

Dr. SOHAIL IMRAN



# Introduction

# Download & Extract



[https://downloads.apache.org/kafka/4.1.1/kafka\\_2.13-4.1.1.tgz](https://downloads.apache.org/kafka/4.1.1/kafka_2.13-4.1.1.tgz)

RELEASE_NOTES.html	2025-11-12 20:52	3.7K
RELEASE_NOTES.html.asc	2025-11-12 20:52	833
RELEASE_NOTES.html.md5	2025-11-12 20:52	69
RELEASE_NOTES.html.sha1	2025-11-12 20:52	71
RELEASE_NOTES.html.sha512	2025-11-12 20:52	204
kafka-4.1.1-src.tgz	2025-11-12 20:52	13M
kafka-4.1.1-src.tgz.asc	2025-11-12 20:52	833
kafka-4.1.1-src.tgz.md5	2025-11-12 20:52	70
kafka-4.1.1-src.tgz.sha1	2025-11-12 20:52	72
kafka-4.1.1-src.tgz.sha512	2025-11-12 20:52	207
kafka_2.13-4.1.1-site-docs.tgz	2025-11-12 20:52	3.6M
kafka_2.13-4.1.1-site-docs.tgz.asc	2025-11-12 20:52	833
kafka_2.13-4.1.1-site-docs.tgz.md5	2025-11-12 20:52	81
kafka_2.13-4.1.1-site-docs.tgz.sha1	2025-11-12 20:52	115
kafka_2.13-4.1.1-site-docs.tgz.sha512	2025-11-12 20:52	272
kafka_2.13-4.1.1.tgz	2025-11-12 20:52	127M

## Recent download history



kafka\_2.13-4.1.1.tgz

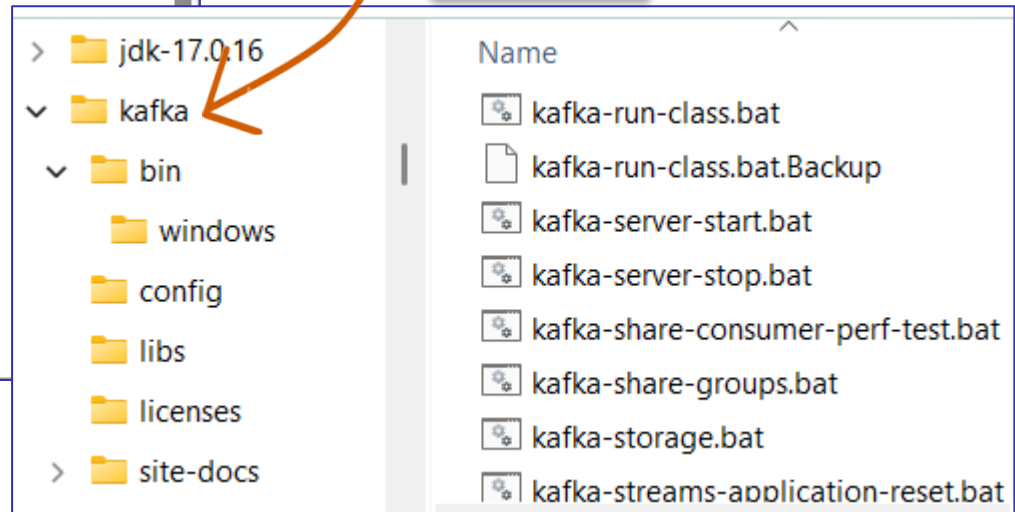
↓ 5.0/127 MB • 4 minutes left

Extract

> jdk-17.0.16

> kafka\_2.13-4.1.1

Rename



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# Environment Variables



The screenshot shows the 'Environment Variables' dialog box with the 'System variables' tab selected. The 'Path' variable is highlighted in the list. The 'Edit...' button is clicked, opening the 'Edit environment variable' dialog. In this dialog, the 'New' button is clicked, opening a file explorer. The file explorer shows the directory structure: jdk-17.0.16 > kafka > bin. The path 'D:\kafka\bin\windows' is selected in the file explorer. An arrow points from the 'New' button in the 'Edit environment variable' dialog to the 'New' button in the file explorer. Another arrow points from the 'bin' folder in the file explorer to the 'D:\kafka\bin\windows' path in the 'Edit environment variable' dialog.

