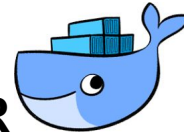


# GETTING STARTED WITH DOCKER

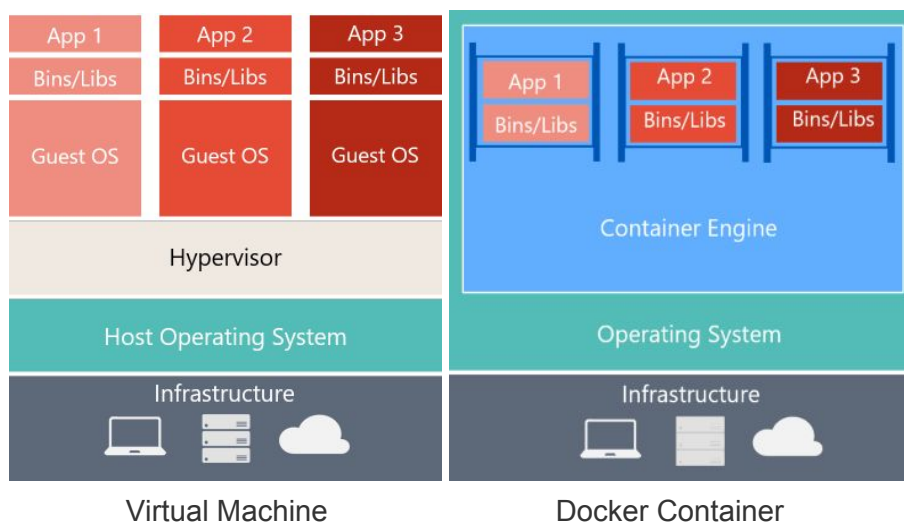


## 1. INTRODUCTION

**Docker** is a tool that allows you to deploy applications in a container environment(which is like a sandbox) to run on the host operating system.The key benefit of Docker is that it allows users to **package an application with all of its dependencies into a single entity** for software development.

**Dockers Vs. Virtual Machines(VM)** - Docker is basically container based technology. What are containers?- Container is a set of processes bundled with all the files necessary and is an isolated image from the rest of the system. In Docker, the containers running share the host OS kernel. Hence containers are lightweight.

On the other hand Virtual Machines are not based on container technology. Under VM's host server hardware is virtualized and each VM is made up of kernel operating system and also applications due to which VM's have more overhead and take time to boot compared to dockers.



## 2. KEY TAKEAWAYS

- Get introduced to docker
- Docker installation
- Basic usage of docker commands

## 3. GETTING ENVIRONMENT READY

**3.1 Intended Audience:** This tutorial is for beginners to get introduced to docker and its basic usage.

**3.2 Prerequisites:** In this tutorial you will be using linux environment to execute the commands. Basic linux knowledge is required.

**3.3 System Requirements:** Linux MInt(Release 19)/ Ubuntu

You need the 64-bit version of one of these Ubuntu versions:

- Cosmic 18.10
- Bionic 18.04 (LTS)
- Xenial 16.04 (LTS)

**3.4 Installation of Docker Community Edition:** Below are the installation steps on ubuntu/mint environment. Find instructions for [Windows](#) and [Mac](#).

**3.4.1** Uninstall all the older versions of docker on your system by using below command.

**sudo apt-get remove docker- engine docker.io containerd run**

**3.4.2** You need to set up docker repository before you install docker community edition for the first time on your system. Update the apt package using below command.

**sudo apt-get update**

**3.4.3** Install below packages to allow apt to access over HTTPS.

```
srinija@srinija-Lenovo-ideapad-330-17IKB:~$ sudo apt-get install \
> apt-transport-https \
> ca-certificates \
> curl \
> gnupg-agent \
> software-properties-common
```

**3.4.4** Add dockers official GPG key : When it is added it shows you OK message.

```
srinija@srinija-Lenovo-ideapad-330-17IKB:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo apt-key add
OK
```

**3.4.5** Download latest version of docker using below command. You will see packages being installed as shown below.

```
srinija@srinija-Lenovo-ideapad-330-17IKB:~$ sudo apt-get install docker-ce docker-ce-cli containerd.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
Recommended packages:
aufs-tools cgroupfs-mount | cgroup-lite git pigz
The following NEW packages will be installed:
containerd.io docker-ce docker-ce-cli
```

## 3.5 VERIFICATION

Once you are done installing docker check the status of docker using the below command.

