경과 배포환경이 일치되어 배포 비용이 매우 저렴해짐



# image



# 효율적인 이미지 레이어



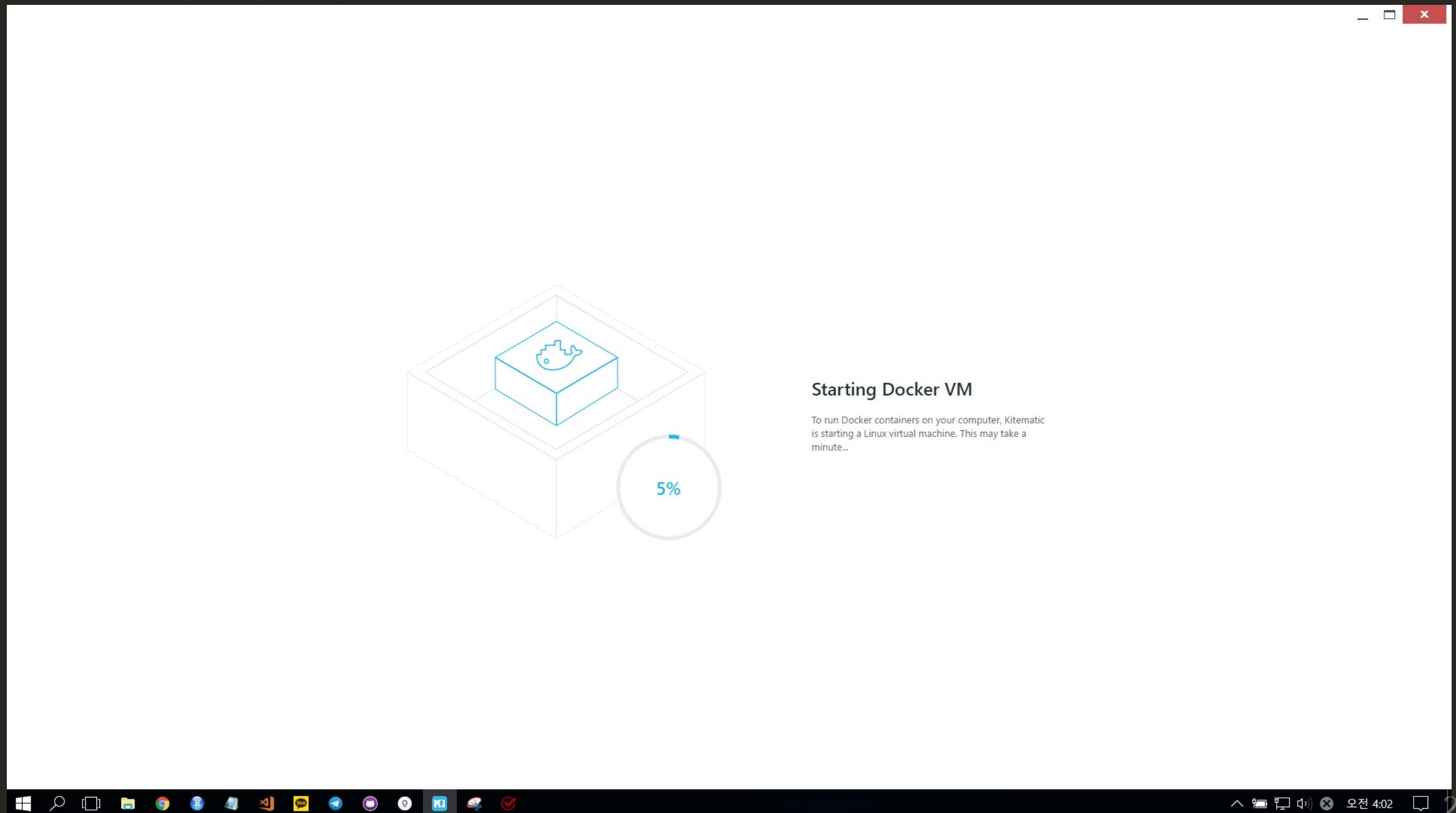
# 용어

- 클라이언트 : 호스트에 명령을 내리는 인터페이스. 보통 terminal에서 명령어 기반으로 진행
- 호스트(서버) : 데몬 기반으로 실제 컨테이너가 실행되고 이미지가 관리되는 공간
- 이미지 : 컨테이너 실행에 필요한 파일과 설정값을 가진 모음으로 build하여 완성하고 변경하지 못함.
- 레지스트리 : 이미지를 공유하기 위한 공간으로 외부 요청에 대응하여 이미지를 저장, 전달, 업데이트 등을 진행.
- **데몬** : 백그라운드에서 실행되어 지정된 작업을 하는 프로그램(프로세스)

# Kitematic 소개

The screenshot shows the official Kitematic website. At the top, there's a navigation bar with links for Documentation, Jobs, Github, and a prominent "Download the Docker Toolbox" button. A "Fork me on GitHub" badge is located in the top right corner. The main headline reads "Now part of the Docker Toolbox" and features a large "K" icon followed by a plus sign and a briefcase icon. Below this, a sub-headline says "Run containers through a simple, yet powerful graphical user interface." A large orange "Download the Docker Toolbox" button is centered below the sub-headline. Text below the button specifies "Available for Mac OS X 10.8+ and Windows 7+ (64-bit)." At the bottom, a screenshot of the Kitematic application interface is displayed, showing a sidebar with "Containers" and "New Container" buttons, a search bar, and a list of recommended Docker images like "ghost" and "jenkins".

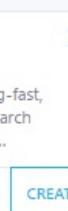
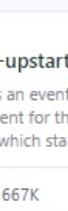
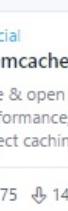
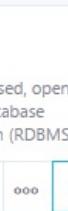
## 실행화면 - virtualbox로 실행됨



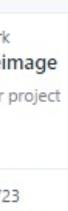
# 실행 홀

Containers + NEW Search for Docker images from Docker Hub FILTER BY All Recommended My Repos My Images

### Recommended

 <b>kitematic hello-world-nginx</b> A light-weight nginx container that demonstrates the features of Kitematic	 <b>official ghost</b> Ghost is a free and open source blogging platform written in JavaScript	 <b>official jenkins</b> Official Jenkins Docker image	 <b>official redis</b> Redis is an open source key-value store that functions as a data structure server.	 <b>official rethinkdb</b> RethinkDB is an open-source, document database that makes it easy to build and scale realtime...	 <b>kitematic minecraft</b> The Minecraft multiplayer server allows two or more players to play Minecraft together
 <b>official solr</b> Solr is the popular, blazing-fast, open source enterprise search platform built on Apache...	 <b>official.elasticsearch</b> Elasticsearch is a powerful open source search and analytics engine that makes data easy to...	 <b>official postgres</b> The PostgreSQL object-relational database system provides reliability and data integrity.	 <b>official ubuntu-upstart</b> Upstart is an event-based replacement for the /sbin/init daemon which starts processes a...	 <b>official.memcached</b> Free & open source, high-performance, distributed memory object caching system.	 <b>official rabbitmq</b> RabbitMQ is an open source multi-protocol messaging broker.
 <b>official celery</b> Celery is an open source asynchronous task queue/job queue based on distributed...	 <b>official mysql</b> MySQL is a widely used, open-source relational database management system (RDBMS).	 <b>official mongo</b> MongoDB document databases provide high availability and easy scalability.	 <b>official mariadb</b> MariaDB is a community-developed fork of MySQL intended to remain free under the...	 <b>official crate</b> CrateDB is a distributed SQL database handles massive amounts of machine data in real...	

### My Repositories

 <b>forkonlp n2h4</b> for N2H4 package	 <b>mrchypark tfr-rstudio</b> tfr docker project	 <b>mrchypark mxnet-rstudio</b> dockerize mxnet using r-lang with rstudio.	 <b>mrchypark tfr-baseimage</b> tfr docker project	 <b>mrchypark n2h4</b> naver news crawler	 <b>mrchypark flaskr-docker</b> flask server using r with reticulate package.
 <b>mrchypark konlper</b> request konlper functions in R.	 <b>mrchypark ptnmt</b> No description.	 <b>mrchypark ft-docker</b> No description.	 <b>mrchypark pytorch</b> No description.	 <b>mrchypark pi3-shiny-server</b> No description.	 <b>mrchypark tidyverse</b> No description.
 <b>mrchypark konlp</b> using KoNLP in R with rJava	 <b>mrchypark knewser</b> get news				
 DOCKER CLI					21 / 60

# 이미지 검색 - rocker/tidyverse

The screenshot shows the Docker Hub interface with a search query of "rocker/tidyverse". The results are displayed in a grid format under the heading "Other Repositories". Each repository card includes the Docker icon, the repository name, a brief description, star and download counts, and a "CREATE" button.

Repository	Description	Stars	Downloads	Action
rocker/tidyverse	Version-stable build of R, rstudio, and R packages	16	46K	CREATE
rocker/r-base	Basic R for Rocker And Official 'r-base'	50	25K	CREATE
cgrlab/tidyverse	tidyverse	0	10K	CREATE
rocker/verse	Adds tex & related publishing packages to version-locked tidyverse image	12	15K	CREATE
rocker/rstudio	RStudio Server image	156	753K	CREATE
rocker/geospatial	Docker-based Geospatial toolkit for R, built on versioned Rocker images	9	7K	CREATE
rocker/shiny	No description.	77	125K	CREATE
rocker/hadleyverse	No description.	53	50K	CREATE
rocker/rstudio-stable	Build RStudio based on a debian:stable (debian:jessie image from rocker-versioned)	3	4K	CREATE
methodsconsultants/tidyverse-h2o	RStudio Server, the tidyverse, and H2O.ai	0	1K	CREATE
rocker/ropensci	No description.	19	17K	CREATE
rocker/r-ver	Reproducible builds to fixed versions of R	9	10K	CREATE
osmosisfoundation/rocker	A full Rocker rstudio (rocker/verse) with NONMEM and PSN	1	385	CREATE
rocker/binder	Adds binder to rocker/tidyverse, providing JupyterHub access on rocker containers	0	152	CREATE
rocker/r-devel	No description.	16	4K	CREATE
rocker/dr	No description.	2	4K	CREATE
rocker/rstudio-daily	No description.	6	4K	CREATE
adrtod/tidyverse-conda	R + tidyverse + anaconda 2	0	184	CREATE
rhub/rocker-gcc-san	Debian Testing, R-devel and AddressSanitizer	0	21K	CREATE
dceoy/r-tidyverse	R with tidyverse	0	114	CREATE
segfly/rocker	A containerized Alpine build of https://github.com/grammarly/rocker	1	598	CREATE
orenov/rocker	Rstudio from rocker with aws	0	548	CREATE
rocker/r-apt	R-related apt-get information	3	2K	CREATE
testrocker/rocker_integration_test_pull	No description.	0	5K	CREATE

Page navigation: 1 2 3 4 5 6 7 8 9 »

Bottom navigation icons: DOCKER CLI, Chat, Settings, Windows Taskbar, and a footer bar with various icons and the text "22 / 60".

