

# Package ‘rkafka’

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**Type** Package

**Title** Using Apache 'Kafka' Messaging Queue Through 'R'

**Version** 1.2

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**Description** Apache 'Kafka' is an open-source message broker project developed by the Apache Software Foundation which can be thought of as a distributed, partitioned, replicated commit log service. At a high level, producers send messages over the network to the 'Kafka' cluster which in turn serves them up to consumers. See <<http://kafka.apache.org/>> for more information. Functions included in this package enable: 1. Creating 'Kafka' producer 2. Writing messages to a topic 3. Closing 'Kafka' producer 4. Creating 'Kafka' consumer 5. Reading messages from a topic 6. Closing 'Kafka' consumer. The jars required for this package are included in a separate package 'rkafkajars'.

**Depends** rJava, RUnit, rkafkajars

**SystemRequirements** Java JDK 1.7 or higher, Apache Kafka 2.8.0-0.8.1.1

**License** Apache License 2.0 | file LICENSE

**NeedsCompilation** no

**Repository** CRAN

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rkafka

*Using Apache 'Kafka' Messaging Queue Through 'R'*

## Description

It provides functionalities of creating a 'Kafka' producer, simple consumer, high level consumer and sending and receiving messages.

## Details

Package: rkafka  
 Type: Package  
 Version: 1.2  
 Date: 2021-12-01  
 License: Apache License 2.0

1)Start 'Zookeeper' server. 2)Start 'Kafka' server. 3)Start producer using 'rkafka.createProducer' function. 4)Send messages using 'rkafka.send' function. 5)Close producer using 'rkafka.closeProducer' function. 6)Start consumer using 'rkafka.createConsumer' function. 7)Read messages using 'rkafka.read' function. 8)Close consumer using 'rkafka.closeConsumer' function.

## Author(s)

Shruti Gupta

Maintainer: Who to complain to shrutigupta34@gmail.com

## References

To understand 'Kafka' [kafka.apache.org/documentation.html](https://kafka.apache.org/documentation.html)

## Examples

```
## Not run:
prod1=rkafka.createProducer("127.0.0.1:9092")
rkafka.send(prod1,"test","127.0.0.1:9092","Testing once")
rkafka.send(prod1,"test","127.0.0.1:9092","Testing twice")
rkafka.send(prod1,"test","127.0.0.1:9092","Testing thrice")
rkafka.closeProducer(prod1)
consumer1=rkafka.createConsumer("127.0.0.1:2181","test")
print(rkafka.read(consumer1))
print(rkafka.read(consumer1))
print(rkafka.read(consumer1))
```

```
## End (Not run)
```

---

```
rkafka.closeConsumer
```

*Closing KAKFA consumer*

---

## Description

This functions shuts down the KAFKA consumer

## Usage

```
rkafka.closeConsumer (ConsumerObj)
```

## Arguments

ConsumerObj    ConsumerObj:Consumer through which messages are to be read(Java Object)  
Required:Mandatory Type:Consumer

## Value

Function doesn't return anything

## Author(s)

Shruti Gupta

## Examples

```
## Not run:  
consumer1=rkafka.createHighConsumer ("127.0.0.1:2181")  
rkafka.closeHighConsumer (consumer1)  
  
## End (Not run)
```

---

```
rkafka.closeProducer
```

*KAFKA producer shutdown*

---

### Description

This function closes the KAFKA producer

### Usage

```
rkafka.closeProducer(producer)
```

### Arguments

producer	Producer which is to be terminated Required:Mandatory Type:Producer
----------	---

### Value

Doesn't return anything

### Author(s)

Shruti Gupta

### Examples

```
## Not run:
producer1=rkafka.createProducer("127.0.0.1:9092")
rkafka.closeProducer(producer1)

## End(Not run)
```

---

```
rkafka.closeSimpleConsumer
```

*Closing KAKFA Simple consumer*

---

### Description

This functions shuts down the KAFKA Simple consumer

### Usage

```
rkafka.closeSimpleConsumer(SimpleConsumer)
```

## Arguments

SimpleConsumer

SimpleConsumer: SimpleConsumer that has to be shut down  
Required: Mandatory  
Type: SimpleConsumer