**docker run hello-world**

If the docker is installed successfully this command shows the below output.

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

□ **Note** : Use sudo before your commands on linux if it shows permission denied error.

## 4. BASIC DOCKER COMMANDS AND ITS USAGE

### 4.1 docker --version

**Usage:** This command is used to get the currently installed version of docker.

```
srinija@srinija-Lenovo-ideapad-330-17IKB:~$ docker --version
Docker version 18.09.1, build 4c52b90
```

### 4.2 docker pull <image>

**Usage:** The first time when you run this command, it looks for image in the local system, if not present then it downloads a copy from docker hub. For example, when you run **docker pull centos** you see the below result.

```
srinija@srinija-Lenovo-ideapad-330-17IKB:~$ sudo docker pull centos
Using default tag: latest
latest: Pulling from library/centos
a02a4930cb5d: Pull complete
Digest: sha256:184e5f35598e333bfa7de10d8fb1cebb5ee4df5bc0f970bf2b1e7c7345136426
Status: Downloaded newer image for centos:latest
```

### 4.3 docker images

**Usage:** This command lists all the locally stored docker images.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
srinijasiro/docker-whale	latest	92265041e240	2 days ago	278MB
busybox	latest	d8233ab899d4	4 days ago	1.2MB
wordpress	latest	7539ce0f28d0	10 days ago	420MB
mysql	latest	81f094a7e4cc	13 days ago	477MB
ubuntu	latest	47b19964fb50	13 days ago	88.1MB
hello-world	latest	fce289e99eb9	7 weeks ago	1.84kB
centos	latest	1e1148e4cc2c	2 months ago	202MB

#### 4.4 docker run -it -d <image name>

**Usage:** This command is used to create a container from an image.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker run -it -d centos
f91f2699a4a21a944357b24509b9c5650477ada3403c7f0aa2c853be0af7dc58
```

#### 4.5 docker ps

**Usage:** This command is used to list the running containers.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker ps
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
f91f2699a4a2	centos	"/bin/bash"	59 seconds ago	Up 57 seconds		silly germain

#### 4.6 docker ps -a

**Usage:** This command is used to show all the running and exited containers.

```
f91f2699a4a2 centos "/bin/bash" 4 minutes ago Up 4 minutes
```

#### 4.7 docker exec -it <container id> bash

**Usage:** This command is used to access the running container.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker exec -it f91f2699a4a2 bash
[root@f91f2699a4a2 /]#
```

#### 4.8 docker stop <container id>

**Usage:** This command stops a running container.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker stop f91f2699a4a2
f91f2699a4a2
```

#### 4.9 docker rmi <image-id>

**Usage:** This command is used to delete an image from local storage.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker rmi -f 1e1148e4cc2c
Untagged: centos:latest
Untagged: centos@sha256:184e5f35598e333bfa7de10d8fb1cebb5ee4df5bc0f970bf2b1e7c7345136426
Deleted: sha256:1e1148e4cc2c148c6890a18e3b2d2dde41a6745ceb4e5fe94a923d811bf82ddb
```

#### 4.10 docker rm <container id>

**Usage:** This command is used to delete a stopped container.

```
root@srinija-Lenovo-ideapad-330-17IKB:/home/srinija# docker rm 347b964a26fe
347b964a26fe
```

## 5. NEXT STEPS

Hurray! you have come to the end of this tutorial. Now that you have understood about what docker is, how to install docker on your favourite environment and the basic commands of the docker, you can make use of these for your next project and experience power of containers! Hope you had an enticing experience working along with this tutorial. Here are few more additional resources which benefits you.

- [Why Docker](#)
- [Docker weekly](#)
- [Docker Workshop](#)