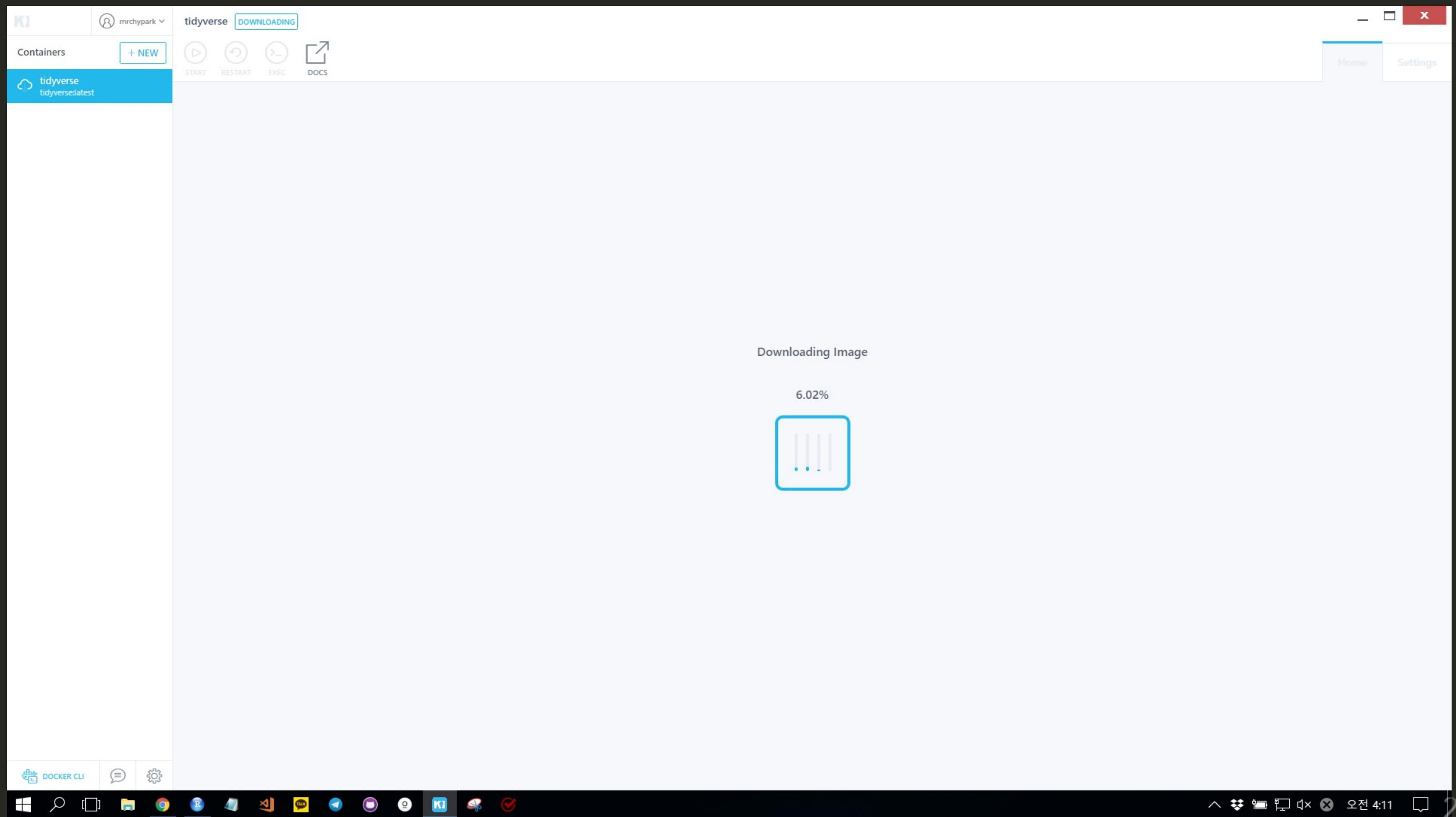
# create 선택

The screenshot shows the Docker Hub interface with a search bar containing 'rocker/tidyverse'. The results are filtered by 'All' and show 23 items. The results are organized into four rows:

- Row 1:** rocker/tidyverse, rocker/r-base, cgrlab/tidyverse, rocker/verse, rocker/rstudio, rocker/geospatial
- Row 2:** rocker/shiny, rocker/hadleyverse, rocker/rstudio-stable, methodsconsultants/tidyverse-h2o, rocker/ropensci, rocker/r-ver
- Row 3:** osmosisfoundation/rocker, rocker/binder, rocker/r-devel, rocker/dr, rocker/rstudio-daily, adrtod/tidyverse-conda
- Row 4:** rhub/rocker-gcc-san, dceoy/r-tidyverse, segfly/rocker, orenov/rocker, rocker/r-apt, testrocker/rocker\_integration\_test\_pull

Each item card includes a 'CREATE' button. The bottom of the page shows a navigation bar with icons for Docker CLI, Chat, and Settings, and a footer with various system icons.

# 이미지 다운로드 중



# 실행됨

The screenshot shows the Kitematic application window. At the top, the container name "tidyverse" is displayed in green text, indicating it is "RUNNING". Below the container list, there are four action buttons: STOP, RESTART, EXEC, and DOCS. The "CONTAINER LOGS" section contains the following log output:

```
[fix-attrs.d] applying owners & permissions fixes...
[fix-attrs.d] 00-runscripts: applying...
[fix-attrs.d] 00-runscripts: exited 0.
[fix-attrs.d] done.
[cont-init.d] executing container initialization scripts...
[cont-init.d] add: executing...
[cont-init.d] add: exited 0.
[cont-init.d] userconf: executing...
[cont-init.d] add: exited 0.
[cont-init.d] userconf: executing...
[cont-init.d] userconf: exited 0.
[cont-init.d] done.
[services.d] starting services
[services.d] done.
```

The "IP & PORTS" section shows the container's IP address and port mapping:

DOCKER PORT	ACCESS URL
8787/tcp	192.168.99.100:32770

The "VOLUMES" section lists the mounted volume:

	/home/rstudio/kitematic
--	-------------------------

At the bottom of the window, there are several icons: DOCKER CLI, a message icon, and a gear icon. The Windows taskbar at the very bottom shows various pinned and running applications.

# setting 화면

The screenshot shows a Docker container configuration page for a container named 'tidyverse'. The container is currently running, as indicated by the green 'RUNNING' status bar at the top. The left sidebar lists other containers, including 'tidyverse' and 'tidyversetest'. The main area is divided into several tabs: General (selected), Hostname / Ports, Volumes, Network, and Advanced.

**Container Info**

ID: 016414f3dd570786bbf9a0caf2950dc9b9dd7483def52c8202ed1aef542c074d (COPY)

NAME: tidyverse (SAVE)

**Environment Variables**

KEY	VALUE	Actions
PATH	/usr/lib/rstudio-server/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin	(X)
R_VERSION	3.4.2	(X)
LC_ALL	en_US.UTF-8	(X)
LANG	en_US.UTF-8	(X)
TERM	xterm	(X) (+)

SAVE

**Delete Container**

DELETE CONTAINER

# Volumes 설정

The screenshot shows the Kitematic interface for managing Docker containers. The main window displays a single container named "tidyverse" which is currently "RUNNING". The container's status bar includes icons for STOP, RESTART, EXEC, and DOCS. On the left sidebar, under the "Containers" section, the "tidyverse" container is selected. The right side of the screen shows the "Volumes" tab of the container's configuration page. Under the "Configure Volumes" section, there are two entries: "DOCKER FOLDER" set to "/home/rstudio/kitematic" and "LOCAL FOLDER" set to "No Folder". Each entry has "CHANGE" and "REMOVE" buttons. The top navigation bar of Kitematic includes "Home" and "Settings" tabs. The bottom taskbar of the operating system shows various pinned icons, and the status bar at the bottom right indicates the date and time as "오전 4:13" and the page number "27 / 60".

