Kafka Consumers in Group CLI Tutorial

Understanding how Kafka consumer groups work through practice with the CLI

In this section, we will illustrate different scenarios to learn how Kafka consumers in a consumer group work using Kafka console consumer CLI, `kafka-console-consumer` tool.

Before we start using the CLI, make sure you have started Kafka beforehand.

CLI Extensions

Use CLI commands with appropriate extensions for your platform, e.g., `kafka-console-consumer.bat` for windows, `kafka-console-consumer.sh` for Linux

In addition, we will provide an optional consumer group parameter with `--group` flag.

How to create consumers in a Kafka Consumer Group?

To start consumers in a consumer group, do the following:

Create a topic with at least `2` partitions and send data to it

Create a first `kafka-console-consumer` and assign a group name with `--group`

Open a new terminal / shell window

Create a second `kafka-console-consumer` and use the same `--group` argument

Send data to the topic and you will see consumers sharing the reads

If you need a refresh on how consumers in a consumer group work, have a read here.

Create Consumer Group Example

You cannot have more consumers in a group than partitions in your Kafka topic, and therefore we first need to create a Kafka topic with a few partitions (in the example 3).

.sh

```
kafka-topics.sh --bootstrap-server localhost:9092 --topic first_topic --create
```

Then launch a consumer in a consumer group, named `my-first-application`

.sh

```
kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic first_topi
```

Open a new terminal/shell window and launch a second consumer in the same consumer group `my-first-application` (note we're using the exact same command)

.sh

```
kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic first_topi
```

Open a new terminal/shell window and launch a third consumer in the same consumer group `my-first-application`

.sh

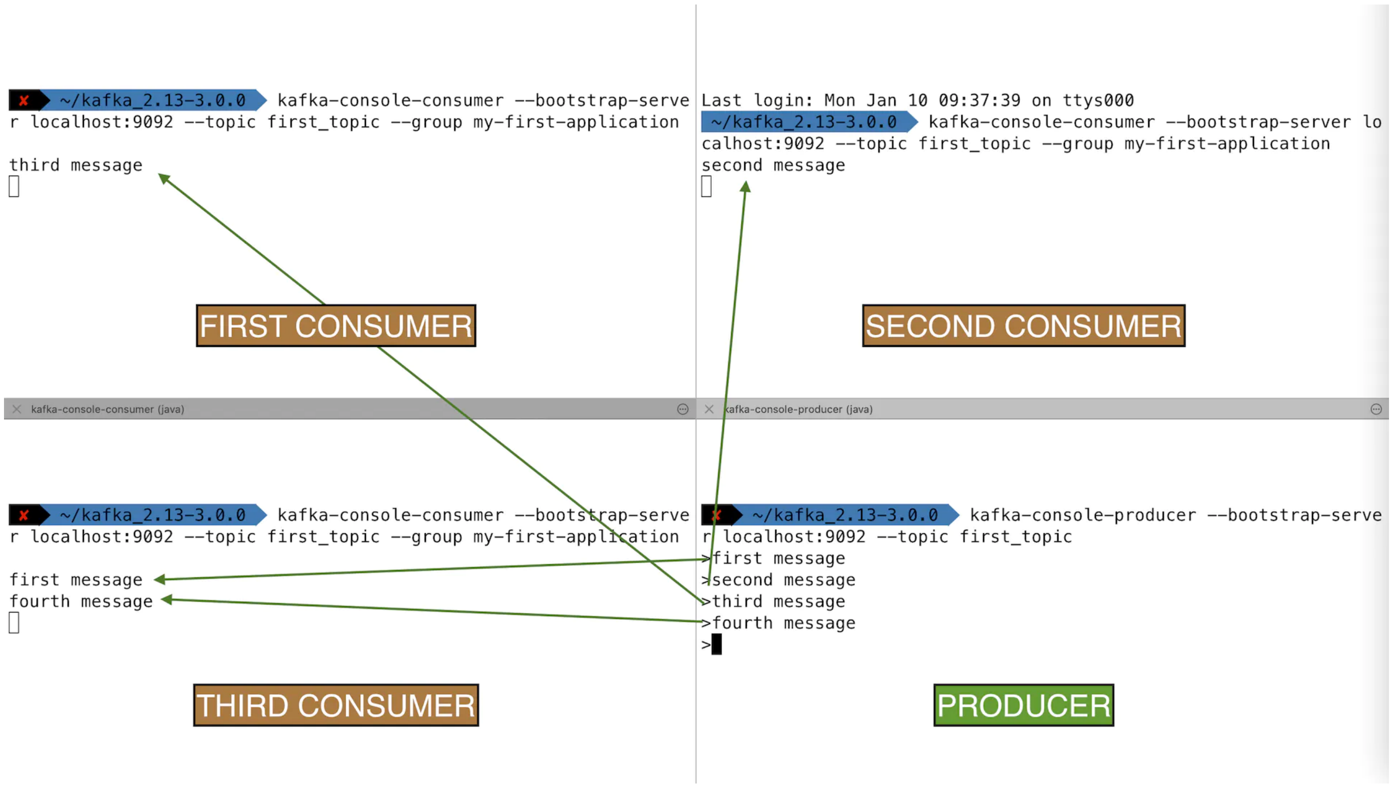
```
kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic first_topi
```