Environment Variables

System variables

Variable	Value
ComSpec	C:\WINDOWS\system32\cmd.exe
DriverData	C:\Windows\System32\Drivers\DriverData
HADOOP_HOME	D:\hadoop-3.3.6
JAVA_HOME	D:\jdk-17.0.16
NUMBER_OF_PROCESSORS	8
OS	Windows_NT
Path	F:\Program Files (x86)\VMware\VMware Workstation\bin\;C:\...

Edit environment variable

F:\Program Files (x86)\VMware\VMware Workstation\bin\

New

Edit

Browse...

Delete

Move Up

Move Down

Edit text...

OK

Cancel

D:\hadoop-3.3.6\bin

D:\spark-4.0.1-bin-hadoop3\bin

C:\Program Files\Docker\Docker\resources\bin

D:\apache-drill-1.22.0\bin

D:\kafka\bin\windows

jdk-17.0.16

kafka

bin

windows

config

libs

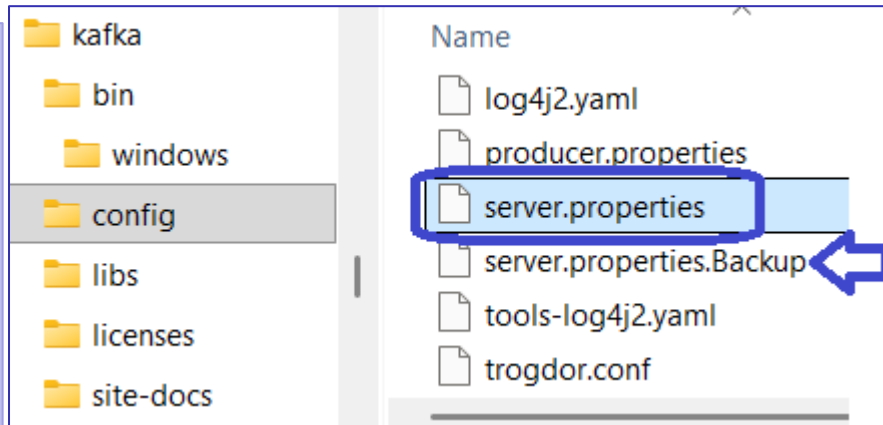
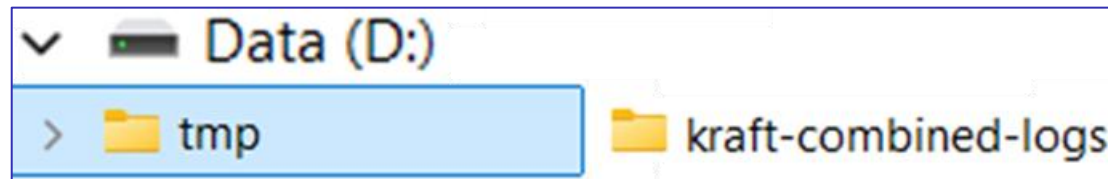
licenses

site-docs



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# Edit server.properties



```
##### Log Basics #####  
  
# A comma separated list of directories under which to store log files  
log.dirs=/tmp/kraft-combined-logs
```

Edit

```
log.dirs=D:/tmp/kraft-combined-logs
```

Add

```
controller.quorum.voters=1@localhost:9093
```



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# Format



[guid]::NewGuid()

cf291ac2-5618-41b1-986a-c4ab2e51766c

```
Windows PowerShell
PS C:\Users\DELL> [guid]::NewGuid()

Guid
----
cf291ac2-5618-41b1-986a-c4ab2e51766c
```

kafka-storage.bat format -t cf291ac2-5618-41b1-986a-c4ab2e51766c -c  
D:/kafka/config/server.properties

```
PS C:\Users\DELL> kafka-storage.bat format -t cf291ac2-5618-41b1-986a-c4ab2e51766c -c D:/kafka/config/server.properties
2025-11-23T16:21:39.024073700Z main ERROR Reconfiguration failed: No configuration found for '266474c2' at 'null' in 'null'
```

a2ecb450-bece-4223-bd34-d8b9867f4ce7



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# Start



## Terminal 1

**kafka-server-start.bat D:/kafka/config/server.properties**

```
PS C:\Users\DELL> kafka-server-start.bat D:/kafka/config/server.properties
[2025-11-23 21:31:15,385] INFO Registered 'kafka:type=kafka.Log4jController' MBean (kafka.utils.Log4jControllerRegistration$)
[2025-11-23 21:31:16,040] INFO [ControllerServer id=1] Starting controller (kafka.server.ControllerServer)
```

```
[2025-11-23 22:31:18,052] INFO [SnapshotEmitter id=1] Successfully wrote snapshot
0000000000000000007144-0000000001 (org.apache.kafka.image.publisher.SnapshotEmitter)
```