## Details

There are two types of KAFKA consumers: High-Level and Simple. This function shuts down the KAFKA Simple Consumer

## Value

Function doesn't return anything

## Author(s)

Shruti Gupta

## References

To know when to use simple consumer and when to use High-level Consumer, refer the url below:

<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

## Examples

```
## Not run:
consumer1=rkafka.createSimpleConsumer("172.25.1.78","9092","10000","100000","test")
rkafka.receiveFromSimpleConsumer(consumer1,"test","0","0","test-group")
print(rkafka.readFromSimpleConsumer(consumer1))
rkafka.closeSimpleConsumer(consumer1)

## End(Not run)
```

---

rkafka.createConsumer

*Creating KAFKA consumer*

---

## Description

This function creates a KAFKA consumer

## Usage

```
rkafka.createConsumer(zookeeperConnect, topicName,
  groupId="test-consumer-group", zookeeperConnectionTimeoutMs="100000",
  consumerTimeoutMs="10000", autoCommitEnable=NULL,
  autoCommitInterval=NULL, autoOffsetReset=NULL)
```

**Arguments**

zookeeperConnect	Zookeeper connection string comma separated host:port pairs, each corresponding to a zk server. e.g."127.0.0.1:3000,127.0.0.1:3001,127.0.0.1:3002" Required:Mandatory Type:String default:NONE
topicName	Name of the topic from which to read messages Required:Mandatory Type:String
groupId	consumer group id Required:Mandatory Type:String default:test-consumer-group
zookeeperConnectionTimeoutMs	timeout in ms for connecting to zookeeper Required:Mandatory Type:String default:100000
consumerTimeoutMs	Throw a timeout exception to the consumer if no message is available for consumption after the specified interval Required:Mandatory Type:String default:10000
autoCommitEnable	If true, periodically commit to ZooKeeper the offset of messages already fetched by the consumer. This committed offset will be used when the process fails as the position from which the new consumer will begin. Required:Optional Type:String default:true
autoCommitInterval	The frequency in ms that the consumer offsets are committed to zookeeper. Required:Optional Type:String default:60*1000
autoOffsetReset	smallest : automatically reset the offset to the smallest offset largest : automatically reset the offset to the largest offset anything else: throw exception to the consumer Required:Optional Type:String default:largest

**Details**

There are two types of KAFKA consumers: High-level and Simple. This functions creates a high level consumer

**Value**

Returns a consumer

**Author(s)**

Shruti Gupta

**References**

To know when to use simple consumer and when to use High-level Consumer, refer the url below:

<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

To know how to use a high level consumer refer this: <https://cwiki.apache.org/confluence/display/KAFKA/Consumer+Group+Example>

## Examples

```
## Not run:
consumer1=rkafka.createConsumer("127.0.0.1:2181","test123")
consumer2=rkafka.createConsumer("127.0.0.1:2181","test123","test-consumer-group","50000","1000000")

## End (Not run)
```

---

```
rkafka.createProducer
```

*Creating KAFKA producer*

---

## Description

This function is used to create a KAFKA producer

## Usage

```
rkafka.createProducer(metadataBrokerList, producerType="sync",
compressionCodec="none", serializerClass="kafka.serializer.StringEncoder",
partitionerClass="NULL", compressedTopics="NULL",
queueBufferingMaxTime="NULL", queueBufferingMaxMessages="NULL",
queueEnqueueTimeoutTime="NULL", batchSize="NULL")
```

## Arguments

metadataBrokerList	List of brokers used for bootstrapping knowledge about the rest of the cluster format: host1:port1,host2:port2... Required:Mandatory Type:String default:localhost:9092
producerType	specifies whether the messages are sent asynchronously (async) or synchronously (sync) Required:Mandatory Type:String default:sync
compressionCodec	specify the compression codec for all data generated: none , gzip, snappy. Required:Mandatory Type:String default:none
serializerClass	specifies the class for serialization Required:Mandatory Type:String default:kafka.serializer.StringEncoder
partitionerClass	name of the partitioner class for partitioning events Required:Optional Type:String default:NULL(default partition spreads data randomly)
compressedTopics	allow topic level compression Required:Optional Type:String default:NULL
queueBufferingMaxTime	maximum time, in milliseconds, for buffering data on the producer queue Required:Optional(for Async Producer only) Type:String default:NULL
queueBufferingMaxMessages	the maximum size of the blocking queue for buffering on the producer Required:Optional(for Async Producer only) Type:String default:NULL

