



Assuming Oracle database RAC environment is installed in a VM or on any on-premise. A list of sample hr tables has been created in the database for this simulation.

<https://github.com/oracle-samples/db-sample-schemas/releases/tag/v23.1>

Img	Table
	COUNTRIES
	DEPARTMENTS
	EMPLOYEES
	JOB_HISTORY
	JOBS
	LOCATIONS
	REGIONS

<https://debezium.io/documentation/reference/1.9/connectors/oracle.html>

#### **Node 1**

ORACLE\_SID=oltp1

ORACLE\_BASE=/u01/app/oracle

ORACLE\_HOME=\$ORACLE\_BASE/product/19.0.0/db\_1

PATH=\$PATH:\$HOME/.local/bin:\$HOME/bin:\$ORACLE\_HOME/bin:\$ORACLE\_HOME/OPatch

#### **Node 2**

ORACLE\_SID=oltp2

ORACLE\_BASE=/u01/app/oracle

ORACLE\_HOME=\$ORACLE\_BASE/product/19.0.0/db\_1

PATH=\$PATH:\$HOME/.local/bin:\$HOME/bin:\$ORACLE\_HOME/bin:\$ORACLE\_HOME/OPatch

### prerequisites settings for Oracle database

- Creating the connector's LogMiner user

#### Create tablespace.

```
CREATE TABLESPACE LOGMINER_TBS DATAFILE
'+DATA' SIZE 25M AUTOEXTEND ON NEXT 25M MAXSIZE UNLIMITED
LOGGING
ONLINE
EXTENT MANAGEMENT LOCAL AUTOALLOCATE
BLOCKSIZE 8K
SEGMENT SPACE MANAGEMENT AUTO
FLASHBACK ON;
```

#### Create user.

```
CREATE USER DBZUSER
IDENTIFIED BY <password>
DEFAULT TABLESPACE LOGMINER_TBS
TEMPORARY TABLESPACE TEMP
PROFILE DEFAULT
ACCOUNT UNLOCK;
-- 2 Roles for DBZUSER
GRANT EXECUTE_CATALOG_ROLE TO DBZUSER;
GRANT SELECT_CATALOG_ROLE TO DBZUSER;
ALTER USER DBZUSER DEFAULT ROLE ALL;
-- 9 System Privileges for DBZUSER
GRANT CREATE SEQUENCE TO DBZUSER;
GRANT CREATE SESSION TO DBZUSER;
GRANT CREATE TABLE TO DBZUSER;
GRANT FLASHBACK ANY TABLE TO DBZUSER;
GRANT LOCK ANY TABLE TO DBZUSER;
GRANT LOGMINING TO DBZUSER;
GRANT SELECT ANY TABLE TO DBZUSER;
GRANT SELECT ANY TRANSACTION TO DBZUSER;
GRANT SET CONTAINER TO DBZUSER;
-- 1 Tablespace Quota for DBZUSER
ALTER USER DBZUSER QUOTA UNLIMITED ON LOGMINER_TBS;
-- 12 Object Privileges for DBZUSER
GRANT EXECUTE ON SYS.DBMS_LOGMNR TO DBZUSER;
GRANT EXECUTE ON SYS.DBMS_LOGMNR_D TO DBZUSER;
GRANT SELECT ON SYS.V_$ARCHIVED_LOG TO DBZUSER;
GRANT SELECT ON SYS.V_$ARCHIVE_DEST_STATUS TO DBZUSER;
GRANT SELECT ON SYS.V_$DATABASE TO DBZUSER;
GRANT SELECT ON SYS.V_$LOG TO DBZUSER;
GRANT SELECT ON SYS.V_$LOGFILE TO DBZUSER;
GRANT SELECT ON SYS.V_$LOGMNR_CONTENTS TO DBZUSER;
GRANT SELECT ON SYS.V_$LOGMNR_LOGS TO DBZUSER;
GRANT SELECT ON SYS.V_$LOGMNR_PARAMETERS TO DBZUSER;
GRANT SELECT ON SYS.V_$LOG_HISTORY TO DBZUSER;
```

```
GRANT SELECT ON SYS.V_$TRANSACTION TO DBZUSER;  
Make sure database is in archivelog mode
```

Connected to:  
Oracle Database 19c Enterprise Edition Release 19.0.0.0.0 - Production  
Version 19.19.0.0.0

```
SQL> archive log list  
Database log mode          Archive Mode  
Automatic archival         Enabled  
Archive destination        USE_DB_RECOVERY_FILE_DEST  
Oldest online log sequence 681  
Next log sequence to archive 682  
Current log sequence       682
```

```
SQL> show parameter db_reco
```

NAME	TYPE	VALUE
db_recovery_file_dest	string	+DATA
db_recovery_file_dest_size	big integer	10G

```
SQL>
```

Minimal supplemental logging must be enabled at the database level and can be configured as follows. Please refer to the below link.

```
ALTER DATABASE ADD SUPPLEMENTAL LOG DATA;
```

<https://debezium.io/documentation/reference/1.9/connectors/oracle.html>

To enable Debezium to capture the before state of changed database rows, you must also enable supplemental logging for captured tables or for the entire database. The following example illustrates how to configure supplemental logging for all columns in a single table.

```
ALTER TABLE HR.REGIONS ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;  
ALTER TABLE HR.COUNTRIES ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;  
ALTER TABLE HR.LOCATIONS ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;  
ALTER TABLE HR.DEPARTMENTS ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;  
ALTER TABLE HR.JOBS ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;  
ALTER TABLE HR.EMPLOYEES ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;  
ALTER TABLE HR.JOB_HISTORY ADD SUPPLEMENTAL LOG DATA (ALL) COLUMNS;
```

Let's download kafka and configure.

kafka.apache.org/downloads



GET STARTED

DOCS

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## DOWNLOAD

3.5.0 is the latest release. The current stable version is 3.5.0

You can verify your download by following these [procedures](#) and using these [KEYS](#).

