**Task1** Create a kafka topic named KeyLessTopic.

Inside KeyLessTopic insert following data:

{"name":"John", "exp":16}

{"name":"Finn", "exp":20}

{"name":"Cylin", "exp":18}

##Understanding Kafka, starting a broker/Leader that pushes messages to be consumed at consumer.

##Demonstrating ways to create mulitnode replicas with multiple partitions.

##Different ways to create a topic(keyed/keyless) based on the key property.

##Formatting messages with custom values of key value separator &

##reading the same consumed messages at consumer using custom format using key separator property.

##Command below starts the Zookeeper

$KAFKA_HOME/bin/zookeeper-server-start.sh $KAFKA_HOME/config/zookeeper.properties

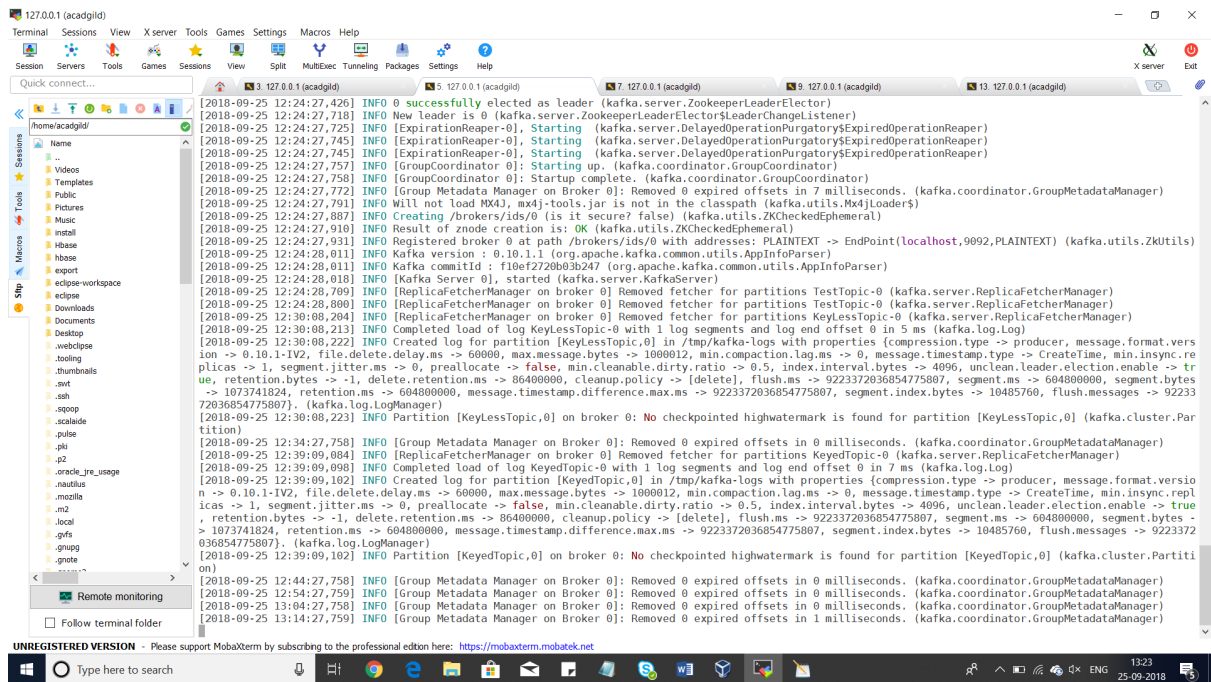0.9.10.jar:/home/acadgild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/rocksdbjni-4.9.0.jar:/home/acadgild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/scala
-library-2.12.1.jar:/home/acadgild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/scala-parser-combinators_2.12-1.0.4.jar:/home/acadgild/install/kafka/kafka_2.1
2-0.10.1.1/bin/../libs/slf4j-api-1.7.21.jar:/home/acadgild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/slf4j-log4j12-1.7.21.jar:/home/acadgild/install/kafka/
kafka_2.12-0.10.1.1/bin/../libs/snappy-java-1.1.2.6.jar:/home/acadgild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/validation-api-1.1.0.Final.jar:/home/acadg
ild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/zkclient-0.9.jar:/home/acadgild/install/kafka/kafka_2.12-0.10.1.1/bin/../libs/zookeeper-3.4.8.jar (org.apache
.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,358] INFO Server environment:java.library.path=/usr/java/packages/lib/amd64:/usr/lib64:/lib64:/lib:/usr/lib (org.apache.zookeeper.server.Z
ooKeeperServer)
[2018-09-25 12:23:15,359] INFO Server environment:java.io.tmpdir=/tmp (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,359] INFO Server environment:java.compiler=<NA> (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,359] INFO Server environment:os.name=Linux (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,359] INFO Server environment:os.arch=amd64 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,359] INFO Server environment:os.version=2.6.32-696.18.7.el6.x86_64 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,359] INFO Server environment:user.name=acadgild (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,361] INFO Server environment:user.home=/home/acadgild (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,361] INFO Server environment:user.dir=/home/acadgild (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,379] INFO tickTime set to 3000 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,379] INFO minSessionTimeout set to -1 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,380] INFO maxSessionTimeout set to -1 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:15,408] INFO binding to port 0.0.0.0/0.0.0.0:2181 (org.apache.zookeeper.server.NIOServerCnxnFactory)