Each consumer in the consumer group `my-first-application` will get assigned a partition. Produce a few string messages in the topic.

.sh

```
$ kafka-console-producer.sh --bootstrap-server localhost:9092 --topic first_to
>first message
>second message
>third message
>fourth message
```

Each consumer will show only the messages produced on the partition that are assigned to it.



```
~/kafka_2.13-3.0.0 kafka-console-consumer --bootstrap-serve
r localhost:9092 --topic first_topic --group my-first-application

third message
```

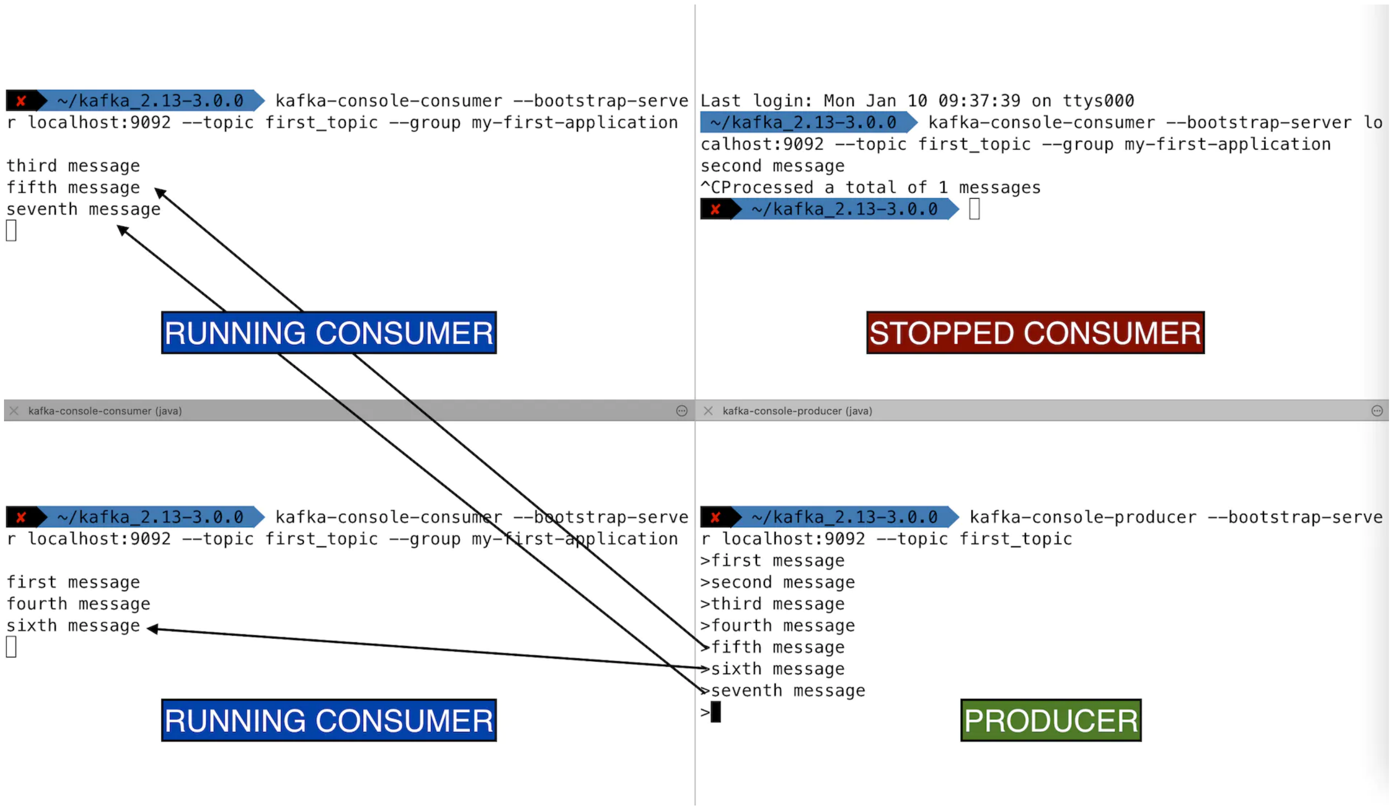
```
Last login: Mon Jan 10 09:37:39 on ttys000
~/kafka_2.13-3.0.0 kafka-console-consumer --bootstrap-server lo
calhost:9092 --topic first_topic --group my-first-application
second message
```

```
~/kafka_2.13-3.0.0 kafka-console-consumer --bootstrap-serve
r localhost:9092 --topic first_topic --group my-first-application

first message
fourth message
```

```
~/kafka_2.13-3.0.0 kafka-console-producer --bootstrap-serve
r localhost:9092 --topic first_topic
>first message
>second message
>third message
>fourth message
>
```