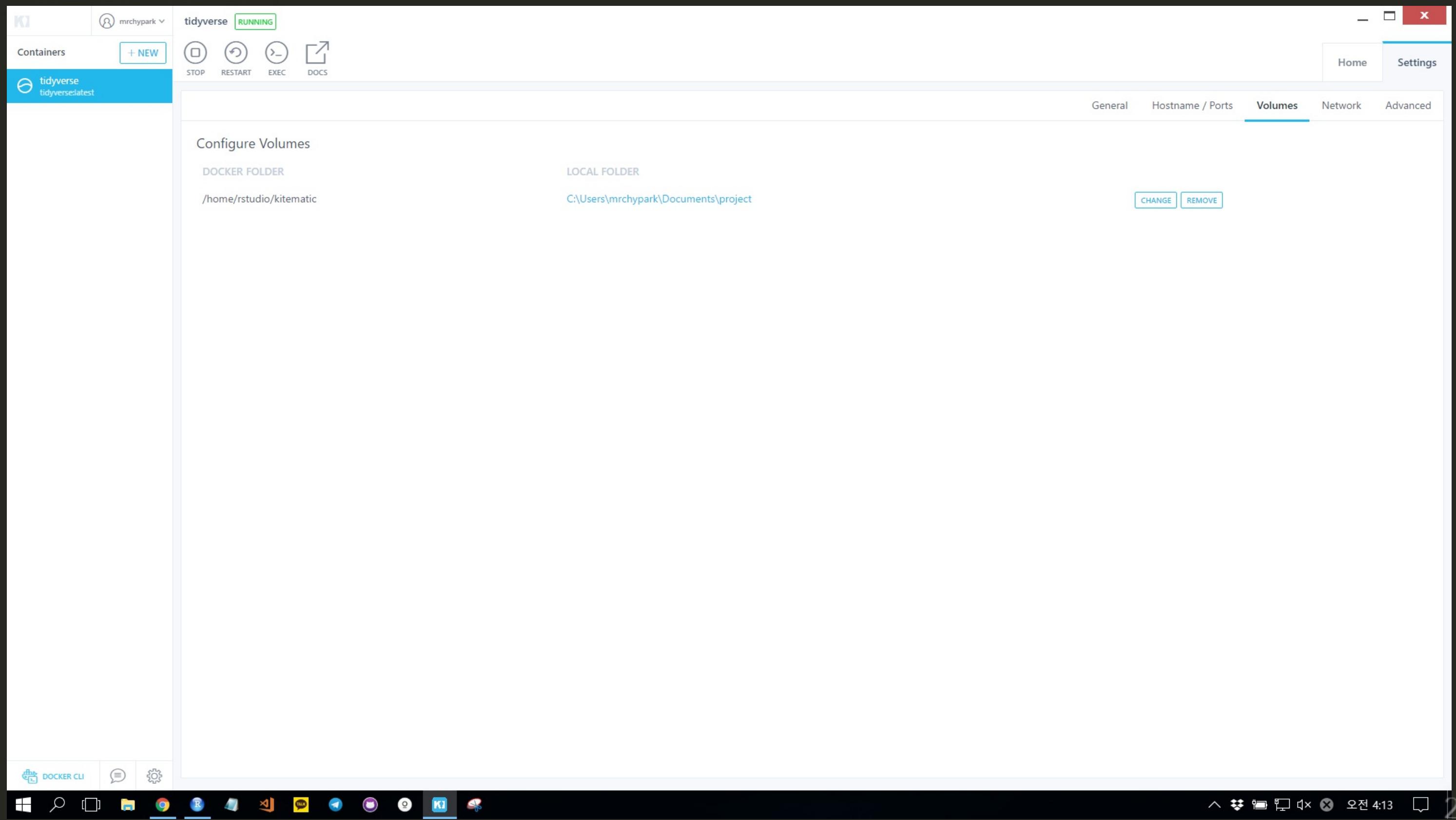
## Change 클릭 후 프로젝트 폴더 선택

The screenshot shows a Windows desktop environment with a Docker container settings window open. The container's configuration tab is visible, specifically the 'Volumes' section. A 'CHANGE' button next to the 'Folder' input field is highlighted with a red box. A file selection dialog box is overlaid on the screen, titled '폴더 선택'. The dialog shows a list of folders under '내 PC > 문서 > project'. The '문서' folder is selected in the left sidebar. The main list contains the following entries:

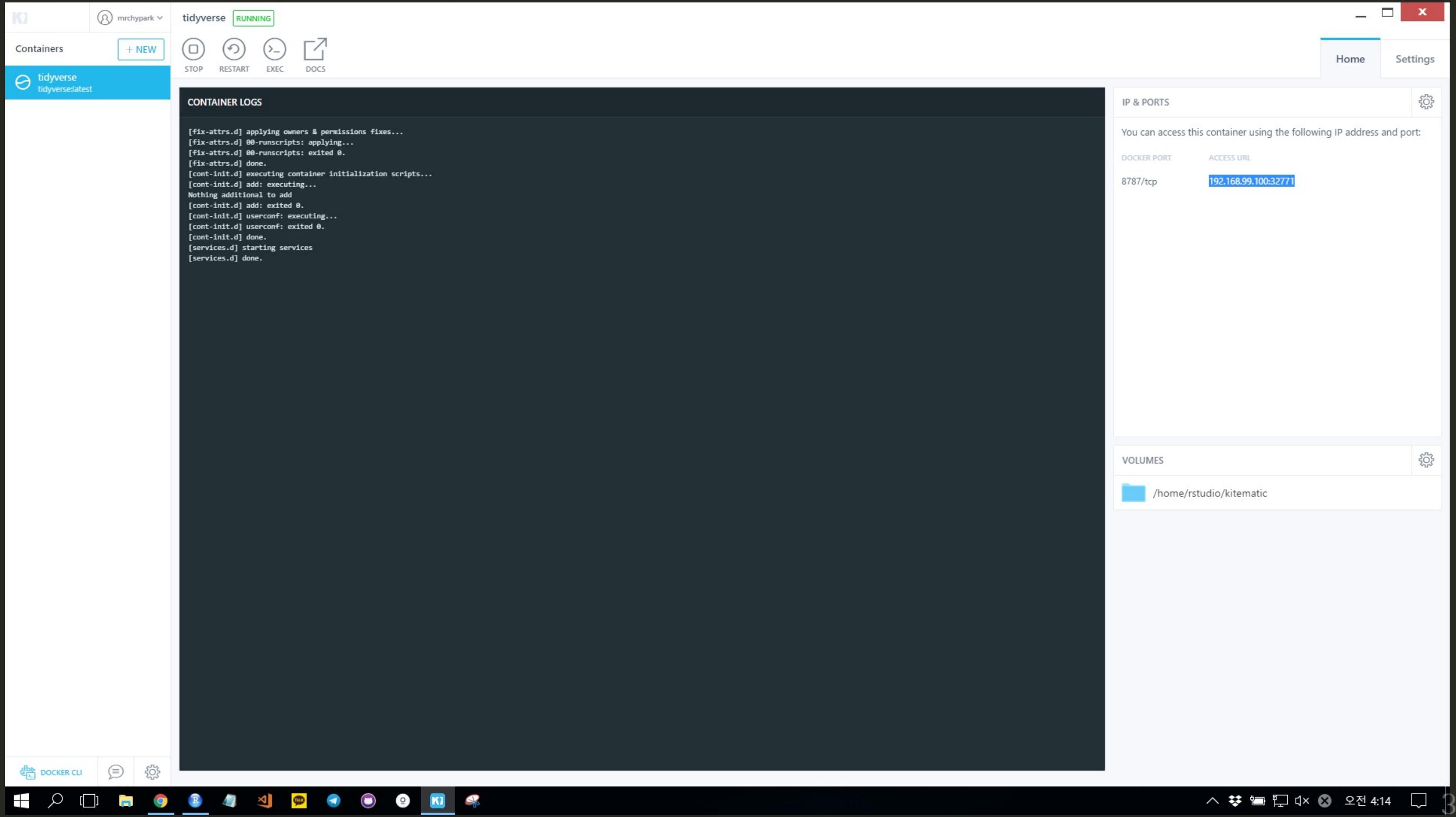
이름	수정한 날짜	유형
apiR	2017-11-25 오전 9...	파일 폴더
chat-matric	2017-10-20 오전 1...	파일 폴더
chattest	2017-11-20 오전 2...	파일 폴더
dabrp_classnote3	2017-11-25 오후 1...	파일 폴더
docker-with-r	2017-11-28 오전 4...	파일 폴더
knewser	2017-11-09 오후 2...	파일 폴더
KoNLP	2017-11-28 오전 4...	파일 폴더
KoNLPer	2017-11-11 오후 5...	파일 폴더
MSC_apiR	2017-11-25 오전 1...	파일 폴더
N2H4	2017-11-21 오후 8...	파일 폴더
ohmebullmang	2017-11-27 오전 1...	파일 폴더

At the bottom of the dialog, there are '폴더 선택' (Select Folder) and '취소' (Cancel) buttons. The '폴더 선택' button is also highlighted with a red box.