[2018-09-25 12:23:24,001] INFO Expiring session 0x16601102fe60000, timeout of 6000ms exceeded (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:23:24,005] INFO Processed session termination for sessionid: 0x16601102fe60000 (org.apache.zookeeper.server.PrepRequestProcessor)
[2018-09-25 12:23:24,007] INFO Creating new log file: log.24 (org.apache.zookeeper.server.persistence.FileTxnLog)
[2018-09-25 12:24:25,557] INFO Accepted socket connection from /127.0.0.1:41518 (org.apache.zookeeper.server.NIOServerCnxnFactory)
[2018-09-25 12:24:25,572] INFO Client attempting to establish new session at /127.0.0.1:41518 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:24:25,583] INFO Established session 0x1660f80dd5c0000 with negotiated timeout 6000 for client /127.0.0.1:41518 (org.apache.zookeeper.server.ZooK
eeperServer)
[2018-09-25 12:24:27,688] INFO Got user-level KeeperException when processing sessionid:0x1660f80dd5c0000 type:delete cxid:0x27 zxid:0x28 txntype:-1 reqpath:n/
a Error Path:/admin/preferred_replica_election Error:KeeperErrorCode = NoNode for /admin/preferred_replica_election (org.apache.zookeeper.server.PrepRequestPro
cessor)
[2018-09-25 12:24:27,889] INFO Got user-level KeeperException when processing sessionid:0x1660f80dd5c0000 type:create cxid:0x33 zxid:0x29 txntype:-1 reqpath:n/
a Error Path:/brokers Error:KeeperErrorCode = NodeExists for /brokers (org.apache.zookeeper.server.PrepRequestProcessor)
[2018-09-25 12:24:27,896] INFO Got user-level KeeperException when processing sessionid:0x1660f80dd5c0000 type:create cxid:0x34 zxid:0x2a txntype:-1 reqpath:n/
a Error Path:/brokers/ids Error:KeeperErrorCode = NodeExists for /brokers/ids (org.apache.zookeeper.server.PrepRequestProcessor)
[2018-09-25 12:30:07,549] INFO Accepted socket connection from /0:0:0:0:0:0:0:1:39568 (org.apache.zookeeper.server.NIOServerCnxnFactory)
[2018-09-25 12:30:07,554] INFO Client attempting to establish new session at /0:0:0:0:0:0:0:1:39568 (org.apache.zookeeper.server.ZooKeeperServer)
[2018-09-25 12:30:07,555] INFO Established session 0x1660f80dd5c0001 with negotiated timeout 30000 for client /0:0:0:0:0:0:0:1:39568 (org.apache.zookeeper.serv
er.ZooKeeperServer)
[2018-09-25 12:30:08,122] INFO Got user-level KeeperException when processing sessionid:0x1660f80dd5c0001 type:setData cxid:0x4 zxid:0x2e txntype:-1 reqpath:n/
a Error Path:/config/topics/KeyLessTopic Error:KeeperErrorCode = NoNode for /config/topics/KeyLessTopic (org.apache.zookeeper.server.PrepRequestProcessor)
[2018-09-25 12:30:08,132] INFO Got user-level KeeperException when processing sessionid:0x1660f80dd5c0001 type:create cxid:0x6 zxid:0x2f txntype:-1 reqpath:n/a
 Error Path:/config/topics Error:KeeperErrorCode = NodeExists for /config/topics (org.apache.zookeeper.server.PrepRequestProcessor)
[2018-09-25 12:30:08,164] INFO Processed session termination for sessionid: 0x1660f80dd5c0001 (org.apache.zookeeper.server.PrepRequestProcessor)

## The below command is used to start broker

$KAFKA_HOME/bin/kafka-server-start.sh $KAFKA_HOME/config/server.properties



• MobaXterm 10.7 •
(SSH client, X-server and networking tools)

