

## Assignment: Streaming Messages with Apache Kafka

University of Virginia

DS 5110: Big Data Systems

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TOTAL POINTS: 4

Objective In this assignment, you will get some hands-on experience with Apache Kafka. You will do these tasks:

- 1) install Apache Kafka
- 2) start a server locally
- 3) create a topic
- 4) send messages and receive them

Note the following

- 1) On Windows platforms use bin\windows\ instead of bin/, and change the script extension from .sh to .bat
- 2) You will need to work with multiple terminal windows (CMD for Windows platforms), including a window for the ZooKeeper server, Kafka server, the producer, and the consumer.

### Prerequisites

Be sure you have installed: Java SE Development Kit

Source: <https://www.oracle.com/java/technologies/javase-downloads.html>

Find the relevant installer for your OS

1. Install
2. Modify Environment Variables, adding a path to the Java bin directory.

For example on Windows it might look like:

C:\Program Files\Java\jdk-16\bin

### Instructions

Visit here to get started: <https://kafka.apache.org/quickstart>

Follow the directions closely and run steps 1-5.

### Results Collection

Collect in a document the following output detailed below. Please keep things concise and organized. Convert it to a PDF, and submit through Collab.

**Step 1:** Install Kafka and copy/paste snapshot showing install. Example below. (1PT)

Directory of C:\Users\apt4c\kafka\kafka2

```
07/28/2020 11:23 AM <DIR>      .
07/28/2020 11:23 AM <DIR>      ..
07/28/2020 11:23 AM <DIR>      bin
07/28/2020 11:23 AM <DIR>      config
07/28/2020 11:23 AM <DIR>      libs
07/28/2020 11:16 AM          29,975 LICENSE
07/28/2020 11:16 AM          337 NOTICE
07/28/2020 11:23 AM <DIR>      site-docs
                2 File(s)      30,312 bytes
                6 Dir(s)  272,366,256 bytes free
```

I recommend renaming the folder to something short as I did on my Windows machine. You might have issues with path length otherwise.

**Step 2:** Start the server (1 PT) Copy/paste or snapshot (1) the commands you entered and (2) a portion of the logging that prints

**Step 3:** Create a topic (1 PT) Copy/paste or snapshot (1) the commands you entered and (2) use the list topic command to list the topic you have created.

**Steps 4-5:** Send and consume messages (1 PT) Copy/paste or snapshot (1) the commands you entered and (2) show evidence that you can successfully type messages into the producer terminal and see them appear in the consumer terminal.

## Apache Kafka Tips

Kafka can get finicky. You'll be opening several terminal windows that act as servers including:

- zookeeper server which manages configs
- kafka server
- consumer server
- producer
- brokers

Be sure to keep straight what each terminal is doing.

Another thing that will help is to properly shut down the zookeeper and kafka servers when you are finished with them. You can stop an instance with Ctrl-C or the following commands (windows OS syntax):

Shut Down Zookeeper Server:

**>bin\windows\zookeeper-server-stop.bat config\zookeeper.properties**

sample output:

Deleting instance \\DESKTOP-AN37MQS\ROOT\CIMV2:Win32\_Process.Handle="15128"  
Instance deletion successful.

Shut Down Kafka Server:

**>bin\windows\kafka-server-stop.bat config\server.properties**

sample output:

Deleting instance \\DESKTOP-AN37MQS\ROOT\CIMV2:Win32\_Process.Handle="1112"  
Instance deletion successful.

Reminder: if you cannot get a step to work, you can try reinstalling kafka. If you still have difficulty, please provide a brief writeup of what went wrong, so the grader can give you full credit.