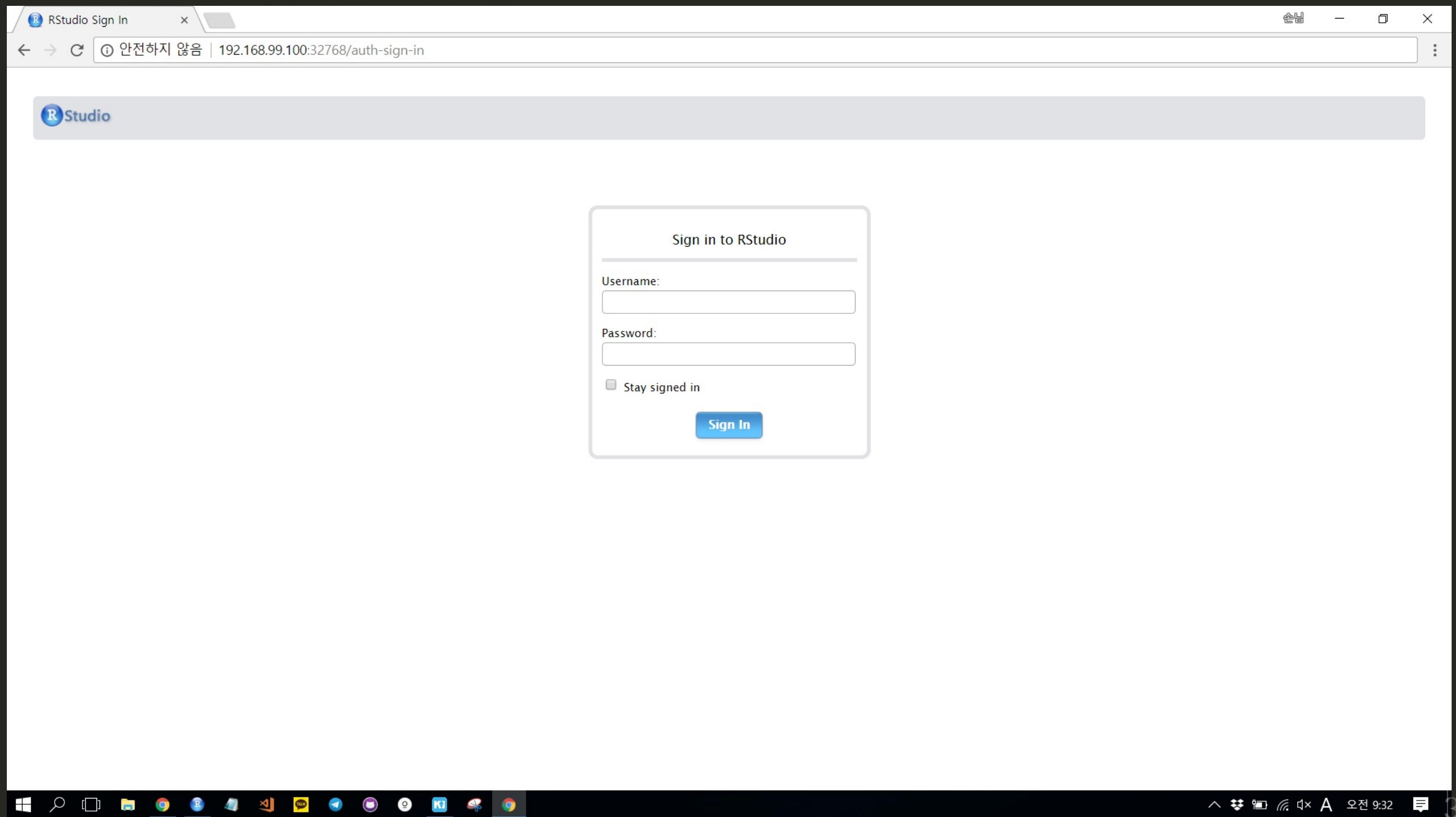
## local folder 설정 확인



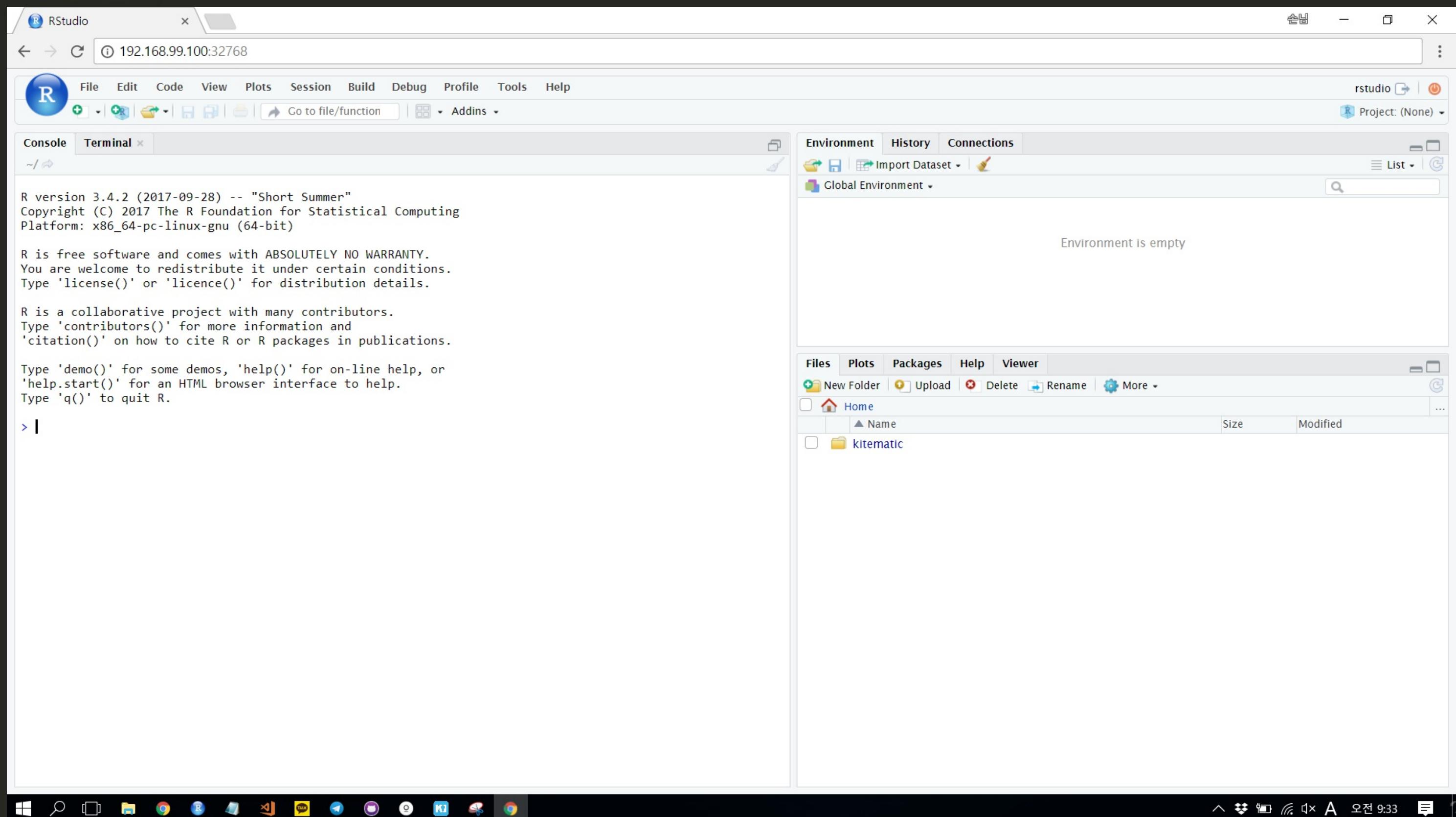
# home 화면으로 돌아가 접속 주소 확인



## 브라우저에서 실행확인 - rstudio/rstudio



로그인 완료!



# kitematic 폴더 확인

The screenshot shows the RStudio interface running on a Windows system. The R console window displays the standard R startup message, including the version (3.4.2), license information, and a note about being a collaborative project. The Environment pane shows that the Global Environment is currently empty. The Files pane displays a list of sub-directories within the 'kitematic' folder.

R version 3.4.2 (2017-09-28) -- "Short Summer"  
Copyright (C) 2017 The R Foundation for Statistical Computing  
Platform: x86\_64-pc-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

Environment is empty

Name	Size	Modified
..		
apiR		
chat-matric		
chattest		
dabrp_classnote3		
docker-with-r		
knewser		
KoNLP		
KoNLPer		
MSC_apiR		
N2H4		
ohmebullmang		
rn		
test		
woo-crwa		
wthr_chatr		

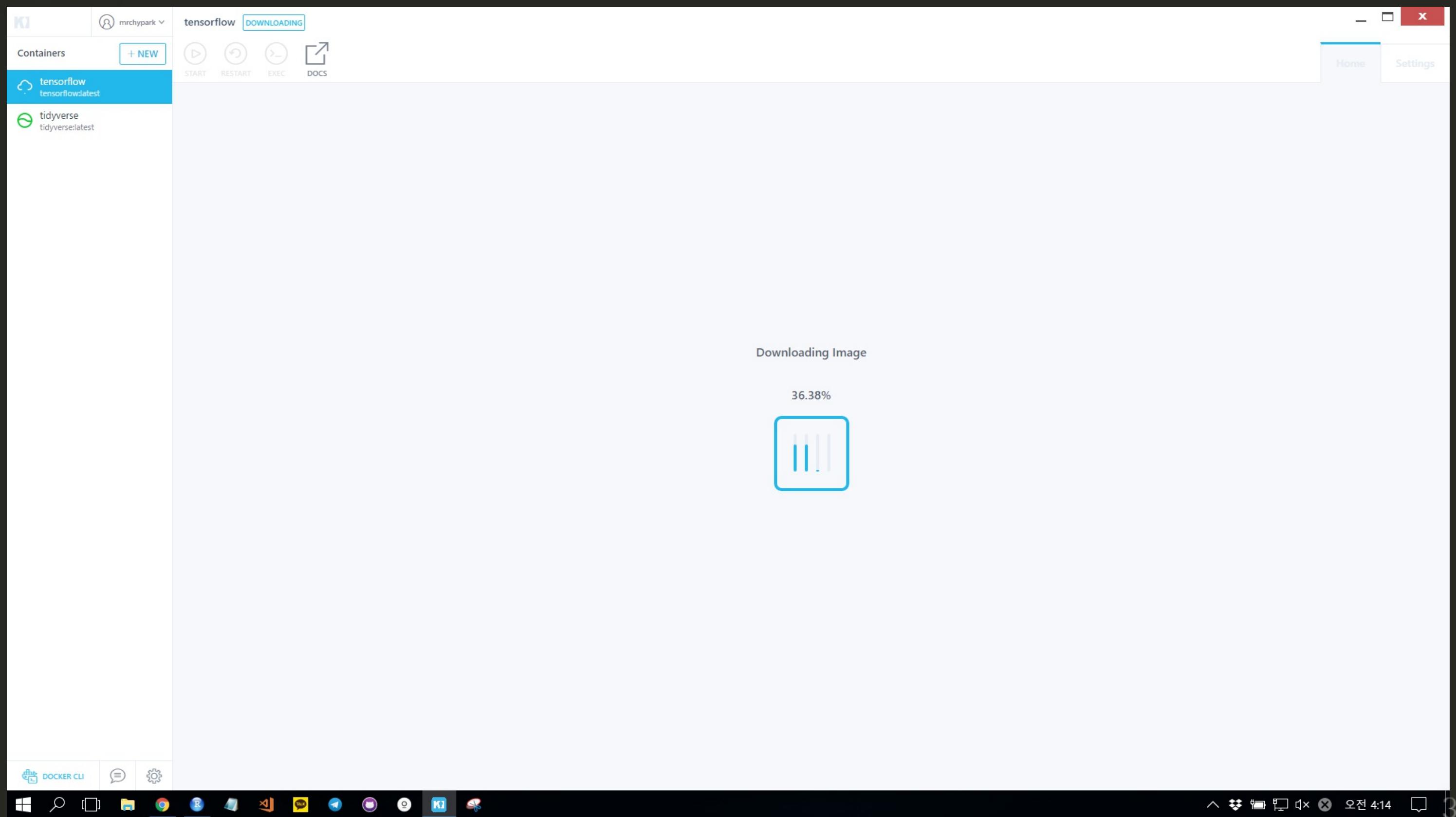
# 그럼 tensorflow는?