➤ SSH session to acadgild@127.0.0.1
  • SSH compression  : ✔
  • SSH-browser      : ✔
  • X11-forwarding   : ✔  (remote display is forwarded through SSH)
  • DISPLAY          : ✔  (automatically set on remote server)

➤ For more info, ctrl+click on help or visit our website

Last login: Tue Sep 25 17:47:25 2018 from 10.0.2.2
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-server-start.sh $KAFKA_HOME/config/server.properties
[2018-09-25 12:24:25,159] INFO KafkaConfig values:
        advertised.host.name = null
        advertised.listeners = null
        advertised.port = null
        authorizer.class.name =
        auto.create.topics.enable = true
        auto.leader.rebalance.enable = true
        background.threads = 10
        broker.id = 0
        broker.id.generation.enable = true
        broker.rack = null
        compression.type = producer
        connections.max.idle.ms = 600000
        controlled.shutdown.enable = true
        controlled.shutdown.max.retries = 3
        controlled.shutdown.retry.backoff.ms = 5000
        controller.socket.timeout.ms = 30000
        default.replication.factor = 1
        delete.topic.enable = false
        fetch.purgatory.purge.interval.requests = 1000
        group.max.session.timeout.ms = 300000
        group.min.session.timeout.ms = 6000
        host.name =
        inter.broker.protocol.version = 0.10.1-IV2
        leader.imbalance.check.interval.seconds = 300
        leader.imbalance.per.broker.percentage = 10
        listeners = null
        log.cleaner.backoff.ms = 15000

## Create a topic named KeyLessTopic wherein partition is set to 1 & replication factor is set to 1. Since this

## example is being run over a single node cluster

$KAFKA_HOME/bin/kafka-topics.sh --create --topic KeyLessTopic --zookeeper localhost:2181 --partitions 1 --replication-factor 1

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-topics.sh --create --topic KeyLessTopic --zookeeper localhost:2181 --partitions 1 --replication-factor 1
Created topic "KeyLessTopic".
You have new mail in /var/spool/mail/acadgild
```

## Running a console producer. The command initiates a communication at port 9092 with the

## topic name KeyLessTopic

$KAFKA_HOME/bin/kafka-console-producer.sh --broker-list localhost:9092 --topic KeyLessTopic

## These are the messages passed as a producer to topic named KeyLessTopic.

{"name":"John", "exp":16}

{"name":"Finn", "exp":20}

{"name":"Cylin", "exp":18}

{"name":"Mark", "exp":2}

{"name":"Akshay", "exp":14}
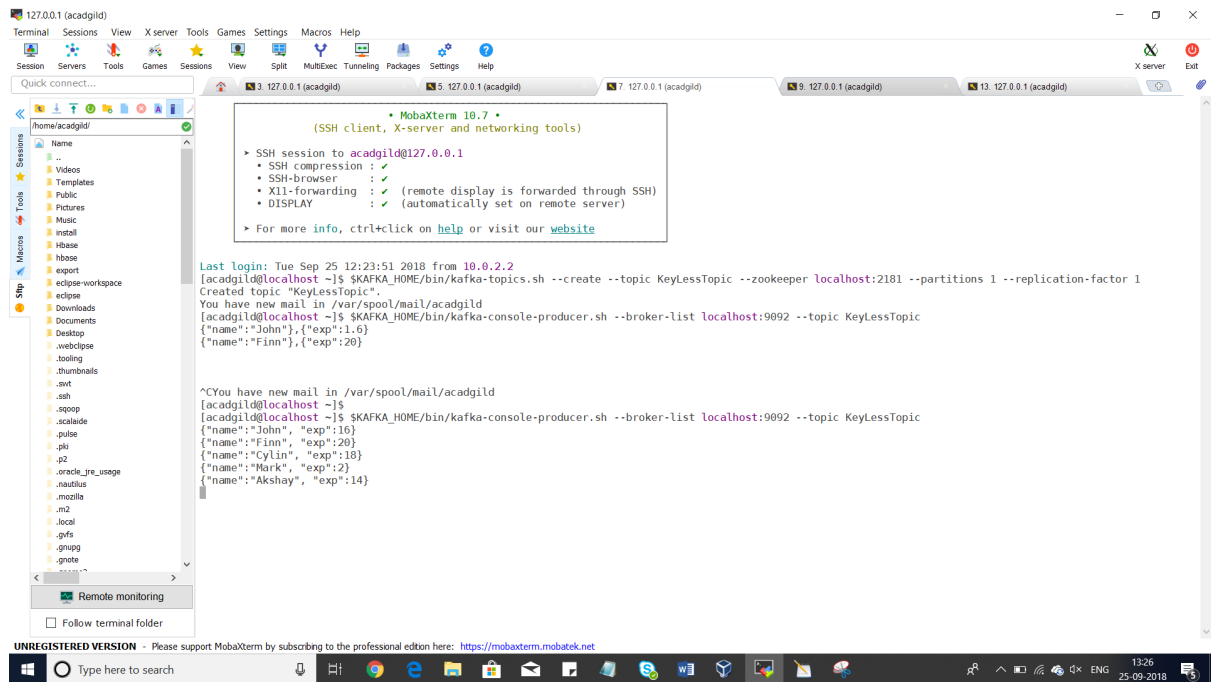
## Task 2: Create a console consumer that reads KeyLessTopic from beginning

## Running a console consumer to read the type KeyLessTopic sent by the producer.

## --from-beginning allows the topic messages to be read from beginning. The key property is set to false since no key value is involved.

$KAFKA_HOME/bin/kafka-console-consumer.sh --topic KeyLessTopic --from-beginning --zookeeper localhost:2181 --property print.key=false

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-console-consumer.sh --topic KeyLessTopic --from-beginning --zookeeper localhost:2181 --property print.key=false
Using the ConsoleConsumer with old consumer is deprecated and will be removed in a future major release. Consider using the new consumer by passing [bootstrap server] instead of [zookeeper].
{"name":"John"},{"exp":1.6}
{"name":"Finn"},{"exp":20}


{"name":"John", "exp":16}
{"name":"Finn", "exp":20}
{"name":"Cylin", "exp":18}
{"name":"Mark", "exp":2}
{"name":"Akshay", "exp":14}
{"name":"John", "exp":16}
{"name":"Finn", "exp":20}
{"name":"Cylin", "exp":18}
{"name":"Mark", "exp":2}
{"name":"Akshay", "exp":14}


{"name":"John","exp":16}
{"name":"Finn","exp":20}
{"name":"Cylin","exp":18}
{"name":"Mark","exp":2}
{"name":"Akshay","exp":14}
```