queueEnqueueTimeoutTime

0: events will be enqueued immediately or dropped if the queue is full -ve: enqueue will block indefinitely if the queue is full +ve: enqueue will block up to this many milliseconds if the queue is full Required:Optional(for Async Producer only) Type:String default:NULL

batchNumMessages

the number of messages batched at the producer Required:Optional(for Async Producer only) Type:String default:NULL

## Value

Returns Producer

## Author(s)

Shruti Gupta

## Examples

```
## Not run:
producer1=rkafka.createProducer("127.0.0.1:9092")
producer2=rkafka.createProducer("127.0.0.1:9092","sync","none","kafka.serializer.StringEncoder")

## End(Not run)
```

---

```
rkafka.createSimpleConsumer
```

*Creating simple KAFKA consumer*

---

## Description

This function creates the Simple Consumer

## Usage

```
rkafka.createSimpleConsumer(kafkaServerURL,
kafkaServerPort, connectionTimeout,
kafkaProducerBufferSize, clientId)
```

## Arguments

kafkaServerURL

kafkaServerPort

Port number of the KAFKA server Required:Mandatory Type:String

connectionTimeout

Connection Timeout in ms Required:Mandatory Type:String

kafkaProducerBufferSize	Buffer size Required:Mandatory Type:String
clientId	ID of the client Required:Mandatory Type:String

### Details

There are two types of KAFKA consumers:High-Level and Simple. This function creates the Simple Consumer. Use caution on deciding to use the Simple Consumer as it doesn't persist offset.

### Value

Doesn't return anything

### Note

Warning: Ensure to run the rkafka.receiveFromSimpleConsumer() function before executing the rkafka.runFromSimpleConsumer() function

### Author(s)

Shruti Gupta

### References

To know when to use simple consumer and when to use High-level Consumer, refer the url below:  
<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

### Examples

```
## Not run:
consumer1=rkafka.createSimpleConsumer("172.25.1.78","9092","10000","100000","test")

## End(Not run)
```

---

rkafka.read	<i>KAFKA consumer reading messages(single)</i>
-------------	--

---

### Description

This function reads messages received by a KAFKA consumer. It fetches one message at a time

### Usage

```
rkafka.read(ConsumerObj)
```

### Arguments

ConsumerObj	Consumer through which messages are to be read Required:Mandatory Type:Consumer
-------------	---

**Details**

This function returns one message at a time from the topic to which the consumer is associated. If no new message is found with 'x' time(set by ConsumerTimeoutMs property), then it returns ""

**Value**

String

**Note**

Warning: Ensure to close the consumer after reading messages. Won't work correctly next time otherwise

**Author(s)**

Shruti Gupta

**References**

To know when to use simple consumer and when to use High-level Consumer, refer the url below:

<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

To know how to use a high level consumer refer this: <https://cwiki.apache.org/confluence/display/KAFKA/Consumer+Group+Example>

**Examples**

```
## Not run:
consumer1=rkafka.createConsumer("127.0.0.1:2181","test123")
print(rkafka.read(consumer1)

## End(Not run)
```

---

```
rkafka.readFromSimpleConsumer
```

*KAFKA Simple Consumer Reading*

---

**Description**

This function returns one message at a time which are read by a KAFKA Simple Consumer

**Usage**

```
rkafka.readFromSimpleConsumer(SimpleConsumerObj)
```

**Arguments**

SimpleConsumerObj

Consumer through which messages were received Required:Mandatory Type:Consumer

**Details**

There are two types of KAFKA consumers: High-Level and Simple. This function receives messages using the Simple Consumer. Use caution on deciding to use the Simple Consumer as it doesn't persist offset. The function `rkafka.receiveFromSimpleConsumer` needs to be executed before running this function

**Value**

String

**Note**

Warning: The function `rkafka.receiveFromSimpleConsumer` needs to be executed before running this function

