


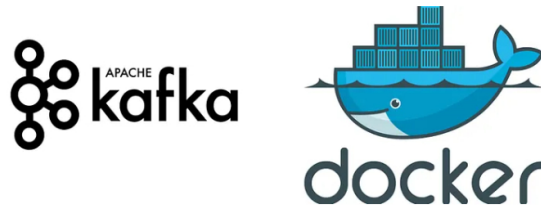
Getting Started with Apache Kafka on Docker: A Step-by-Step Guide

 Amber Kakkar · Follow
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Apache Kafka, a distributed streaming platform, is a powerful tool for building real-time data pipelines and streaming applications. Docker simplifies the process of setting up Kafka locally, allowing developers to experiment and develop with ease. In this article, we'll walk through the steps to download, install, and run Apache Kafka using Docker, providing a hands-on implementation for beginners.

Prerequisites:

Before we begin, ensure that you have Docker installed on your local machine. You can download and install Docker from the [official Docker website](#).

Step 1: Create a Docker Compose File

Create a `docker-compose.yml` file in a new directory to define the Kafka and Zookeeper services. Copy and paste the following content:

```
version: '2'

services:
  zookeeper:
    image: wurstmeister/zookeeper:latest
    ports:
      - "2181:2181"

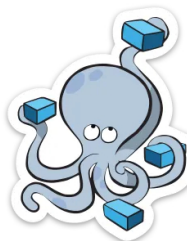
  kafka:
    image: wurstmeister/kafka:latest
    ports:
      - "9092:9092"
    expose:
      - "9093"
    environment:
      KAFKA_ADVERTISED_LISTENERS: INSIDE://kafka:9093,OUTSIDE://localhost:9092
      KAFKA_LISTENER_SECURITY_PROTOCOL_MAP: INSIDE:PLAINTEXT,OUTSIDE:PLAINTEXT
      KAFKA_LISTENERS: INSIDE://0.0.0.0:9093,OUTSIDE://0.0.0.0:9092
      KAFKA_INTER_BROKER_LISTENER_NAME: INSIDE
      KAFKA_ZOOKEEPER_CONNECT: zookeeper:2181
      KAFKA_CREATE_TOPICS: "my-topic:1:1"
    volumes:
      - /var/run/docker.sock:/var/run/docker.sock
```

Top highlight

This `docker-compose.yml` file defines two services: `zookeeper` and `kafka`. The Kafka service is configured to expose ports 9092 and 9093.

Step 2: Run Docker Compose

Open a terminal in the directory where the `docker-compose.yml` file is located and run the following command to start the Kafka and Zookeeper containers:



```
docker-compose up -d
```

This command will download the required Docker images and start the Kafka and Zookeeper services in detached mode (-d).

Step 3: Verify Kafka Container is Running

Check if the Kafka container is running by executing the following command:

```
docker ps
```

You should see containers for both Kafka and Zookeeper in the list.

Step 4: Create a Kafka Topic

Create a Kafka topic using the following command:



```
docker exec -it <kafka-container-id> /opt/kafka/bin/kafka-topics.sh --create --z
```

Replace <kafka-container-id> with the actual container ID of the Kafka container (you can find it using `docker ps`).

Step 5: Produce and Consume Messages

Use the Kafka console producer and consumer to test your Kafka setup:

Produce messages:

```
docker exec -it <kafka-container-id> /opt/kafka/bin/kafka-console-producer.sh --
```

Consume messages:

```
docker exec -it <kafka-container-id> /opt/kafka/bin/kafka-console-consumer.sh --
```

Replace <kafka-container-id> with the actual container ID of the Kafka container.

Step 6: Stop and Remove Containers

To stop and remove the Kafka and Zookeeper containers, run:



```
docker-compose down
```

This will stop and remove the containers created by the `docker-compose up` command.

Conclusion:



Congratulations! You've successfully set up and run Apache Kafka on Docker locally. This hands-on guide provides a simple yet powerful environment for experimenting with Kafka. As you continue to explore Kafka, consider integrating it into your applications to harness its capabilities for building real-time data pipelines and streaming applications.

Happy coding 🚀

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Written by Amber Kakkar

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DRucco

What are your thoughts?



Pratik Choudhari he/him

Jun 10, 2024

Hey, thanks for this article!

👤 2 [Reply](#)



Saloni Shaswat she/her

Dec 28, 2024

Great article, but just a suggestion.

We can use **bitnami/kafka** and **bitnami/zookeeper** that supports multi-architecture builds.

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Diveshkumar Chordia

Dec 4, 2024

Amazing

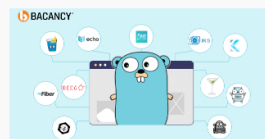
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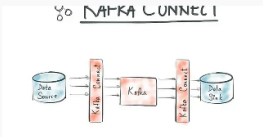
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