If you stop a consumer, messages automatically get sent to the remaining consumers because consumers in a consumer group automatically perform a **consumer rebalance**.



```
~/kafka_2.13-3.0.0  kafka-console-consumer --bootstrap-server localhost:9092 --topic first_topic --group my-first-application

third message
fifth message
seventh message
```

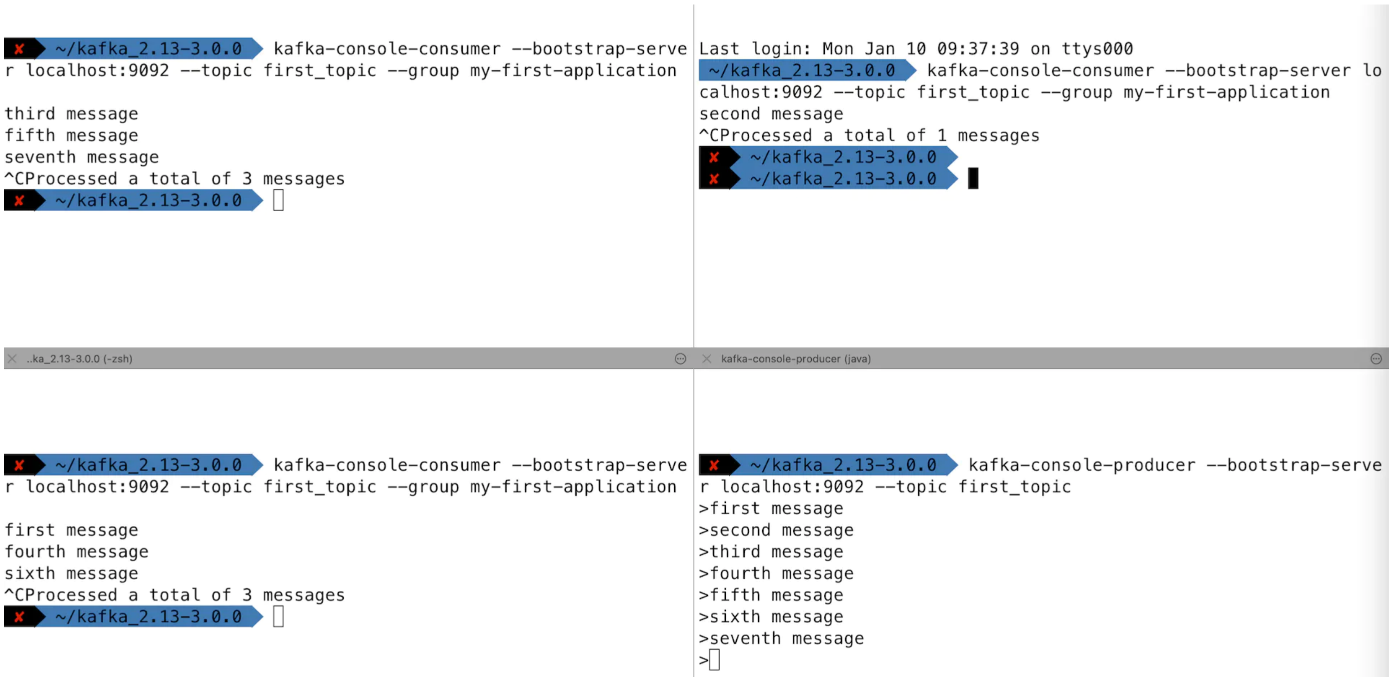
```
Last login: Mon Jan 10 09:37:39 on ttys000
~/kafka_2.13-3.0.0  kafka-console-consumer --bootstrap-server localhost:9092 --topic first_topic --group my-first-application
second message
^CProcessed a total of 1 messages
~/kafka_2.13-3.0.0
```

```
~/kafka_2.13-3.0.0  kafka-console-consumer --bootstrap-server localhost:9092 --topic first_topic --group my-first-application

first message
fourth message
sixth message
```

```
~/kafka_2.13-3.0.0  kafka-console-producer --bootstrap-server localhost:9092 --topic first_topic
>first message
>second message
>third message
>fourth message
>fifth message
>sixth message
>seventh message
>
```

Stop all consumers



```
~/kafka_2.13-3.0.0  kafka-console-consumer --bootstrap-server localhost:9092 --topic first_topic --group my-first-application

third message
fifth message
seventh message
^CProcessed a total of 3 messages
~/kafka_2.13-3.0.0
```

```
Last login: Mon Jan 10 09:37:39 on ttys000
~/kafka_2.13-3.0.0  kafka-console-consumer --bootstrap-server localhost:9092 --topic first_topic --group my-first-application
second message
^CProcessed a total of 1 messages