### 3.5.0

- Released Jun 15, 2023
- [Release Notes](#)
- Source download: [kafka-3.5.0-src.tgz](#) ([asc](#), [sha512](#))
- Binary downloads:
  - Scala 2.12 - [kafka\\_2.12-3.5.0.tgz](#) ([asc](#), [sha512](#))
  - Scala 2.13 - [kafka\\_2.13-3.5.0.tgz](#) ([asc](#), [sha512](#))

[https://downloads.apache.org/kafka/3.5.0/kafka\\_2.13-3.5.0.tgz](https://downloads.apache.org/kafka/3.5.0/kafka_2.13-3.5.0.tgz)

kafka\_home\_directory:/home/kafka/kafka\_2.13-3.3.2

kafka Server specs. RAM 2G and CPU 2

```
[kafka@localhost ~]$ cat /etc/redhat-release
Red Hat Enterprise Linux release 9.1 (Plow)
[kafka@localhost ~]$
```

and scp to kafka server then unzip

```
[kafka@localhost ~]$ pwd
/home/kafka
[kafka@localhost ~]$ ls -ltr kafka_2.13-3.3.2.tgz
-rw-rw-r--. 1 kafka kafka 106619987 Jan 31 20:53 kafka_2.13-3.3.2.tgz
[kafka@localhost ~]$
```

```
[kafka@localhost kafka_2.13-3.3.2]$ pwd
/home/kafka/kafka_2.13-3.3.2
```

## Procedure

1. Download the Debezium [Oracle connector plug-in archive](#).
2. Extract the files into your Kafka Connect environment.  
**scp debezium-connector-oracle-1.9.7.Final-plugin to kafka\_home\_location:/home/kafka/kafka\_2.13-3.3.2 then untar**
3. Download the [JDBC driver for Oracle](#) from Maven Central and extract the downloaded driver file to the directory that contains the Debezium Oracle connector JAR file.  
**Copy the ojdbc8.jar to /home/kafka/kafka\_2.13-3.3.2/libs**
4. Add the directory with the JAR files to [Kafka Connect's](#) plugin.path.  
**[kafka@localhost config]\$ vi connect-distributed.properties**  
**[kafka@localhost config]\$ vi connect-standalone.properties**  
**And change the below parameter path value to plugin.path=/home/kafka/kafka\_2.13-3.3.2**
5. Restart your Kafka Connect process to pick up the new JAR files.

## Start zookeeper

[kafka@localhost kafka\_2.13-3.3.2]\$ bin/zookeeper-server-start.sh config/zookeeper.properties

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/zookeeper-server-start.sh config/zookeeper.properties
(2023-06-30 10:32:57,723) INFO Reading configuration from: config/zookeeper.properties (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,726) WARN config/zookeeper.properties is relative. Prepend ./ to indicate that you're sure! (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,765) INFO clientPortAddress is 0.0.0.0:2181 (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,765) INFO secureClientPort is not set (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,766) INFO observerMasterPort is not set (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,766) INFO metricsProvider.className is org.apache.zookeeper.metrics.impl.DefaultMetricsProvider (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,794) INFO autopurge.snapRetainCount set to 3 (org.apache.zookeeper.server.DataDirCleanupManager)
(2023-06-30 10:32:57,795) INFO autopurge.purgeInterval set to 0 (org.apache.zookeeper.server.DataDirCleanupManager)
(2023-06-30 10:32:57,795) INFO Purge task is not scheduled. (org.apache.zookeeper.server.DataDirCleanupManager)
(2023-06-30 10:32:57,796) WARN Either no config or no quorum defined in config, running in standalone mode (org.apache.zookeeper.server.quorum.QuorumPeerMain)
(2023-06-30 10:32:57,803) INFO Log4j 1.2 jmx support not found; jmx disabled. (org.apache.zookeeper.jmx.ManagedUtil)
(2023-06-30 10:32:57,806) INFO Reading configuration from: config/zookeeper.properties (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,807) WARN config/zookeeper.properties is relative. Prepend ./ to indicate that you're sure! (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,808) INFO clientPortAddress is 0.0.0.0:2181 (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,809) INFO secureClientPort is not set (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,809) INFO observerMasterPort is not set (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,809) INFO metricsProvider.className is org.apache.zookeeper.metrics.impl.DefaultMetricsProvider (org.apache.zookeeper.server.quorum.QuorumPeerConfig)
(2023-06-30 10:32:57,810) INFO Starting server (org.apache.zookeeper.server.ZooKeeperServerMain)
(2023-06-30 10:32:57,863) INFO ServerMetrics initialized with provider org.apache.zookeeper.metrics.impl.DefaultMetricsProvider@6b419da (org.apache.zookeeper.server.ServerMetrics)
(2023-06-30 10:32:57,877) INFO zookeeper.snapshot.trust.empty : false (org.apache.zookeeper.server.persistence.FileTxnSnapLog)
(2023-06-30 10:32:57,918) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,919) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,919) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,919) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,919) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,920) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,920) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,920) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,921) INFO (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,925) INFO Server environment:zookeeper.version=3.6.3--6401e4ad2087061bc6b9f80dec2d69f2e3c8660a, built on 04/08/2021 16:35 GMT (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,925) INFO Server environment:host.name=localhost (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,925) INFO Server environment:java.version=11.0.16.1 (org.apache.zookeeper.server.ZooKeeperServer)
(2023-06-30 10:32:57,925) INFO Server environment:java.vendor=Red Hat, Inc. (org.apache.zookeeper.server.ZooKeeperServer)
```

## Start kafka connect process

[kafka@localhost kafka\_2.13-3.3.2]\$ bin/kafka-server-start.sh config/server.properties

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-server-start.sh config/server.properties
[2023-06-30 10:33:36,371] INFO Registered kafka:type=kafka.Log4jController MBean (kafka.utils.Log4jControllerRegistration$)
[2023-06-30 10:33:41,542] INFO Setting -Djdk.tls.rejectClientInitiatedRenegotiation=true to disable client-initiated TLS renegotiation (org.apache.zookeeper.common.X509Util)
[2023-06-30 10:33:42,680] INFO Registered signal handlers for TERM, INT, HUP (org.apache.kafka.common.utils.LoggingSignalHandler)
[2023-06-30 10:33:42,686] INFO starting (kafka.server.KafkaServer)
[2023-06-30 10:33:42,688] INFO Connecting to zookeeper on localhost:2181 (kafka.server.KafkaServer)
[2023-06-30 10:33:42,837] INFO [ZooKeeperClient Kafka server] Initializing a new session to localhost:2181. (kafka.zookeeper.ZooKeeperClient)
[2023-06-30 10:33:42,855] INFO Client environment:zookeeper.version=3.6.3--6401e4ad2087061bc6b9f80dec2d69f2e3c8660a, built on 04/08/2021 16:35 GMT (org.apache.zookeeper.ZooKeeper)
[2023-06-30 10:33:42,856] INFO Client environment:host.name=localhost (org.apache.zookeeper.ZooKeeper)
[2023-06-30 10:33:42,856] INFO Client environment:java.version=11.0.16.1 (org.apache.zookeeper.ZooKeeper)
[2023-06-30 10:33:42,857] INFO Client environment:java.vendor=Red Hat, Inc. (org.apache.zookeeper.ZooKeeper)
[2023-06-30 10:33:42,857] INFO Client environment:java.home=/usr/lib/jvm/java-11-openjdk-11.0.16.1-3.el9.x86_64 (org.apache.zookeeper.ZooKeeper)
[2023-06-30 10:33:42,857] INFO Client environment:java.class.path=/home/kafka/kafka_2.13-3.3.2/bin/../libs/activation-1.1.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/aopalliance-repackaged-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/argparse4j-0.7.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/audience-annotations-0.5.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/commons-cli-1.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/commons-lang3-3.12.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/commons-lang3-3.11.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-api-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-basic-auth-extension-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-jmx-jmx-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-mirror-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-mirror-client-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-runtime-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/connect-transforms-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/hk2-api-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/hk2-locator-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/hk2-utils-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-annotations-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-core-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-databind-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-dataformat-csv-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-dataformat-xml-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-jaxrs-base-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-jaxrs-jaxrs-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-module-jaxb-annotations-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jackson-module-scala-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jakarta.activation-api-1.2.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jakarta.annotation-api-1.3.5.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jakarta.inject-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jakarta.validation-api-2.0.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jakarta.ws.rs-api-2.1.6.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/jakarta.xml.bind-api-2.3.3.jar:/home/kafka/kafka_2.13-3.3.2/bin/../libs/java
```