## Terminal 2

**kafka-topics.bat --create --topic test-topic --bootstrap-server localhost:9092 --partitions 1 --replication-factor 1**

```
PS C:\Users\DELL> kafka-topics.bat --create --topic test-topic --bootstrap-server localhost:9092 --partitions 1 --replication-factor 1
2025-11-23T16:32:24.368347600Z main ERROR Reconfiguration failed: No configuration found for '266474c2' at 'null' in 'null'
Created topic test-topic.
```

**kafka-topics.bat --bootstrap-server localhost:9092 --list**

```
PS C:\Users\DELL> kafka-topics.bat --bootstrap-server localhost:9092 --list
2025-11-23T18:06:17.916372Z main ERROR Reconfiguration failed: No configurat
ion found for '266474c2' at 'null' in 'null'
__consumer_offsets
test-topic
```



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# Producer & Consumer



## Terminal 1: For Write

**kafka-console-producer.bat --topic test-topic --bootstrap-server localhost:9092**

```
PS C:\Users\DELL> kafka-console-producer.bat --topic test-topic --bootstrap-server localhost:9092
2025-11-23T16:33:34.608232900Z main ERROR Reconfiguration failed: No configuration found for '266474c2' at 'null' in 'null'
>Hello
>How are you
```

## Terminal 2: For Read

**kafka-console-consumer.bat --topic test-topic --bootstrap-server localhost:9092 --from-beginning**

```
PS C:\Users\DELL> kafka-console-consumer.bat --topic test-topic --bootstrap-server localhost:9092 --from-beginning
2025-11-23T16:33:55.975183100Z main ERROR Reconfiguration failed: No configuration found for '266474c2' at 'null' in 'null'
Hello
How are you
```



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```
[1]: pip install kafka-python
```

Collecting kafka-python  
Note: you may need to restart the kernel to use updated packages.

Downloading kafka\_python-2.3.0-py2.py3-none-any.whl.metadata (10.0 kB)  
Downloading kafka\_python-2.3.0-py2.py3-none-any.whl (326 kB)  
Installing collected packages: kafka-python  
Successfully installed kafka-python-2.3.0



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# KafaProducer & KafaConsumer



```
[1]: from kafka import KafkaProducer
import json

[2]: producer = KafkaProducer(bootstrap_servers='localhost:9092',
                             value_serializer=lambda v: json.dumps(v).encode('ascii'))

[3]: producer.send('test-topic',
                  value = {
                      "name": "AaBa",
                      "hotel": "Luxury Hotel",
                      "dateFrom": "25-02-2022",
                      "dateTo": "27-02-2022",
                      "details": "Required the Best Room 😊😊😊😊😊!!!!"
                  })
producer.flush()
```

```
[1]: from kafka import KafkaConsumer
import json

[3]: def safe_json_deserializer(v):
    if v is None:
        return None
    s = v.decode('utf-8').strip()
    if not s:      # empty message
        return None
    try:
        return json.loads(s)
    except json.JSONDecodeError:
        print("Received NON-JSON message:", s)
        return None

[4]: consumer = KafkaConsumer(
    'test-topic',
    bootstrap_servers='localhost:9092',
    value_deserializer=safe_json_deserializer,
    auto_offset_reset='earliest'
)
```



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# message



```
[*]: consumer.subscribe(topics=['test-topic'])

for message in consumer:
    print("%d:%d: v=%s" % (message.partition,
                           message.offset,
                           message.value))
```

Received NON-JSON message: Hello

Received NON-JSON message: How are you

0:0: v=None

0:1: v=None

0:2: v={'name': 'AaBa', 'hotel': 'Luxury Hotel', 'dateFrom': '25-02-2022', 'dateTo': '27-02-2022', 'details': 'Required the Best Room 😊😊😊😊😊!!!!'}

0:3: v={'name': 'CaDa', 'hotel': 'Average Hotel', 'dateFrom': '26-02-2022', 'dateTo': '28-02-2022', 'details': 'Highway side Room 🚗🚗🚗🚗'}



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