



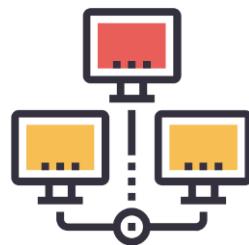
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Computer
SCIENCE

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Ref: Web



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Introduction

Download & Extract



https://downloads.apache.org/kafka/4.1.1/kafka_2.13-4.1.1.tgz

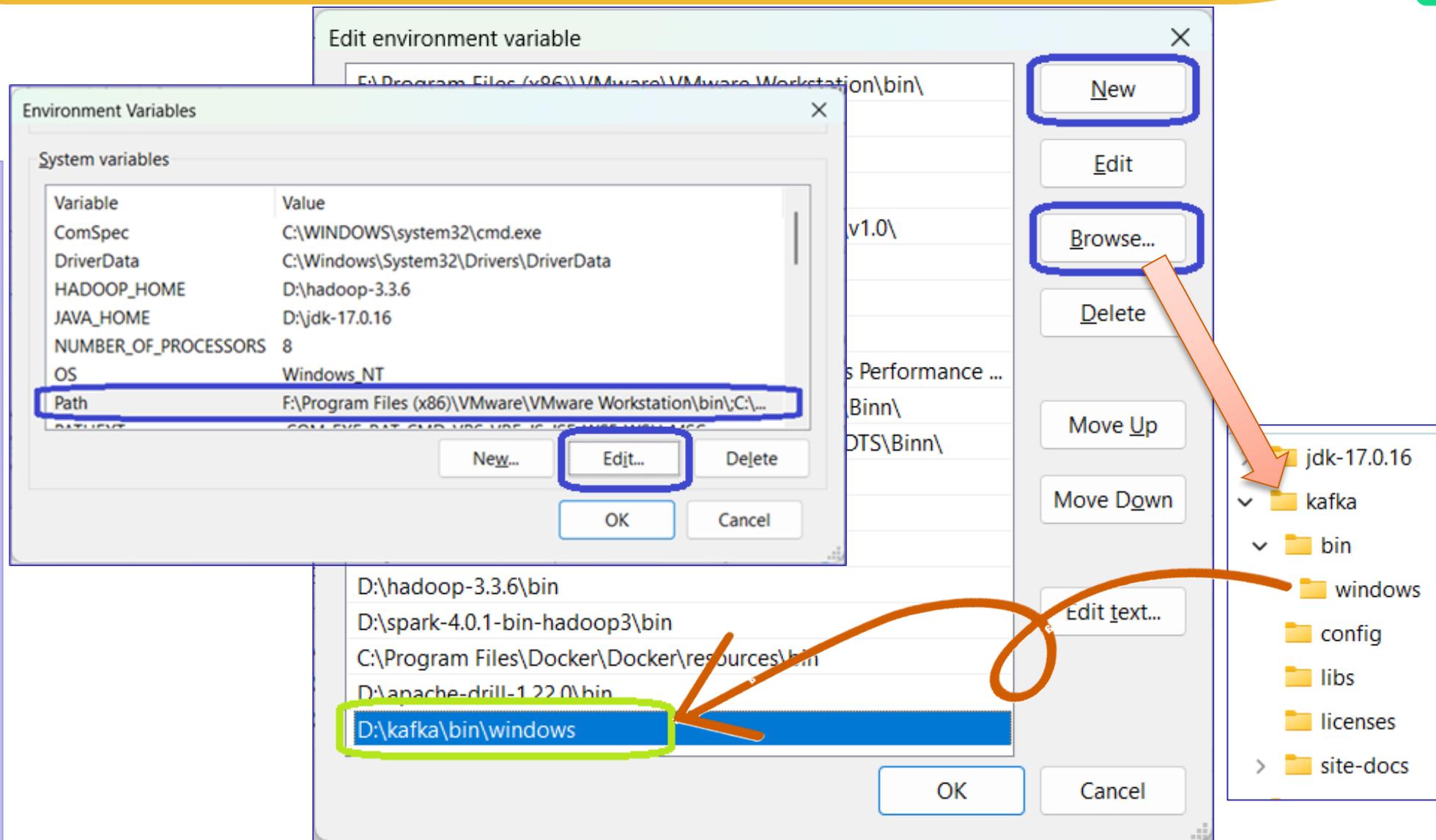
The diagram illustrates the Kafka download and extraction process across three windows:

- Left Window:** A file browser showing the Apache Kafka 4.1.1 release page at <https://downloads.apache.org/kafka/4.1.1/>. It lists various files including `RELEASE_NOTES.html`, `kafka-4.1.1-src.tgz`, and the target file `kafka_2.13-4.1.1.tgz`.
- Middle Window:** A file extraction interface showing the contents of the downloaded `kafka_2.13-4.1.1.tgz` archive. It contains two main folders: `jdk-17.0.16` and `kafka_2.13-4.1.1`. The `kafka_2.13-4.1.1` folder is highlighted.
- Right Window:** A file browser showing the extracted Kafka directory structure. It includes sub-folders like `bin`, `windows`, `config`, `libs`, `licenses`, and `site-docs`. A blue box highlights the `bin` folder. A red arrow points from the `kafka_2.13-4.1.1` folder in the middle window to the `bin` folder in the right window.

Annotations:

- A blue button labeled **Extract** is located in the top right of the middle window.
- A red button labeled **Rename** is located in the middle window.
- A circular icon in the bottom right corner indicates "real time".

Environment Variables



real time

Edit server.properties



File Explorer showing the directory structure:

- Data (D:)
- tmp
- kraft-combined-logs

Left pane (File Explorer):

- kafka
- bin
- windows
- config** (selected)
- libs
- licenses
- site-docs

Right pane (File List):

Name
log4j2.yaml
producer.properties
server.properties (highlighted with a blue box and a blue arrow pointing to it)
server.properties.Backup
tools-log4j2.yaml
trgdor.conf

Code Editor (Log Basics section):

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

Blue arrow labeled "Edit" points to the code line `log.dirs=/tmp/kraft-combined-logs`.

Orange arrow labeled "Add" points to the new configuration line:

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



real time

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



real time

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
00000000000000007144-0000000001 (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 configuration found for '266474c2' at 'null' in 'null'
--consumer_offsets
test-topic
```



real time

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
2025-11-23T16:33:34.608Z 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
2025-11-23T16:33:55.975Z main ERROR Reconfiguration failed: No configuration found for '266474c2' at 'null' in 'null'
Hello
How are you
```



real time



kafka-python

```
[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
```



real time

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'  
)
```



real time

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 🚗🚗🚗🚗'}
```



real time