## Create a Oracle connector as debezium debezium-oracle-connector.properties in /home/kafka/kafka\_2.13-3.3.2/config

Add in all the relevant parameters based on your requirement. Please go through the link below  
<https://debezium.io/documentation/reference/1.9/connectors/oracle.html>

```
[kafka@localhost config]$ more debezium-oracle-connector.properties
connector.class: io.debezium.connector.oracle.OracleConnector
db_type: oracle
rac.nodes: 192.168.109.211:1521,192.168.109.212:1521
topic.creation.default.partitions: 4
database.history.producer.min.insync.replicas: 2
task.max: 1
database.history.kafka.topic: preoracles
schema.include.list: HR,SOE
log.mining.strategy: redo_log_catalog
database.history.kafka.recovery.attempts: 4
decimal.handling.mode: double
topic.creation.default.replication.factor: 1
database.history.skip.unparseable.ddl: true
database.history.store.only.captured.tables.ddl: true
database.out.server.name: dbzxout
database.oracle.version: 12+
log.mining.scn.gap.detection.gap.size.min: 1000
database.user: dbzuser
database.dbname: oltp
topic.creation.default.cleanup.policy: delete
database.history.kafka.bootstrap.servers: 192.168.109.137:9092
database.url: jdbc:oracle:thin:@
(DESCRIPTION=(ENABLE=BROKEN)(ADDRESS_LIST=(LOAD_BALANCE=OFF)(FAILOVER=ON)(ADDRESS=(
PROTOCOL=TCP)(HOST=oltp-scan.localdomain)(PORT=1521
```

```
)))((CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=oltp.localdomain)))
database.server.name: preoracle
event.processing.failure.handling.mode: warn
heartbeat.interval.ms: 3000
topic.creation.default.retention.ms: 86400000
database.port: 1521
error.log.enable: true
database.tablename.case.sensitive: false
log.mining.session.max.ms:1800000
database.password: dbz
name: oracle-prelive-connector
table.include.list:
HR.EMPLOYEES,HR.T1,HR.REGIONS,HR.COUNTRIES,HR.LOCATIONS,HR.DEPARTMENTS,HR.JOBS,HR.JO
B_HISTORY,SOE.ADDRESSES,SOE.CARD_DETAILS,SOE.CUSTOMERS,SOE.INVE
NTORIES,SOE.LOGON,SOE.ORDER_ITEMS,SOE.ORDERENTRY_METADATA,SOE.ORDERS,SOE.PRODUCT
_DESCRIPTIONS,SOE.PRODUCT_INFORMATION,SOE.WAREHOUSES
log.mining.scn.gap.detection.time.interval.max.ms: 20000
snapshot.mode: schema_only
log.mining.transaction.retention.hours:2
signal.data.collection:oltp:HR.EMPLOYEES
incremental.snapshot.chunk.size:1024
[kafka@localhost config]$
```