The screenshot shows the Docker Hub interface with a search bar at the top containing the query "tensorflow". The results are filtered by "All" and show a grid of 24 Docker images related to TensorFlow. Each card includes the repository name, a brief description, the number of stars and downloads, and a "CREATE" button. The repositories listed are:

- tidyverse/tidyverse-latest
- tensorflow/tensorflow: Official docker images for deep learning framework TensorFlow (<http://www.tensorflow.org>)
- floydhub/tensorflow: tensorflow
- xblaster/tensorflow-jupyter: Dockerized Jupyter with tensorflow
- hytssk/tensorflow: tensorflow image with matplotlib.pyplot.imshow() enabled.
- tensorflow/tf\_grpc\_test\_server: Testing server for GRPC-based distributed runtime in TensorFlow
- jupyter/tensorflow-notebook: Jupyter Notebook Scientific Python Stack w/ Tensorflow from <https://github.com/jupyter/docker-stacks>
- mediadesignpractices/tensorflow: Tensorflow w/ CUDA (GPU) + extras
- abhishek404/tensorflow-gpu: Tensorflow GPU image
- djpetti/rpinets-tensorflow: Tensorflow container that is ready to be used with RPINets.
- opensciencegrid/tensorflow-gpu: TensorFlow GPU set up for OSG
- opensciencegrid/tensorflow: TensorFlow image with some OSG additions
- eboraas/tensorflow: TensorFlow with Jupyter Notebook, including CPU optimizations
- tensorflow/tf\_grpc\_server: Server for TensorFlow GRPC Distributed Runtime
- davidchiu/tensorflow09: tensorflow09 with GPU support
- aretelabs/tensorflow: No description.
- bitnami/tensorflow-serving: Bitnami Docker Image for TensorFlow Serving
- fluxcapacitor/prediction-tensorflow: No description.
- eywalker/tensorflow: Docker image for TensorFlow ready environment based on Ubuntu and Python 3.
- eywalker/tensorflow-jupyter: TensorFlow images designed to launch Jupyter notebook
- mochin/tensorflow-serving: tensorflow-serving
- mikebirdgeneau/r-tensorflow: RStudio and Tensorflow
- bitnami/tensorflow-inception: Bitnami Docker Image for TensorFlow Inception
- erroneousboat/tensorflow-python3-jupyter: Docker container with python 3 version of tensorflow accompanied by jupyter
- romilly/rpi-docker-tensorflow: Tensorflow and Jupyter running in docker container on Raspberry Pi 3B

At the bottom, there is a navigation bar with page numbers 1 through 9 and a "»" button, indicating there are more pages of results. The footer includes links for "DOCKER CLI", "MESSAGES", and "SETTINGS", along with the Windows taskbar at the bottom.

다운로드



# web preview

The screenshot shows a Docker interface with two main panes.

**Left Pane:** A list of containers. The "tensorflow" container is selected and is currently "RUNNING". It has four actions: STOP, RESTART, EXEC, and DOCS. The "CONTAINER LOGS" section shows the following log output:

```
grabbing logs: EOF
[I 19:16:02.382 NotebookApp](B Writing notebook server cookie secret to /root/.local/share/jupyter/runtime/notebook_cookie_secret
[W 19:16:02.469 NotebookApp](B WARNING: The notebook server is listening on all IP addresses and not using encryption. This is not recommended.
[I 19:16:02.482 NotebookApp](B Serving notebooks from local directory: /notebooks
[I 19:16:02.483 NotebookApp](B 0 active kernels
[I 19:16:02.483 NotebookApp](B The Jupyter Notebook is running at:
[I 19:16:02.483 NotebookApp](B http://[all ip addresses on your system]:8888/?token=9b6df872791fc61172897071552d287588ae4cfba9949a60
[I 19:16:02.483 NotebookApp](B Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 19:16:02.483 NotebookApp]

Copy/paste this URL into your browser when you connect for the first time,
to login with a token:
http://localhost:8888/?token=9b6df872791fc61172897071552d287588ae4cfba9949a60
[I 19:16:02.846 NotebookApp](B 302 GET / (192.168.99.1) 0.53ms
[I 19:16:02.852 NotebookApp](B 302 GET /tree? (192.168.99.1) 0.93ms
```

**Right Pane:** A "WEB PREVIEW" section for the "jupyter" container. It includes a "Log In" form with fields for "Password or token" and "Log In", and a "Settings" gear icon. Below the form, it says "Token authentication is enabled" and provides instructions for enabling password authentication. It also shows the command "jupyter notebook list" and its output, which lists a running server at "http://localhost:8888/?token=c0de56fa...". It notes that tokens can be copied directly into the browser or pasted into the password field. It also links to documentation on enabling password authentication.

**Bottom Bar:** A taskbar with various icons, including Docker CLI, a message bubble, and a gear icon. The status bar at the bottom right shows the date and time: 오전 4:17 and page number 36 / 60.

# token 복사

The screenshot shows the Docker Desktop interface on a Windows 10 desktop. A TensorFlow container is running, and a Jupyter notebook is accessible via a web browser.

**Docker Desktop UI:**

- Containers:** tensorflow (RUNNING)
- Actions:** STOP, RESTART, EXEC, DOCS
- Logs:** CONTAINER LOGS

```
grabbing logs: EOF
[I 19:16:02.382 NotebookApp](B Writing notebook server cookie secret to /root/.local/share/jupyter/runtime/notebook_cookie_secret
[W 19:16:02.469 NotebookApp](B WARNING: The notebook server is listening on all IP addresses and not using encryption. This is not recommended.
[I 19:16:02.482 NotebookApp](B Serving notebooks from local directory: /notebooks
[I 19:16:02.483 NotebookApp](B 0 active kernels
[I 19:16:02.483 NotebookApp](B The Jupyter Notebook is running at:
[I 19:16:02.483 NotebookApp](B http://[all ip addresses on your system]:8888/?token=9b6df872791fc61172897071552d287588ae4cfba9949a60
[I 19:16:02.483 NotebookApp](B Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 19:16:02.483 NotebookApp]
```

Copy/paste this URL into your browser when you connect for the first time,  
to login with a token:  
<http://localhost:8888/?token=9b6df872791fc61172897071552d287588ae4cfba9949a60>

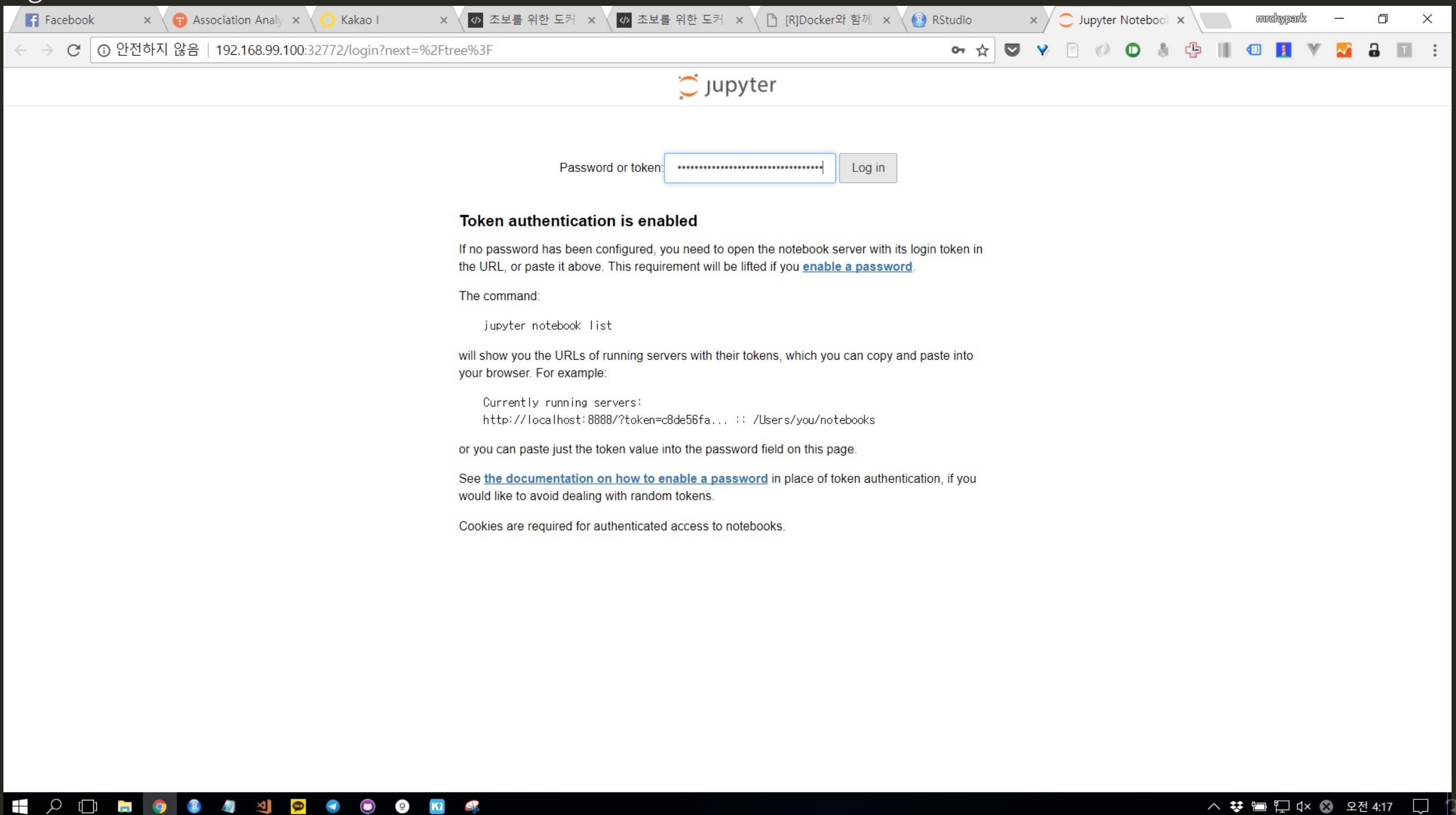
```
[I 19:16:02.846 NotebookApp](B 302 GET / (192.168.99.1) 0.53ms
[I 19:16:02.852 NotebookApp](B 302 GET /tree? (192.168.99.1) 0.93ms
[I 19:17:32.575 NotebookApp](B 302 GET / (192.168.99.1) 1.73ms
[I 19:17:32.594 NotebookApp](B 302 GET /tree? (192.168.99.1) 1.61ms
```