~/kafka_2.13-3.0.0
~/kafka_2.13-3.0.0
```

```
~/kafka_2.13-3.0.0  kafka-console-consumer --bootstrap-server localhost:9092 --topic first_topic --group my-first-application

first message
fourth message
sixth message
^CProcessed a total of 3 messages
~/kafka_2.13-3.0.0
```

```
~/kafka_2.13-3.0.0  kafka-console-producer --bootstrap-server localhost:9092 --topic first_topic
>first message
>second message
>third message
>fourth message
>fifth message
>sixth message
>seventh message
>
```

And keep on producing to the topic

```
>eigth message
>ninth message
>tenth message
```

Upon restart of a consumer in the group, the consumer will read from the latest committed offsets and read only the messages you've just produced

.sh

```
$ kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic first_to

eigth message
ninth message
tenth message
```

You have seen how consumers work in consumer groups!

Gotchas

If you consume in a consumer groups using the `--group` command, then if you try using the `--from-beginning` option afterwards with the same group, it will be ignored. Instead, you need to reset your consumer groups as shown here.

If you don't specify a --group option, the consumer group of the consumer will be a random consumer group such as console-consumer-11984

If you see one consumer getting all the messages, that probably means that your topic was only created with 1 partition, which you can verify with the `kafka-topics --describe` command

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