## Start debezium with kafka connect

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/connect-standalone.sh config/connect-
standalone.properties config/debezium-oracle-connector.properties
```

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/connect-standalone.sh config/connect-standalone.properties config/debezium-oracle-connector.properties
[2023-06-30 10:34:23,506] INFO Kafka Connect standalone worker initializing ... (org.apache.kafka.connect.cli.ConnectStandalone:68)
[2023-06-30 10:34:23,545] INFO WorkerInfo values:
    jvm.args = -Xms256M, -Xmx2G, -XX:+UseG1GC, -XX:MaxGCPauseMillis=20, -XX:InitiatingHeapOccupancyPercent=35, -XX:+ExplicitGCInvokesConcurrent, -XX:MaxInlineLevel=15, -Djava.awt.headless=true, -Dcom.sun.management.jmxremote, -Dcom.sun.management.jmxremote.authenticate=false, -Dcom.sun.management.jmxremote.ssl=false, -Dkafka.log.s.dir=/home/kafka/kafka_2.13-3.3.2/bin/./logs, -Dlog4j.configuration=file:bin/./config/connect-log4j.properties
    jvm.spec = Red Hat, Inc., OpenJDK 64-Bit Server VM, 11.0.16.1, 11.0.16.1+1-ITS
    jvm.classpath = /home/kafka/kafka_2.13-3.3.2/bin/./libs/activation-1.1.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/aopalliance-repackaged-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/args4j-0.7.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/audience-annotations-0.5.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/commons-cli-1.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/commons-lang3-3.12.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/commons-lang3-3.8.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-api-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-basic-auth-extension-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-json-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-mirror-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-mirror-client-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-runtime-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/connect-transforms-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/hk2-api-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/hk2-locator-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/hk2-utils-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-annotations-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-core-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-n-databind-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-dataformat-csv-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-datatype-jdk8-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-jaxrs-base-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-jaxrs-json-provider-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-module-jaxb-annotations-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jackson-module-scala-2.13-2.13.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jakarta.activation-api-1.2.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jakarta.annotation-api-1.3.5.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jakarta.inject-2.6.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jakarta.validation-api-2.0.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jakarta.ws.rs-api-2.1.6.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jakarta.xml.bind-api-2.3.3.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jaxb-api-2.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/javax.servlet-api-3.1.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/javax.ws.rs-api-2.1.1.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jaxb-api-2.3.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jersey-client-2.34.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jersey-common-2.34.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jersey-container-servlet-2.34.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jersey-container-servlet-core-2.34.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jersey-hk2-2.34.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jersey-server-2.34.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-client-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-continuation-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-http-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-io-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-security-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-server-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-servlet-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-servlets-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-util-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jetty-util-ajax-9.4.48.v20220622.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jline-3.21.0.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jopt-simple-5.0.4.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/jos40-0.9.9.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-2.13-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-clients-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-log4j-appender-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-metadata-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-rafft-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-server-common-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-shell-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-storage-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-streams-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-streams-examples-3.3.2.jar:/home/kafka/kafka_2.13-3.3.2/bin/./libs/kafka-streams-scala_2.13-3.3.2.jar:/home/kafka
```

### Insert a record in the tables.

```
INSERT INTO hr.locations (location_id, street_address, postal_code, city, state_province, country_id)
VALUES(4100 , 'No 203, Block G7 Wangsa Maju', '53300', 'Malaysia', NULL, 'ML');
```

```
INSERT INTO hr.locations (location_id, street_address, postal_code, city, state_province, country_id)
VALUES(4200 , 'No 505, Block G7 Wangsa Maju', '53300', 'Malaysia', NULL, 'IT');
```

```
SQL> INSERT INTO hr.locations (location_id, street_address, postal_code, city, state_province, country_id) VALUES(4100 , 'No 203, Block G7 Wangsa Maju', '53300', 'Malaysia', NULL, 'ML');
1 row created.

SQL> INSERT INTO hr.locations (location_id, street_address, postal_code, city, state_province, country_id) VALUES(4200 , 'No 505, Block G7 Wangsa Maju', '53300', 'Malaysia', NULL, 'IT');
1 row created.

SQL> commit;
Commit complete.
```

```
INSERT INTO hr.departments (department_id, department_name, manager_id, location_id) VALUES(
280, 'Database Administration', NULL, 4100);
```

```
INSERT INTO hr.departments (department_id, department_name, manager_id, location_id) VALUES(
290, 'Marketing', NULL, 4200);
```

```
SQL> INSERT INTO hr.departments (department_id, department_name, manager_id, location_id) VALUES( 280, 'Database Administration', NULL, 4100);
1 row created.

SQL> INSERT INTO hr.departments (department_id, department_name, manager_id, location_id) VALUES( 290, 'Marketing', NULL, 4200);
1 row created.

SQL> commit;
Commit complete.
```

```
INSERT INTO hr.jobs (job_id, job_title, min_salary, max_salary) VALUES( 'DBA', 'Database
Administration', 2080, 4000);
```

```
INSERT INTO hr.jobs (job_id, job_title, min_salary, max_salary) VALUES( 'MK_REP', 'Marketing', 1500,
3000);
```

```
SQL> INSERT INTO hr.jobs (job_id, job_title, min_salary, max_salary) VALUES( 'DBA', 'Database Administration', 2080, 4000);
1 row created.

SQL> INSERT INTO hr.jobs (job_id, job_title, min_salary, max_salary) VALUES( 'MK_REP', 'Marketing', 1500, 3000);
INSERT INTO hr.jobs (job_id, job_title, min_salary, max_salary) VALUES( 'MK_REP', 'Marketing', 1500, 3000)
*
ERROR at line 1:
ORA-00001: unique constraint (HR.JOB_ID_PK) violated

SQL> INSERT INTO hr.jobs (job_id, job_title, min_salary, max_salary) VALUES( 'MK', 'Marketing', 1500, 3000);
1 row created.

SQL> commit;
Commit complete.
```



```
INSERT INTO hr.employees (employee_id, first_name, last_name, email, phone_number, hire_date,
job_id, salary, commission_pct, manager_id, department_id) VALUES
( 207, 'Thana', 'Rocky', 'thana rocky', '01212345678', TO_DATE('17-06-2023', 'dd-MM-yyyy'), 'DBA',
2400, NULL, NULL, 280);
```

```
INSERT INTO hr.employees (employee_id, first_name, last_name, email, phone_number, hire_date,
job_id, salary, commission_pct, manager_id, department_id) VALUES
( 208, 'Scylla', 'Mongo', 'ScullaMongo', '01912345678', TO_DATE('21-09-2015', 'dd-MM-yyyy'), 'MK',
17000, NULL, NULL, 290);
```

```
SQL> INSERT INTO hr.employees (employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, commission_pct, manager_id, department_id) VALUES
( 207, 'Thana', 'Rocky', 'thana rocky', '01212345678', TO_DATE('17-06-2023', 'dd-MM-yyyy'), 'DBA', 2400, NULL, NULL, 280); 2
1 row created.

SQL> INSERT INTO hr.employees (employee_id, first_name, last_name, email, phone_number, hire_date, job_id, salary, commission_pct, manager_id, department_id) VALUES
( 208, 'Scylla', 'Mongo', 'ScullaMongo', '01912345678', TO_DATE('21-09-2015', 'dd-MM-yyyy'), 'MK', 17000, NULL, NULL, 290); 2
1 row created.

SQL> commit;
Commit complete.

SQL>
```

