Kafka Basics

- Download binary from Kafka official website.
- Unzip and rename the folder to kafka.
- Make sure you have already setup JAVA_HOME environment variable.
- Startup ZooKeeper. It will be running on localhost:2181

```
$ cd bin/windows
$ .\zookeeper-server-start.bat ..\..\config\zookeeper.properties
```

- Navigate to config/server.properties and add below contents.

```
listeners=PLAINTEXT://localhost:9092
auto.create.topics.enable=false
```

- Startup Broker. It will be running on localhost:9092

```
$ .\kafka-server-start.bat ..\..\config\server.properties
```

- Create Topic - For Kafka v3.0 and above (zookeeper is deprecated).

```
$ .\kafka-topics.bat --create --topic demo-topic -bootstrap-server localhost:9092 --replication-factor 1 --partitions 4
Created topic demo-topic.
```

- Create Topic - For older versions.

```
$ .\kafka-topics.bat --create --topic demo-topic -zookeeper localhost:2181 --replication-factor 1 --partitions 4
Created topic demo-topic.
```

Without Key

- Start Console Producer.

```
$ .\kafka-console-producer.bat --broker-list localhost:9092 --topic demo-topic
> Hello World
```

- Start Console Consumer - read messages from the beginning.

```
> .\kafka-console-consumer.bat --bootstrap-server localhost:9092 --topic demo-topic --from-beginning
Hello World
```

- Start Console Consumer - read latest messages only.

```
> .\kafka-console-consumer.bat --bootstrap-server localhost:9092 --topic demo-topic
```

With Key

- Start Console Producer.

```
$ .\kafka-console-producer.bat --broker-list localhost:9092 --topic demo-topic --property "key.separator=-" --property "parse.key=true"
> A-1
> B-2
> C-3
```

- Start Console Consumer - read messages from the beginning.

```
$ .\kafka-console-consumer.bat --bootstrap-server localhost:9092 --topic demo-topic --from-beginning -property "key.separator= - " --property
"print.key=true"
A - 1
null - New Message
null - Hello World
B - 2
C - 3
```

Consume Group

- Start one Producer and one Consumer.
- Then continue to view the Consumer Group.

```
$ .\kafka-consumer-groups.bat --bootstrap-server localhost:9092 --list
console-consumer-91822
```

- Start another Consumer with the same Group ID.

```
$ .\kafka-console-consumer.bat --bootstrap-server localhost:9092 --topic demo-topic --group console-consumer-91822
```

- Now there are 2 Consumer listening for the same topic but different partitions.
- To demo they are listening for different partitions, go to Producer and send some messages, you should see the messages will be distributed to their 2 Consumers. For example first 2 messages goes to Consumer 1, next 2 messages goes to Consumer 2.

Setup Kafka Cluster with 3 Brokers

- Duplicate the current config/server.properties 2 times and and rename them to server-1.properties and server-2.properties
- Make changes to the files.

```
// server-1.properties
broker.id=1
listeners=PLAINTEXT://localhost:9093
log.dirs=/tmp/kafka-logs-1

// server-2.properties
broker.id=2
listeners=PLAINTEXT://localhost:9094
log.dirs=/tmp/kafka-logs-2
```

- Startup new Brokers. There will be totally 3 brokers running now.

```
$ .\kafka-server-start.bat ..\..\config\server-1.properties
$ .\kafka-server-start.bat ..\..\config\server-2.properties

[2022-08-31 10:35:26,156] INFO Connecting to zookeeper on localhost:2181 (kafka.server.KafkaServer)
[2022-08-31 10:35:30,924] INFO Log directory C:\tmp\kafka-logs-2 not found, creating it. (kafka.log.LogManager)
[2022-08-31 10:35:30,939] INFO Loading logs from log dirs ArraySeq(C:\tmp\kafka-logs-2) (kafka.log.LogManager)
[2022-08-31 10:35:31,326] INFO Registered broker 2 at path /brokers/ids/2 with addresses: PLAINTEXT://localhost:9094, czxid (broker epoch):
178 (kafka.zk.KafkaZkClient)
[2022-08-31 10:35:31,456] INFO [KafkaServer id=2] started (kafka.server.KafkaServer)
```

- Create Topic - For Kafka v3.0 and above (zookeeper is deprecated).

```
$ .\kafka-topics.bat --create --topic demo-topic-replicated -bootstrap-server localhost:9092 --replication-factor 3 --partitions 4
Created topic demo-topic-replicated.
```


Other Commands

- Listing Topics

```
$ .\kafka-topics.bat --list --bootstrap-server localhost:9092
__consumer_offsets
demo-topic
```

- View commit log.

```
$ .\kafka-run-class.bat kafka.tools.DumpLogSegments --deep-iteration --files C:/tmp/kafka-logs/demo-topic-0/00000000000000000000.log

Dumping C:\tmp\kafka-logs\demo-topic-0\00000000000000000000.log
Starting offset: 0
baseOffset: 0 lastOffset: 0 count: 1 baseSequence: 0 lastSequence: 0 producerId: 0 producerEpoch: 0 partitionLeaderEpoch: 0 isTransactional:
false isControl: false deleteHorizonMs: OptionalLong.empty position: 0 CreateTime: 1661910727703 size: 79 magic: 2 compresscodec: none crc:
3085725807 isvalid: true
| offset: 0 CreateTime: 1661910727703 keySize: -1 valueSize: 11 sequence: 0 headerKeys: []
baseOffset: 1 lastOffset: 1 count: 1 baseSequence: 0 lastSequence: 0 producerId: 1 producerEpoch: 0 partitionLeaderEpoch: 0 isTransactional:
false isControl: false deleteHorizonMs: OptionalLong.empty position: 79 CreateTime: 1661911046656 size: 70 magic: 2 compresscodec: none crc:
2923670010 isvalid: true
| offset: 1 CreateTime: 1661911046656 keySize: 1 valueSize: 1 sequence: 0 headerKeys: []
baseOffset: 2 lastOffset: 2 count: 1 baseSequence: 1 lastSequence: 1 producerId: 1 producerEpoch: 0 partitionLeaderEpoch: 0 isTransactional:
false isControl: false deleteHorizonMs: OptionalLong.empty position: 149 CreateTime: 1661911048848 size: 70 magic: 2 compresscodec: none crc:
1653630186 isvalid: true
| offset: 2 CreateTime: 1661911048848 keySize: 1 valueSize: 1 sequence: 1 headerKeys: []
```