**Task 3:**

**Create a kafka topic named KeyedTopic. Inside KeyedTopic insert following data:**

The part before comma(,) should be treated as key and after comma(,) should be treated as value

{"name":"John"},{"exp":16}

{"name":"Finn"},{"exp":20}

{"name":"Cylin"},{"exp":18}

{"name":"Mark"},{"exp":2}

{"name":"Akshay"},{"exp":14}

##Create a topic named KeyedTopic

$KAFKA_HOME/bin/kafka-topics.sh --create --topic KeyedTopic --zookeeper

localhost:2181 --partitions 1 --replication-factor 1

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-topics.sh --create --topic KeyedTopic --zookeeper localhost:2181 --partitions 1 --replication-factor 1
Created topic "KeyedTopic".
You have new mail in /var/spool/mail/acadgild
```

## Running a console producer

 $KAFKA_HOME/bin/kafka-console-producer.sh --broker-list localhost:9092 --topic KeyedTopic --property parse.key=true --property key.separator=","

{"name":"John"},{"exp":16}

{"name":"Finn"},{"exp":20}

{"name":"Cylin"},{"exp":18}

{"name":"Mark"},{"exp":2}

{"name":"Akshay"},{"exp":14}

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-console-producer.sh --broker-list localhost:9092 --topic KeyedTopic --property parse.key=true --property key.sepa
rator=","
{"name":"John"},{"exp":16}
{"name":"Finn"},{"exp":20}
{"name":"Cylin"},{"exp":18}
{"name":"Mark"},{"exp":2}
{"name":"Akshay"},{"exp":14}
```

Task 4:

Create a console consumer that reads KeyedTopic from beginning

The key and value should be separated by '-'

Ans: ## Running a console consumer to read the type KeyedTopic sent by the producer.
$KAFKA_HOME/bin/kafka-console-consumer.sh --topic KeyedTopic --frombeginning
--zookeeper localhost:2181 --property print.key=true --property key.separator="-"

```
[acadgild@localhost ~]$ $KAFKA_HOME/bin/kafka-console-consumer.sh --topic KeyedTopic --from-beginning --zookeeper localhost:2181 --property print.key=true --pr
operty key.separator="-"
Using the ConsoleConsumer with old consumer is deprecated and will be removed in a future major release. Consider using the new consumer by passing [bootstrap-
server] instead of [zookeeper].
{"name":"John"}-{"exp":16}
{"name":"Finn"}-{"exp":20}
{"name":"Cylin"}-{"exp":18}
{"name":"Mark"}-{"exp":2}
{"name":"Akshay"}-{"exp":14}
```

Note: From the screen shot we can see that key.separator=”,” got replaced by
key.separator”-“