## List the kafka topic

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-topics.sh --bootstrap-server localhost:9092 --list
```

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-topics.sh --bootstrap-server localhost:9092 --list
HR.COUNTRIES
T1
__consumer_offsets
__debezium-heartbeat.preoracle
preoracle
preoracle.HR.COUNTRIES
preoracle.HR.DEPARTMENTS
preoracle.HR.EMPLOYEES
preoracle.HR.JOBS
preoracle.HR.JOB_HISTORY
preoracle.HR.LOCATIONS
preoracle.HR.REGIONS
preoracle.HR.T1
preoracle.SOE.ADDRESSES
preoracle.SOE.CARD_DETAILS
preoracle.SOE.CUSTOMERS
preoracle.SOE.INVENTORIES
preoracle.SOE.LOGON
preoracle.SOE.ORDERENTRY_METADATA
preoracle.SOE.ORDERS
preoracle.SOE.ORDER_ITEMS
preoracle.SOE.PRODUCT_DESCRIPTIONS
preoracle.SOE.PRODUCT_INFORMATION
preoracle.SOE.WAREHOUSES
preoracles
[kafka@localhost kafka_2.13-3.3.2]$
```

**For each topic name of the respective tables name**

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-console-consumer.sh --bootstrap-server
localhost:9092 --topic preoracle.HR.LOCATIONS --formatter kafka.tools.DefaultMessageFormatter --
property print.timestamp=true --property print.key=true --property print.value=true --from-
beginning
```