- WEB PREVIEW:** jupyter
- Settings:** Home, Settings

**Taskbar:**

- DOCKER CLI
- Search icon
- File icon
- Folder icon
- Recycle bin icon
- Task View icon
- Start button
- Search icon
- File icon
- Folder icon
- Recycle bin icon
- Task View icon
- Windows Update icon
- Power icon
- Network icon
- Volume icon
- Taskbar clock
- Language icon
- Taskbar clock
- 37 / 60

# login



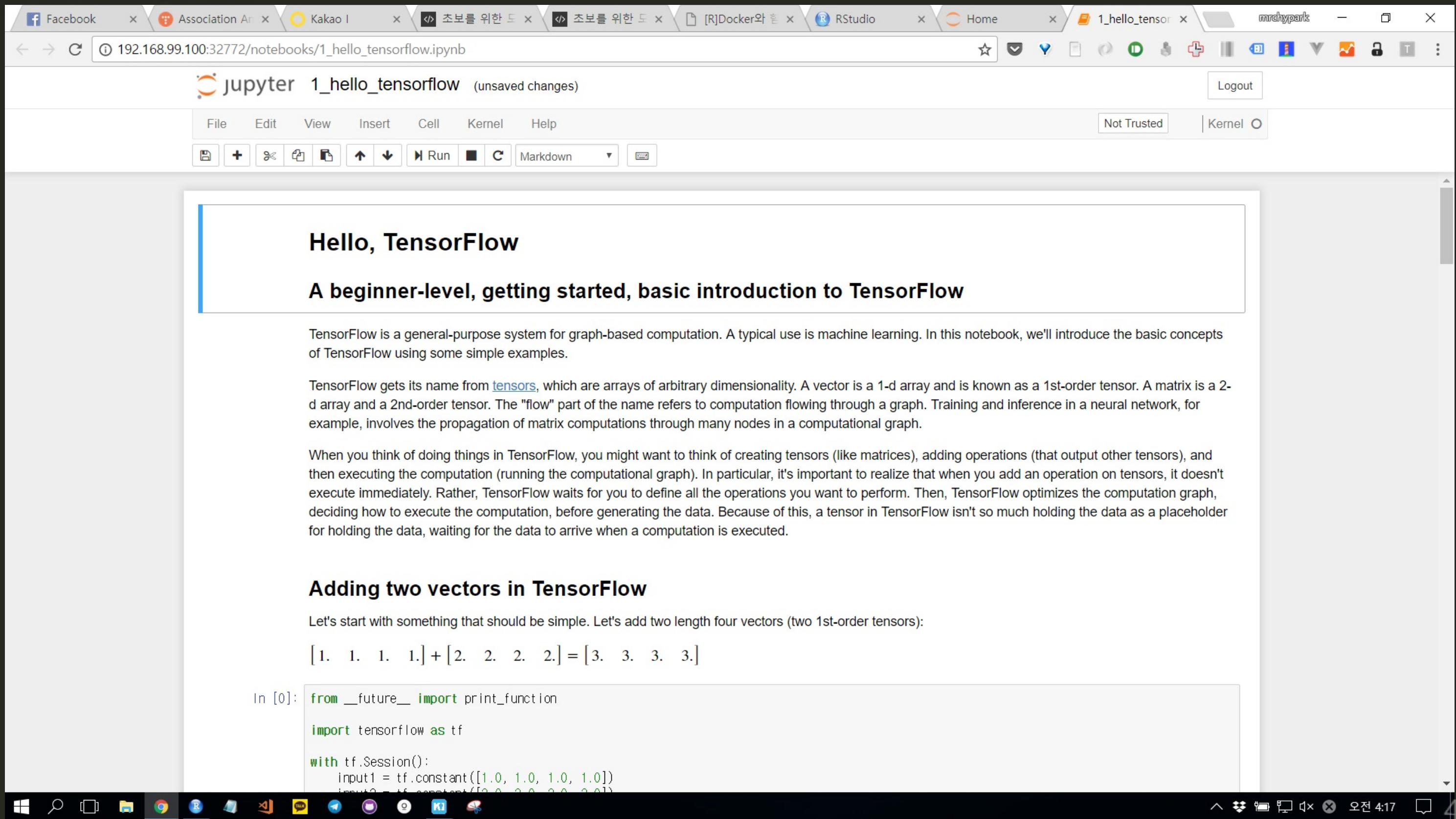
# welcome to jupyter

The screenshot shows a web browser window with multiple tabs open at the top. The active tab is titled "192.168.99.100:32772/tree?". The browser interface includes a header with a "Logout" button and navigation links for "Files", "Running", and "Clusters". Below this is a file list titled "Select items to perform actions on them." with the following contents:

	Name	Last Modified
0	1_hello_tensorflow.ipynb	a month ago
	2_getting_started.ipynb	a month ago
	3_mnist_from_scratch.ipynb	a month ago
	BUILD	a month ago
	LICENSE	a month ago

The bottom of the screen shows the Windows taskbar with various pinned icons and the system tray on the right.

hellow tensorflow



**konlp**의 자바 세팅이 힘들다면??

**mrchypark/konlp** 를 검색해 보세요!

# 공식 이미지 제공

유명 회사에서 자신들의 제품을 쉽게 사용할 수 있게 공식적이고 항상 최신버전을 유지하는 이미지를 제공

- rocker : rstudio 팀의 rstudio & tidyverse 등 패키지가 미리 세팅되어 있는 이미지 제공
- tensorflow : 개발 버전 포함 py3, gpu 버전 등 nvidia-docker와 함께 지속적으로 제공
- 각 데이터 베이스 이미지 대부분 지원(심지어 oracle도!)
- 필요하면 만들면 됨(Dockerfile - linux를 좀 알면...)

# rocker의 이미지를 사용할 때 좋은 점

- 사용하는 사람들 모두 환경이 완전히 일치함
  - encoding 이슈 등 통일된 해결책을 유지할 수 있음
  - 문제 상황에 대해 재현을 보장할 수 있음
    1. commit 해서 이미지를 공유
    2. 이미지 버전과 코드를 공유
- 항상 안정화된 최신 버전을 사용할 수 있음.
  - latest 태그는 항상 최신 버전을 확인함.
  - 이미지에서 문제를 해결하면 이미지를 사용하는 사람들 모두 다시 문제를 겪지 않아도 됨



이제 터미널에서 사용해보자

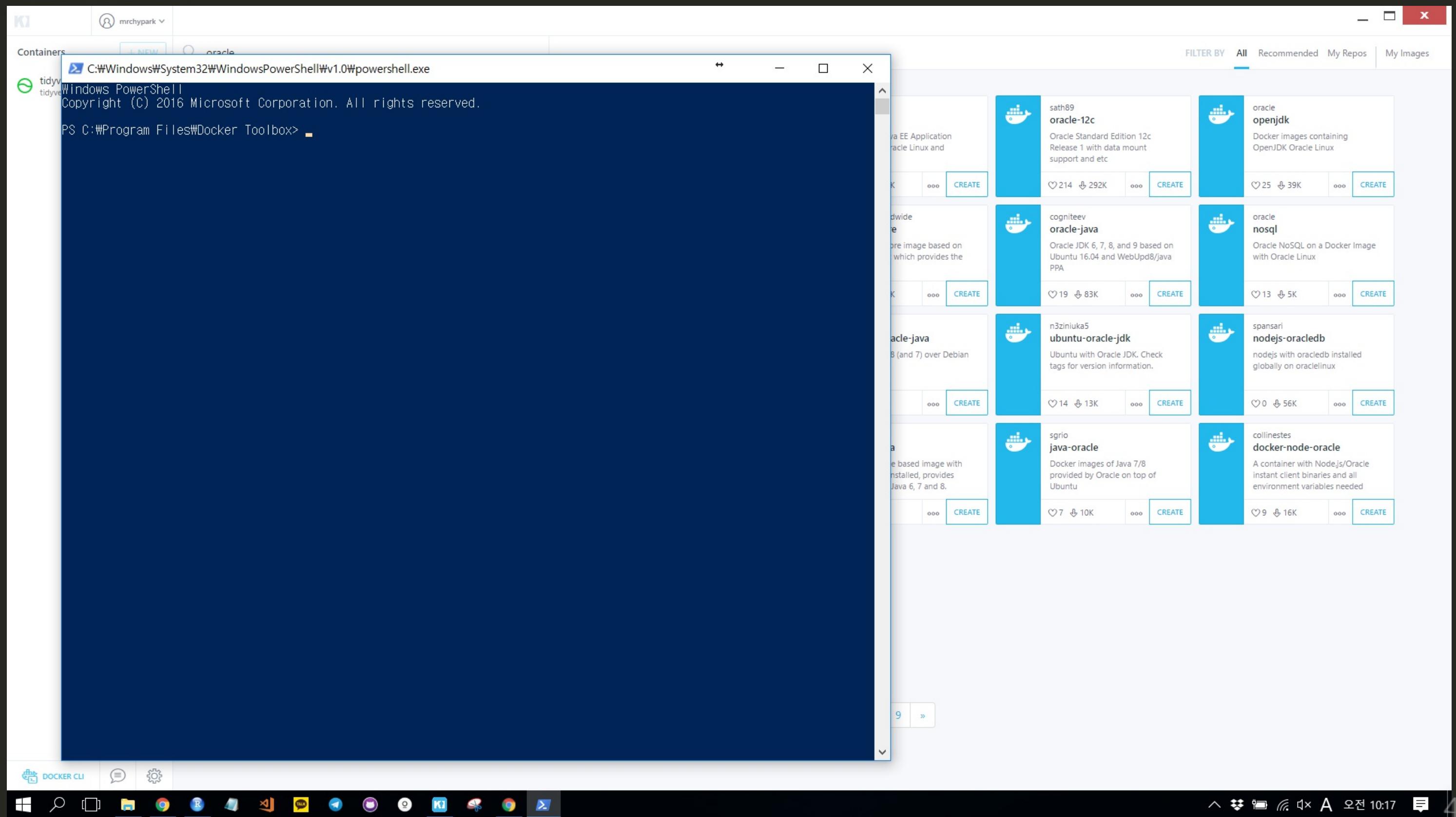
# docker-cli 클릭

The screenshot shows the Docker Hub interface with a search bar containing 'oracle'. The results are filtered by 'All' and show 18 repositories. A large orange arrow points down to the 'DOCKER CLI' button at the bottom left. The results are organized into four rows:

- Row 1:** official/oraclelinux, frovlad/alpine-oraclejdk8, airdock/oracle-jdk, oracle/glassfish, sath89/oracle-12c, oracle/openjdk
- Row 2:** isuper/java-oracle, sath89/oracle-xe-11g, alexeiled/docker-oracle-xe-11g, publicisworldwide/oracle-core, cogniteev/oracle-java, oracle/nosql
- Row 3:** teratalabs/centos6-java8-oracle, ingensi/oracle-jdk, flurdy/oracle-java7, davidcaste/debian-oracle-java, n3ziniuka5/ubuntu-oracle-jdk, spansari/nodejs-oracledb
- Row 4:** wnameless/oracle-xe-11g, openweb/oracle-tomcat, sigma/nimbus-lock-oracle, andreptb/oracle-java, sgrio/java-oracle, collinestes/docker-node-oracle

Each repository card includes a star icon, a download count, a size, and a 'CREATE' button.

# terminal 환경



# docker ps 명령 확인

The screenshot shows a Windows desktop environment with the Docker Toolbox interface open. On the left, a terminal window titled 'Containers' displays the output of the 'docker ps' command:

```
PS C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Program Files\Docker Toolbox> docker ps
CONTAINER ID        IMAGE               COMMAND       CREATED             STATUS              PORTS
NAMES
fa9631a8cd20        rocker/tidyverse:latest "/init"    44 minutes ago   Up 44 minutes   0.0.0.0:32769->8787/tcp
>8787/tcp          tidyverse

PS C:\Program Files\Docker Toolbox>
```

On the right, a sidebar titled 'FILTER BY All Recommended My Repos My Images' lists several Oracle-related Docker images:

- sath89 oracle-12c: Oracle Standard Edition 12c Release 1 with data mount support and etc. (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- oracle openjdk: Docker images containing OpenJDK Oracle Linux (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- cogniteev oracle-java: Oracle JDK 6, 7, 8, and 9 based on Ubuntu 16.04 and WebUpd8/java PPA (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- oracle nosql: Oracle NoSQL on a Docker Image with Oracle Linux (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- n3ziniuka5 ubuntu-oracle-jdk: Ubuntu with Oracle JDK. Check tags for version information. (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- spansari nodejs-oracledb: nodejs with oracledb installed globally on oraclelinux (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- sgrio java-oracle: Docker images of Java 7/8 provided by Oracle on top of Ubuntu (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)
- collinestes docker-node-oracle: A container with Node.js/Oracle instant client binaries and all environment variables needed (Created 44 minutes ago, Up 44 minutes, 0.0.0.0:32769->8787/tcp port mapping)

The taskbar at the bottom shows various pinned icons, and the system tray indicates the date and time as '오전 10:17'.

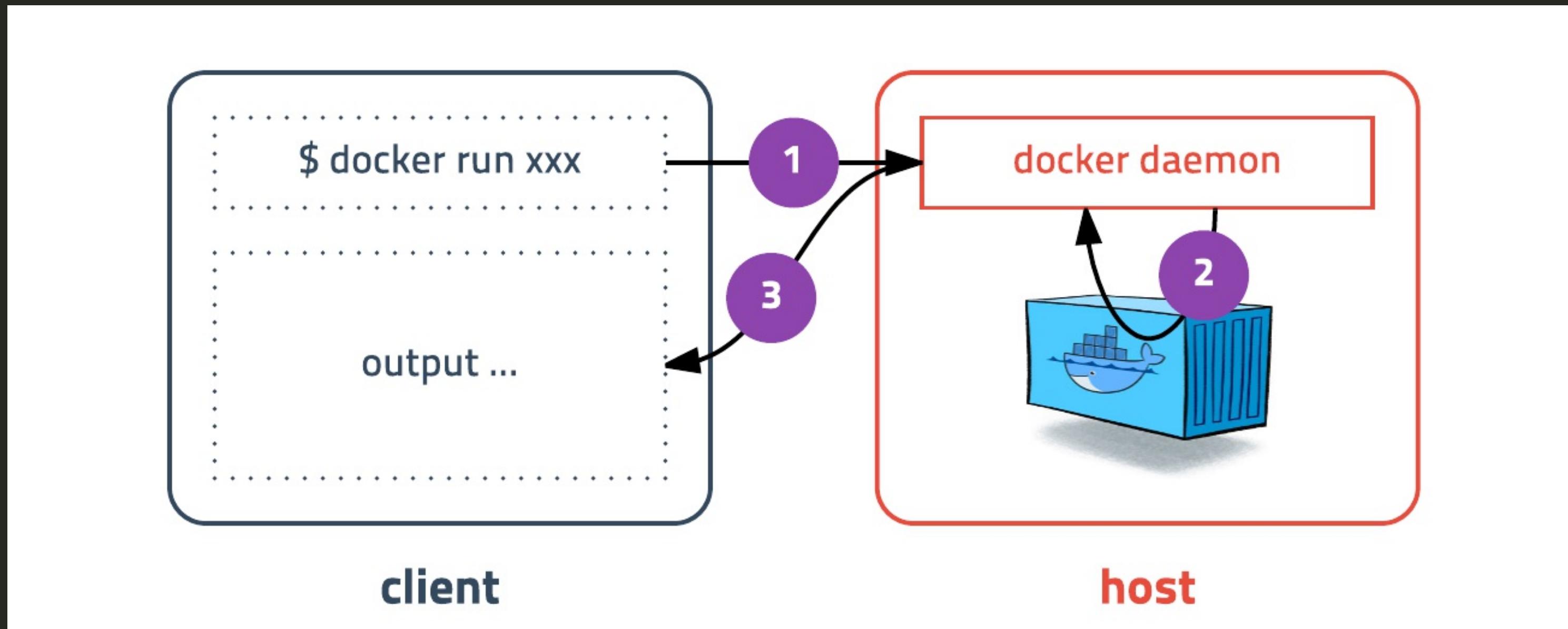
# 버전 확인

```
docker version

PS C:\Program Files\Docker Toolbox> docker version
Client:
Version: 17.10.0-ce
API version: 1.33
Go version: go1.8.3
Git commit: f4ffd25
Built: Tue Oct 17 19:00:02 2017
OS/Arch: windows/amd64

Server:
Version: 17.10.0-ce
API version: 1.33 (minimum version 1.12)
Go version: go1.8.3
Git commit: f4ffd25
Built: Tue Oct 17 19:05:23 2017
OS/Arch: linux/amd64
Experimental: false
PS C:\Program Files\Docker Toolbox>
```

# client와 host



# 컨테이너를 실행해 보자

```
docker run hello-world
```

# helloworld

```
C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Program Files\Docker Toolbox> docker ps
CONTAINER ID        IMAGE               COMMAND       CREATED          STATUS           PORTS     NAMES
fa9631a8d230        rocker/tidyverse:latest "/init"    44 minutes ago   Up 44 minutes   0.0.0.0:32769->8787/tcp   tidyverse

PS C:\Program Files\Docker Toolbox> docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
ca4f61b1923c: Pull complete
Digest: sha256:be0cd392e45be79ffefffa6b05338b98ebb16c87b255f48e297ec7f98e123905c
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://cloud.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/engine/userguide/

PS C:\Program Files\Docker Toolbox>
```

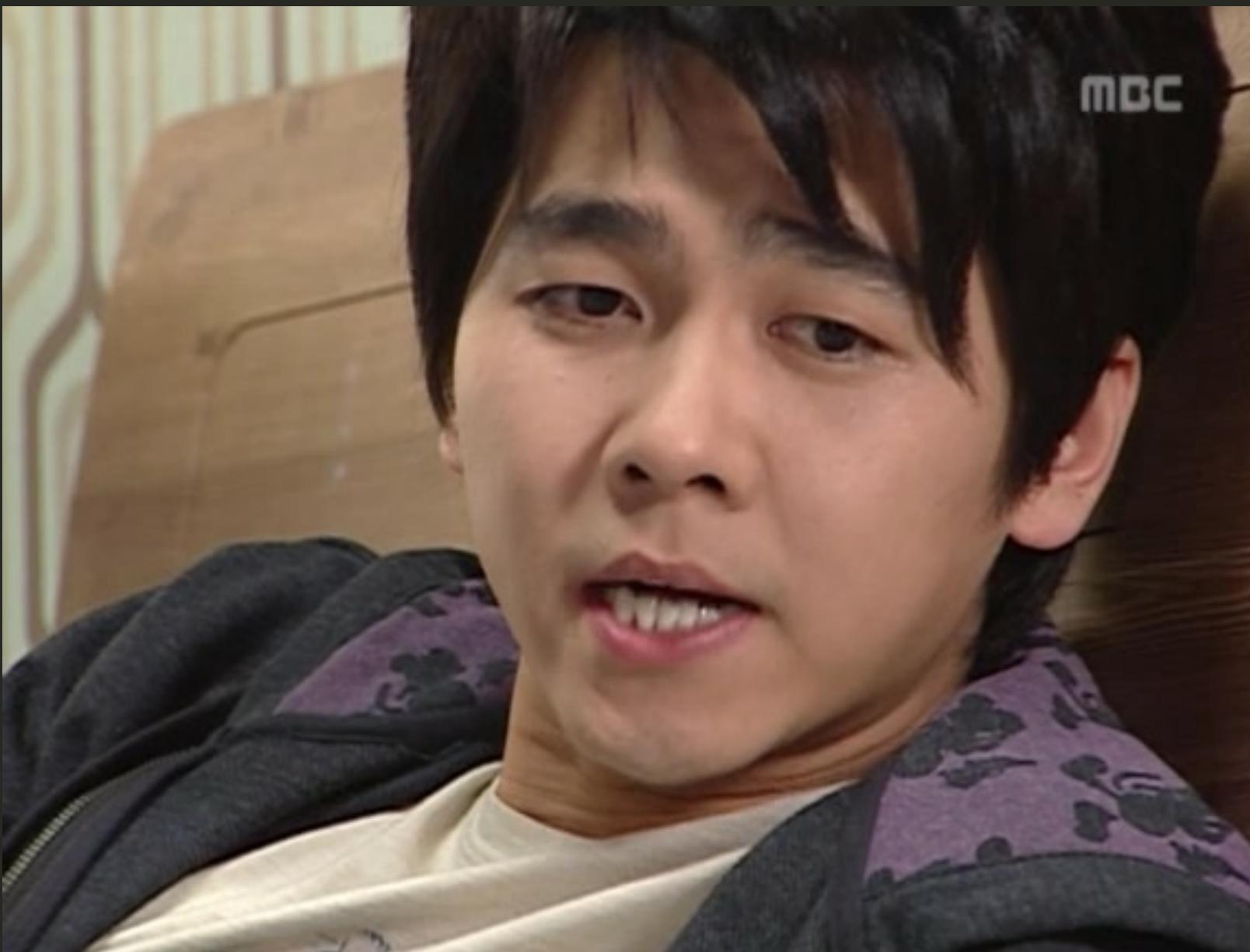
# 실행 명령 구조

```
docker run [OPTIONS] IMAGE[:TAG|@DIGEST] [COMMAND] [ARG...]
```