**Author(s)**

Shruti Gupta

**References**

To know when to use simple consumer and when to use High-level Consumer, refer the url below:  
<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

**Examples**

```
## Not run:
consumer1=rkafka.createSimpleConsumer("172.25.1.78","9092","10000","100000","test")
rkafka.receiveFromSimpleConsumer(consumer1,"test","0","0","test-group")
print(rkafka.readFromSimpleConsumer(consumer1))

## End(Not run)
```

---

<code>rkafka.readPoll</code>	<i>KAFKA consumer reading messages(batch)</i>
------------------------------	---

---

**Description**

This function reads messages received by a KAFKA consumer. It returns a batch of messages

**Usage**

```
rkafka.readPoll(ConsumerObj)
```

**Arguments**

ConsumerObj    Consumer through which messages are to be read Required:Mandatory Type:Consumer

**Details**

This function returns messages as a batch from the topic to which the consumer is associated. If no new message is found with 'x' time(set by ConsumerTimeoutMs property), then it returns ""

**Value**

Array of Strings

**Note**

Warning: Ensure to close the consumer after reading messages. Won't work correctly next time otherwise

**Author(s)**

Shruti Gupta

**References**

To know when to use simple consumer and when to use High-level Consumer, refer the url below:

<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

To know how to use a high level consumer refer this: <https://cwiki.apache.org/confluence/display/KAFKA/Consumer+Group+Example>

**Examples**

```
## Not run:

consumer1=rkafka.createConsumer("127.0.0.1:2181","test123")
print(rkafka.readPoll(consumer1))

## End(Not run)
```

---

```
rkafka.receiveFromSimpleConsumer
```

*KAKFA Simple Consumer receiving messages*

---

**Description**

This function allows the KAKFA Simple Consumer to receive messages from a particular topic. However, this doesn't display the messages. To read the messages, use the rkafka.readFromSimpleConsumer function.

**Usage**

```
rkafka.receiveFromSimpleConsumer(SimpleConsumerObj,
topicName, partition, Offset, msgReadSize)
```

## Arguments

SimpleConsumerObj	Simple Consumer object through which messages are to be read Required:Mandatory Type:SimpleConsumer
topicName	Name of the topic from where to read messages Required:Mandatory Type:String
partition	Partition Number Required:Mandatory Type:String
Offset	Offset Number Required:Mandatory Type:String
msgReadSize	Size of the message to be read Required:Mandatory Type:String

## Details

There are two types of KAFKA consumers:High-Level and Simple. This function receives messages using the Simple Consumer. Use caution on deciding to use the Simple Consumer as it doesn't persist offset.This function needs to be run before executing the rkafka.readFromSimpleConsumer function

## Value

Nothing

## Note

Warning: Ensure to close the consumer after reading messages. Won't work correctly next time otherwise

## Author(s)

Shruti Gupta

## References

To know when to use simple consumer and when to use High-level Consumer, refer the url below:  
<https://cwiki.apache.org/confluence/display/KAFKA/0.8.0+SimpleConsumer+Example>

## Examples

```
## Not run:
consumer1=rkafka.createSimpleConsumer("172.25.1.78","9092","10000","100000","test")
rkafka.receiveFromSimpleConsumer(consumer1,"test","0","0","test-group")

## End(Not run)
```

---

`rkafka.send`*KAFKA producer sending message*

---

**Description**

This function sends message to a particular name through a producer

**Usage**

```
rkafka.send(producer, topicName, ip, message)
```

**Arguments**

<code>producer</code>	Producer through which messages are to be sent Required:Mandatory Type:String
<code>topicName</code>	Topic to which messages are to be sent. If topicName doesn't exist, new topic is created Required:Mandatory Type:String
<code>ip</code>	ip on which producer is running Required:Mandatory Type:String
<code>message</code>	message to be sent Required:Mandatory Type:String

**Value**

Doesn't return a value

**Author(s)**

Shruti Gupta

**Examples**

```
## Not run:  
producer1=rkafka.createProducer("127.0.0.1:9092")  
rkafka.send(producer1,"test","127.0.0.1:9092","Testing")  
  
## End(Not run)
```

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