```
[kafka]localhost kafka_2.13-3.90.2\bin\java -console-console.sh --bootstrap-server localhost:9092 --topic preoracle.HR.LOCATIONS --formatter kafka.tools.DefaultMessageFormatter --property print.timestamp=true --property print.key=true --property print.value=true --from-beginning  
CreateTime:168103539498 [{"schema":{"type":"struct","fields":[{"type":"int16","optional":false,"field":"LOCATION_ID"},"{"type":"string","optional":false,"name":"preoracle.HR.LOCATIONS.Key"},"payload"],"field":"LOCATION_ID":4100}] [{"schema":{"type":"struct","fields":[{"type":"struct","fields":[{"type":"int16","optional":false,"field":"LOCATION_ID"}, {"type":"string","optional":true,"field":"STREET_ADDRESS"}," {"type":"string","optional":true,"field":"POSTAL_CODE"}," {"type":"string","optional":false,"field":"CITY"}," {"type":"string","optional":true,"field":"STATE_PROVINCE"}," {"type":"string","optional":true,"field":"COUNTRY_ID"}],"optional":true,"name":"preoracle.HR.LOCATIONS.Value"},"field":"before"}," {"type":"struct","fields":[{"type":"int16","optional":false,"field":"LOCATION_ID"}," {"type":"string","optional":true,"field":"STREET_ADDRESS"}," {"type":"string","optional":true,"field":"POSTAL_CODE"}," {"type":"string","optional":true,"field":"CITY"}," {"type":"string","optional":true,"field":"STATE_PROVINCE"}," {"type":"string","optional":true,"field":"COUNTRY_ID"}],"optional":true,"name":"preoracle.HR.LOCATIONS.Value"},"field":"after"}," {"type":"struct","fields":[{"type":"string","optional":false,"field":"version"}," {"type":"string","optional":false,"field":"connector"}," {"type":"string","optional":false,"field":"name"}," {"type":"int64","optional":false,"field":"ts_ms"}," {"type":"string","optional":true,"name":"io.debezium.data.Enum","version":1,"parameters":{"allowed":["redo,last,false,incremental"],"default":"false"},"field":"snapshot"}," {"type":"string","optional":false,"field":"db"}," {"type":"string","optional":true,"field":"sequence"}," {"type":"string","optional":false,"field":"schema"}," {"type":"string","optional":false,"field":"table"}," {"type":"string","optional":true,"field":"txid"}," {"type":"string","optional":true,"field":"scn"}," {"type":"string","optional":true,"field":"commit_scn"}," {"type":"string","optional":true,"field":"lcr_position"}," {"type":"string","optional":true,"field":"rs_id"}," {"type":"int32","optional":true,"field":"redo_thread"}," {"type":"source"}," {"type":"string","optional":false,"field":"op"}," {"type":"int64","optional":false,"field":"total_order"}," {"type":"int64","optional":false,"field":"data_collection_order"}," {"type":"string","optional":false,"field":"transaction"}," {"type":"boolean","optional":false,"name":"preoracle.HR.LOCATIONS.Envelope"}," payload"}," {"before":"null","after":{"LOCATION_ID":4100,"STREET_ADDRESS":"No 203, Block G7 Wanga Maju","POSTA_L_CODE":"533000","CITY":"Malaysia","STATE PROVINCE":"null","COUNTRY ID":"MLM"}," source":{"version":"1.9.7.Final","connector":"oracle","name":"preoracle","ts_ms":168103509000,"snapshot":"false"}," db":"OLTP","sequence":null,"schema":"HR","table":"LOCATIONS","txid":"070f10d0d100000","scn":"231151539","commit_scn":null,"lcr_position":null,"rs_id":null,"scn":0,"redo_thread":null}," op":"c","ts_ms":168103539200,"transaction":null}]]  
CreateTime:168103539498 [{"schema":{"type":"struct","fields":[{"type":"int16","optional":false,"field":"LOCATION_ID"}," {"type":"string","optional":false,"name":"preoracle.HR.LOCATIONS.Key"},"payload"],"field":"LOCATION_ID":4200}] [{"schema":{"type":"struct","fields":[{"type":"struct","fields":[{"type":"int16","optional":false,"field":"LOCATION_ID"}, {"type":"string","optional":true,"field":"STREET_ADDRESS"}," {"type":"string","optional":true,"field":"POSTAL_CODE"}," {"type":"string","optional":false,"field":"CITY"}," {"type":"string","optional":true,"field":"STATE_PROVINCE"}," {"type":"string","optional":true,"field":"COUNTRY_ID"}],"optional":true,"name":"preoracle.HR.LOCATIONS.Value"},"field":"before"}," {"type":"struct","fields":[{"type":"int16","optional":false,"field":"LOCATION_ID"}," {"type":"string","optional":true,"field":"STREET ADDRESS"}," {"type":"string","optional":true,"field":"POSTAL_CODE"}," {"type":"string","optional":false,"field":"CITY"}," {"type":"string","optional":true,"field":"STATE PROVINCE"}," {"type":"string","optional":true,"field":"COUNTRY_ID"}],"optional":true,"name":"preoracle.HR.LOCATIONS.Value"},"field":"after"}," {"type":"struct","fields":[{"type":"string","optional":false,"field":"version"}," {"type":"string","optional":false,"field":"connector"}," {"type":"string","optional":false,"field":"name"}," {"type":"int64","optional":false,"field":"ts_ms"}," {"type":"string","optional":true,"name":"io.debezium.data.Enum","version":1,"parameters":{"allowed":["redo,last,false,incremental"],"default":"false"},"field":"snapshot"}," {"type":"string","optional":false,"field":"db"}," {"type":"string","optional":true,"field":"sequence"}," {"type":"string","optional":false,"field":"schema"}," {"type":"string","optional":false,"field":"table"}," {"type":"string","optional":true,"field":"txid"}," {"type":"string","optional":true,"field":"scn"}," {"type":"string","optional":true,"field":"commit_scn"}," {"type":"string","optional":true,"field":"lcr_position"}," {"type":"string","optional":true,"field":"rs_id"}," {"type":"int32","optional":true,"field":"redo_thread"}," {"type":"source"}," {"type":"string","optional":false,"field":"op"}," {"type":"int64","optional":true,"field":"ts_ms"}," {"type":"string","fields":[{"type":"string","optional":false,"field":"id"}," {"type":"int64","optional":false,"field":"Total_order"}," {"type":"int64","optional":false,"field":"data collection order"}," {"type":"string","optional":false,"field":"transaction"}," {"type":"boolean","optional":false,"name":"preoracle.HR.LOCATIONS.Envelope"}," payload"}," {"before":"null","after":{"LOCATION_ID":4200,"STREET ADDRESS":"No S05, Block G7 Wanga Maju","POSTA_L_CODE":"533000","CITY":"Malaysia","STATE PROVINCE":"null","COUNTRY ID":"","source":{"version":"1.9.7.Final","connector":"oracle","name":"preoracle","ts_ms":168103510000,"snapshot":"false"}," db":"OLTP","sequence":null,"schema":"HR","table":"LOCATIONS","txid":"070f10d0d100000","scn":"231151539","commit_scn":"231151558","lcr_position":null,"rs_id":null,"scn":0,"redo_thread":1}," op":"c","ts_ms":168103539200,"transaction":null}]]