## 주요 옵션

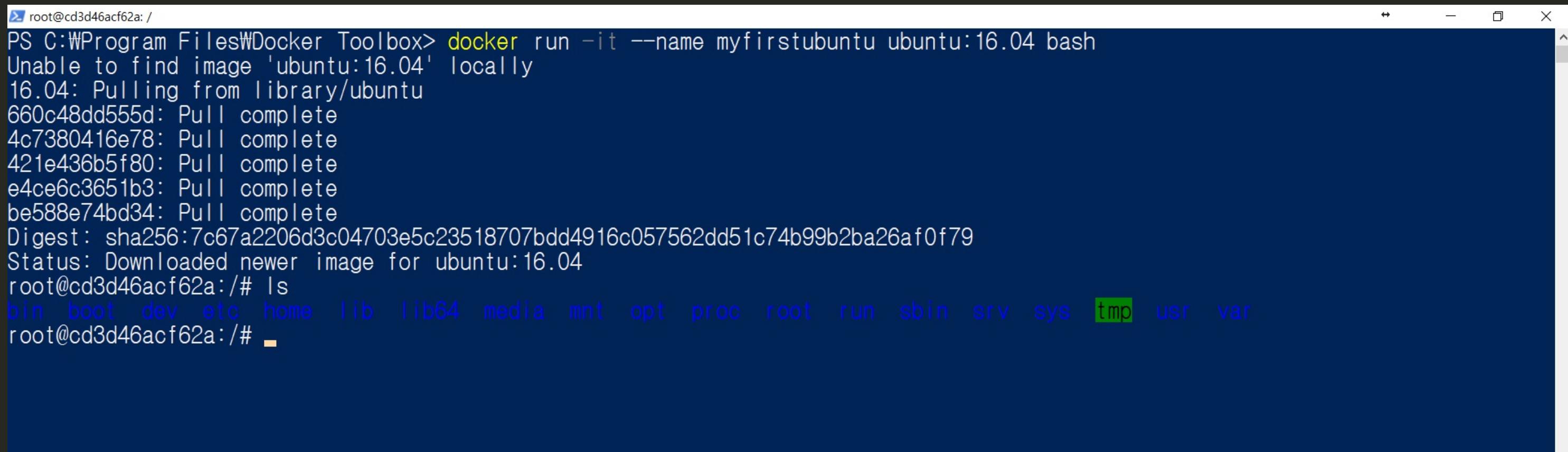
옵션	설명
-d	detached mode 흔히 말하는 백그라운드 모드
-p	호스트와 컨테이너의 포트를 연결 (포워딩)
-v	호스트와 컨테이너의 디렉토리를 연결 (마운트)
--name	컨테이너 이름 설정
-rm	프로세스 종료시 컨테이너 자동 제거
-ti	-i와 -t를 동시에 사용한 것으로 터미널 입력을 위한 옵션

아 됐고!



# ubuntu:16.04 실행하고 사용해 보기

```
docker run -it --name myfirstubuntu ubuntu:16.04 bash
```



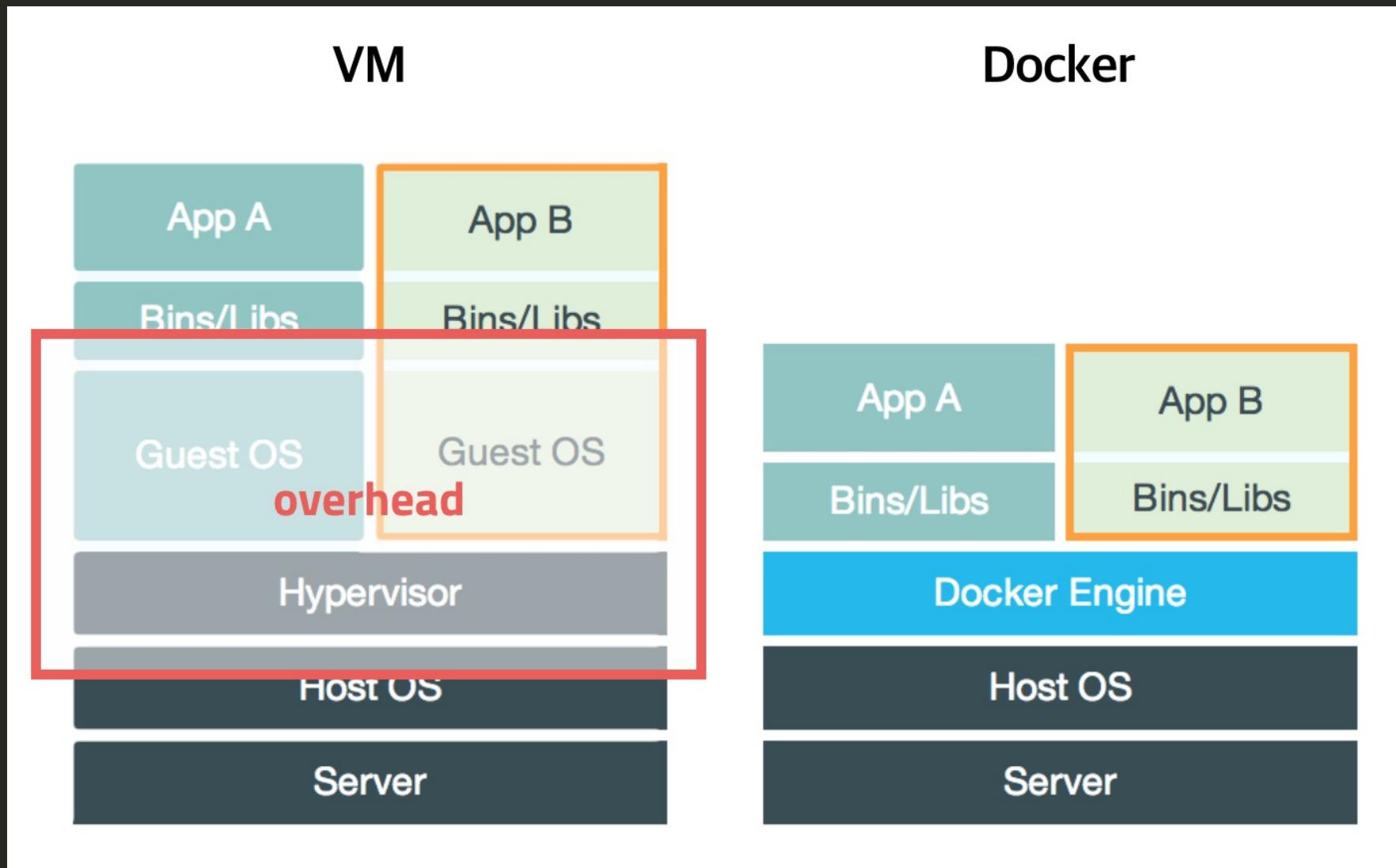
The screenshot shows a terminal window with a dark blue background and white text. At the top left, it says "root@cd3d46acf62a: /". In the center, there is a command prompt "PS C:\Program Files\WindowsPowerShell\WindowsPowershell\docker>". Below the prompt, the command "docker run -it --name myfirstubuntu ubuntu:16.04 bash" is entered. The terminal then displays the output of the command, which includes:

- "Unabled to find image 'ubuntu:16.04' locally"
- "16.04: Pulling from library/ubuntu"
- Progress indicators for pulling layers: "660c48dd555d: Pull complete", "4c7380416e78: Pull complete", "421e436b5f80: Pull complete", "e4ce6c3651b3: Pull complete", and "be588e74bd34: Pull complete".
- "Digest: sha256:7c67a2206d3c04703e5c23518707bdd4916c057562dd51c74b99b2ba26af0f79"
- "Status: Downloaded newer image for ubuntu:16.04"
- A root prompt "root@cd3d46acf62a:/#"
- The command "ls" is run, showing directory names: bin, boot, dev, etc, home, lib, lib64, media, mnt, opt, proc, root, run, sbin, srv, sys, tmp, usr, var.
- The command "root@cd3d46acf62a:/# ." is run again.

# 우분투 서버를 윈도우에서!

docker toolbox는 사실 버주얼박스로 돌리는 가짜 도커임

# 혜택을 못봄



리눅스 쓰세요 두번 쓰세요

끝!  
≡

<https://mrchypark.github.io/docker-with-r>

[pdf버전] [문의하기] [의견 및 오류 신고]

스타누르기는 컨텐츠 제작자를 춤추게 합니다.