```

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-console-consumer.sh --bootstrap-server
localhost:9092 --topic preoracle.HR.DEPARTMENTS --formatter kafka.tools.DefaultMessageFormatter
--property print.timestamp=true --property print.key=true --property print.value=true --from-
beginning
```

```

kafka@localhost kafka-2.13-3.3.2 $ bin/kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic preoracle.HR.DEPARTMENTS --formatter kafka.tools.DefaultMessageFormatter --property print.time=true --property print.key=true --property print.value=true --from-beginning
CreateTime:1688103563060 [{"schema":{"type":"struct","fields":[{"type":"int16","optional":false,"field":"DEPARTMENT_ID"}],"optional":false,"name":"preoracle.HR.DEPARTMENTS.Key"},"payload":{"DEPARTMENT_ID":2800}] [{"schema":{"type":"struct","fields":[{"type":"struct","fields":[{"type":"int16","optional":false,"field":"DEPARTMNT_ID"},"type":"string","optional":false,"field":"DEPARTMENT_NAME"},"type":"int32","optional":true,"field":"MANAGER_ID"},"type":"int16","optional":true,"field":"LOCATION_ID"}],"optional":true,"name":"preoracle.HR.DEPARTMENTS.Value","field":"before"},"type":"struct","fields":[{"type":"int16","optional":false,"field":"DEPARTMNT_ID"},"type":"string","optional":false,"field":"DEPARTMENT_NAME"},"type":"int32","optional":true,"field":"MANAGER_ID"},"type":"int16","optional":true,"field":"LOCATION_ID"},"type":"string","optional":false,"field":"connector"},"type":"string","optional":false,"field":"name"},"type":"int64","optional":false,"field":"ts_ms"},"type":"string","optional":true,"name":"preoracle.HR.DEPARTMENTS.Value","field":"after"},"type":"struct","fields":[{"type":"string","optional":false,"field":"version"},"type":"string","optional":false,"field":"data.Num"},"version":1,"parameters":{"allowed":true,last,false,incremental},"default":"false","field":"snapshot"},"type":"string","optional":false,"field":"db"},"type":"string","optional":true,"field":"sequence"},"type":"string","optional":false,"field":"schema"},"type":"string","optional":false,"field":"table"},"type":"string","optional":true,"field":"xid"},"type":"string","optional":true,"field":"scn"},"type":"string","optional":true,"field":"commit_scn"},"type":"string","optional":true,"field":"lcr_position"},"type":"string","optional":true,"field":"rs_id"},"type":"int32","optional":true,"field":"sxn"},"type":"int32","optional":true,"field":"redo_thread"},"optional":false,"name":"io.debezium.connector.oracle.Source","field":"source"},"type":"string","optional":false,"field":"op"},"type":"int64","optional":true,"field":"ts_ms"},"type":"string","optional":true,"field":"id"},"type":"int64","optional":false,"field":"total_order"},"type":"int64","optional":false,"field":"data_collection_order"},"optional":true,"field":"transaction"},"optional":false,"name":"preoracle.HR.DEPARTMENTS.Envelope"},"payload":{"before:null,"after":{"DEPARTMENT_ID":2800,"DEPARTMENT_NAME":"Database Administration","MANAGER_ID":null,"LOCATION_ID":41000,"source":{"version":"1.9.7.Final","connector":"oracle","name":"preoracle","ts_ms":1688103531000,"snapshot":"false","db":"OLTP","sequence":null,"schema":"HR","table":"DEPARTMENTS","xid":"0800040d0e6130000","scn":"23111665","commit_scn":"23111558","lcr_position":null,"rs_id":null,"sxn":0,"redo_thread":1},"op":"c","ts_ms":1688103562587,"transaction":null}}]}
CreateTime:1688103563061 [{"schema":{"type":"struct","fields":[{"type":"int16","optional":false,"field":"DEPARTMENT_ID"}],"optional":false,"name":"preoracle.HR.DEPARTMENTS.Key"},"payload":{"DEPARTMENT_ID":2900}] [{"schema":{"type":"struct","fields":[{"type":"struct","fields":[{"type":"int16","optional":false,"field":"DEPARTMNT_ID"},"type":"string","optional":false,"field":"DEPARTMENT_NAME"},"type":"int32","optional":true,"field":"MANAGER_ID"},"type":"int16","optional":true,"field":"LOCATION_ID"}],"optional":true,"name":"preoracle.HR.DEPARTMENTS.Value","field":"before"},"type":"struct","fields":[{"type":"int16","optional":false,"field":"DEPARTMNT_ID"},"type":"string","optional":false,"field":"DEPARTMENT_NAME"},"type":"int32","optional":true,"field":"MANAGER_ID"},"type":"int16","optional":true,"field":"LOCATION_ID"},"type":"string","optional":false,"field":"connector"},"type":"string","optional":false,"field":"name"},"type":"int64","optional":false,"field":"ts_ms"},"type":"string","optional":true,"name":"preoracle.HR.DEPARTMENTS.Value","field":"after"},"type":"struct","fields":[{"type":"string","optional":false,"field":"version"},"type":"string","optional":false,"field":"data.Num"},"version":1,"parameters":{"allowed":true,last,false,incremental},"default":"false","field":"snapshot"},"type":"string","optional":false,"field":"db"},"type":"string","optional":true,"field":"sequence"},"type":"string","optional":false,"field":"schema"},"type":"string","optional":false,"field":"table"},"type":"string","optional":true,"field":"xid"},"type":"string","optional":true,"field":"scn"},"type":"string","optional":true,"field":"commit_scn"},"type":"string","optional":true,"field":"lcr_position"},"type":"string","optional":true,"field":"rs_id"},"type":"int32","optional":true,"field":"sxn"},"type":"int32","optional":true,"field":"redo_thread"},"optional":false,"name":"io.debezium.connector.oracle.Source","field":"source"},"type":"string","optional":false,"field":"op"},"type":"int64","optional":true,"field":"ts_ms"},"type":"string","optional":true,"field":"id"},"type":"int64","optional":false,"field":"total_order"},"type":"int64","optional":false,"field":"data_collection_order"},"optional":true,"field":"transaction"},"optional":false,"name":"preoracle.HR.DEPARTMENTS.Envelope"},"payload":{"before:null,"after":{"DEPARTMENT_ID":2900,"DEPARTMENT NAME":"Marketing","MANAGER_ID":null,"LOCATION_ID":42000,"source":{"version":"1.9.7.Final","connector":"oracle","name":"preoracle","ts_ms":1688103537000,"snapshot":"false","db":"OLTP","sequence":null,"schema":"HR","table":"DEPARTMENTS","xid":"0800040d0e6130000","scn":"23111716","commit_scn":"23111741","lcr_position":null,"rs_id":null,"sxn":0,"redo_thread":1},"op":"c","ts_ms":1688103562587,"transaction":null}}]}

```

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-console-consumer.sh --bootstrap-server
localhost:9092 --topic preoracle.HR.JOBS --formatter kafka.tools.DefaultMessageFormatter --
property print.timestamp=true --property print.key=true --property print.value=true --from-
beginning
```

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic preoracle.HR.JOBS --formatter kafka.tools.DefaultMessageForm
matter --property print.timestamp=true --property print.key=true --property print.value=true --from-beginning
CreateTime:1688103622191      {"schema":{"type":"struct","fields":[{"type":"string","optional":false,"field":"JOB_ID"}],"optional":false,"name":"preoracle.HR.JOBS.Key"},
"payload":{"JOB_ID":"DBA"}} {"schema":{"type":"struct","fields":[{"type":"string","optional":false,"field":"JOB_ID"}],"optional":false,"name":"preoracle.HR.JOBS.Value"},
{"type":"struct","fields":[{"type":"string","optional":false,"field":"JOB_ID"}],"optional":true,"name":"preoracle.HR.JOBS.Envelope"},"payload":{"before":null,"after":{"JOB_ID":"
DBA","JOB_TITLE":"Database Administration","MIN_SALARY":2080,"MAX_SALARY":4000},"source":{"version":"1.9.7.Final","connector":"oracle","name":"preoracle","ts_ms":16881
03547000,"snapshot":"false","db":"OLTP","sequence":null,"schema":"HR","table":"JOBS","txid":"05000e066140000","scn":"23111785","commit_scn":"23111741","lcr_position":
null,"rs_id":null,"ssn":0,"redo_thread":1},"op":"c","ts_ms":1688103622071,"transaction":null}}
CreateTime:1688103622191      {"schema":{"type":"struct","fields":[{"type":"string","optional":false,"field":"JOB_ID"}],"optional":false,"name":"preoracle.HR.JOBS.Key"},
"payload":{"JOB_ID":"MKK"}} {"schema":{"type":"struct","fields":[{"type":"string","optional":false,"field":"JOB_ID"}],"optional":false,"name":"preoracle.HR.JOBS.Envelope"},
{"type":"struct","fields":[{"type":"string","optional":false,"field":"JOB_ID"}],"optional":true,"name":"preoracle.HR.JOBS.Value"},"payload":{"before":null,"after":{"JOB_ID":"
DBA","JOB_TITLE":"Database Administration","MIN_SALARY":2080,"MAX_SALARY":4000},"source":{"version":"1.9.7.Final","connector":"oracle","name":"preoracle","ts_ms":16881
03547000,"snapshot":"false","db":"OLTP","sequence":null,"schema":"HR","table":"JOBS","txid":"05000e066140000","scn":"23112131","commit_scn":"23112156","lcr_position":
null,"rs_id":null,"ssn":0,"redo_thread":1},"op":"c","ts_ms":1688103622072,"transaction":null}}
1
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```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-console-consumer.sh --bootstrap-server
localhost:9092 --topic preoracle.HR.EMPLOYEES --formatter kafka.tools.DefaultMessageFormatter --
property print.timestamp=true --property print.key=true --property print.value=true --from-
beginning
```

```
[kafka@localhost kafka_2.13-3.3.2]$ bin/kafka-console-consumer.sh --bootstrap-server localhost:9092 --topic preoracle.HR.EMPLOYEES --formatter kafka.tools.DefaultMessage
Formatter --property print.timestamp=true --property print.key=true --property print.value=true --from-beginning
CreateTime:1688103750973      {"schema":{"type":"struct","fields":[{"type":"int32","optional":false,"field":"EMPLOYEE_ID"}],"optional":false,"name":"preoracle.HR.EMP
LOYEES.Key"},"payload":{"EMPLOYEE_ID":207}} {"schema":{"type":"struct","fields":[{"type":"string","optional":false,"field":"EMPLOYEE_ID"}],"optional":false,"name":"preoracle.HR.EMP
LOYEES.Value"},"payload":{"before":null,"after":{"EMPLOYEE_ID":208,"FIRST_NAME":"Scylla","LAST_NAME":"Mongoo","PHONE_NUMBER":"01912345678","HIRE_DATE":"14427936000000","JOB_ID":"DBA","SALARY":2400.0,"COMMISSION_PCT":null,"MANAGER_ID":null,"DEPARTMENT_ID":280},"source":{"version":"1.9.7.Final","connector":"oracle","ts_ms":1688103724000,"snapshot":"false","db":"OLTP","sequence":null,"schema":"HR","table":"EMPLOYEES","txid":"0900070043130000","scn":"23113106","commit_scn":"23113129","lcr_position":null,"rs_id":null,"ssn":0,"redo_thread":1},"op":"c","ts_ms":1688103750503,"transaction":null}}
1
```

```
CreateTime:1688103750973      {"schema":{"type":"struct","fields":[{"type":"int32","optional":false,"field":"EMPLOYEE_ID"}],"optional":false,"name":"preoracle.HR.EMP
LOYEES.Key"},"payload":{"EMPLOYEE_ID":207}} {"schema":{"type":"struct","fields":[{"type":"string","optional":false,"field":"EMPLOYEE_ID"}],"optional":false,"name":"preoracle.HR.EMP
LOYEES.Value"},"payload":{"before":null,"after":{"EMPLOYEE_ID":207,"FIRST_NAME":"Thana","LAST_NAME":"Rocky","EMAIL":"thana.rocky","PHONE_NUMBER":"01212345678","HIRE_DATE":"1686960000000","JOB_ID":"DBA","SALARY":2400.0,"COMMISSION_PCT":null,"MANAGER_ID":null,"DEPARTMENT_ID":280},"source":{"version":"1.9.7.Final","connector":"oracle","ts_ms":1688103719000,"snapshot":"false","db":"OLTP","sequence":null,"schema":"HR","table":"EMPLOYEES","txid":"0900070043130000","scn":"23113067","commit_scn":"23112156","lcr_position":null,"rs_id":null,"ssn":0,"redo_thread":1},"op":"c","ts_ms":1688103750503,"transaction":null}}
1
```

The output showed the changes were captured.

Reference:

<https://medium.com/@lmramos.usa/debezium-cdc-oracle-931c8a62023b>  
<https://debezium.io/documentation/reference/1.9/connectors/oracle.html>  
[https://downloads.apache.org/kafka/3.5.0/kafka\\_2.13-3.5.0.tgz](https://downloads.apache.org/kafka/3.5.0/kafka_2.13-3.5.0.tgz)