

Oracle GoldenGate Interview Questions and Answers

Including Oracle GoldenGate 19c and Scenario-Based Questions

This document contains frequently asked Oracle GoldenGate interview questions with practical production-support answers, including Oracle GoldenGate 19c Classic Architecture, Microservices Architecture, Extract, Pump, Replicat, supplemental logging, initial load, lag troubleshooting, error handling, and real-time scenarios.

1. Basic Oracle GoldenGate Questions

1. What is Oracle GoldenGate?

Oracle GoldenGate is a real-time data replication and change data capture tool. It is commonly used for data replication, migration, zero/minimal downtime upgrades, active-active replication, disaster recovery, and reporting database offloading. It captures committed transactions from source redo/archive logs and applies them to a target database.

2. What are the main Oracle GoldenGate processes?

Process	Purpose
Manager	Controls GoldenGate processes in Classic Architecture
Extract	Captures changes from source redo/archive logs
Data Pump Extract	Reads local trail and sends data to target
Collector	Receives remote trails on the target in Classic Architecture
Replicat	Applies trail records to target database
Service Manager	Controls Microservices deployments
Admin Server	Creates and manages Extract and Replicat in Microservices
Distribution Server	Sends trail files to target in Microservices
Receiver Server	Receives trail files in Microservices
Performance Metrics Server	Provides monitoring and metrics

3. What is the difference between Classic Extract and Integrated Extract?

Classic Extract	Integrated Extract
Reads redo logs directly	Uses the database logmining server
Older capture method	Recommended for Oracle databases
Limited support for some advanced Oracle features	Better support for Oracle features and data types
Less database-integrated	Tightly integrated with Oracle database

In Oracle 19c environments, Integrated Extract is generally preferred for Oracle sources.

4. What is Integrated Replicat?

Integrated Replicat applies transactions using the Oracle database inbound server. It supports parallel apply, dependency-aware transaction ordering, better performance, and better handling of complex transactions.

5. What is a trail file?

A trail file stores captured transaction records. Extract writes to a local trail, Pump sends records to a remote trail, and Replicat reads from the remote trail.

Local trail example: `./dirdat/lt000001`
Remote trail example: `./dirdat/rt000001`

2. Oracle GoldenGate 19c Specific Questions

6. What architectures are available in GoldenGate 19c?

GoldenGate 19c supports Classic Architecture and Microservices Architecture. Classic Architecture uses GGSCI and Manager. Microservices Architecture uses Service Manager, Admin Server, Distribution Server, Receiver Server, Performance Metrics Server, web interfaces, REST APIs, and AdminClient.

7. What are the main components of GoldenGate 19c Microservices Architecture?

Component	Purpose
Service Manager	Manages deployments and service lifecycle
Admin Server	Manages Extracts, Replicats, and credentials
Distribution Server	Sends trail data to target systems
Receiver Server	Receives trail data from remote systems
Performance Metrics Server	Provides metrics, lag, and process monitoring

8. Difference between Classic Architecture and Microservices Architecture?

Classic Architecture	Microservices Architecture
Uses GGSCI command line	Uses web UI, REST API, and AdminClient
Manager controls processes	Service Manager and multiple servers control services
Older deployment model	Modern deployment model
Mostly file-based administration	Service-based administration
Common in legacy environments	Preferred for newer deployments

9. What is a deployment in GoldenGate 19c Microservices?

A deployment is an isolated GoldenGate environment that contains configuration, trail files, checkpoints, reports, credential store, Extracts, Replicats, and logs. Multiple deployments can run under one Service Manager.

10. What is AdminClient in GoldenGate 19c?

AdminClient is the command-line interface for GoldenGate Microservices Architecture.

```
adminclient
CONNECT http://hostname:port AS oggadmin PASSWORD password
INFO ALL
```

3. Extract, Pump, and Replicat Questions

11. What is the difference between Extract and Data Pump?

Extract	Data Pump
Captures data from source redo/archive logs	Reads data from local trail
Runs on source GoldenGate server	Runs on source GoldenGate server
Writes to local trail	Sends data to remote trail
Required	Optional but strongly recommended

Data Pump protects capture from network issues. If the network is down, primary Extract can continue writing to local trail while Pump waits or retries.

12. What is the difference between Coordinated Replicat and Integrated Replicat?

Coordinated Replicat	Integrated Replicat
Uses multiple Replicat threads	Uses Oracle inbound server
GoldenGate coordinates threads	Database handles parallel apply
Can be used for non-Oracle targets	Oracle target only
Less dependency-aware than integrated apply	Dependency-aware parallel apply

13. What is the difference between Classic Replicat and Integrated Replicat?

Classic Replicat	Integrated Replicat
Applies SQL directly	Applies through database inbound server
Mostly single threaded	Supports parallel apply
Simpler configuration	Better for high-volume Oracle targets
Less database dependent	Requires Oracle target support

14. What are common Extract parameters?

```
EXTRACT EXT1
USERIDALIAS ogg_src
EXTTRAIL ./dirdat/lt
TABLE HR.*;
```

Parameter	Purpose
EXTRACT	Defines Extract group
USERIDALIAS	Uses credential store alias
EXTTRAIL	Defines local trail
TABLE	Defines captured source tables
TRANLOGOPTIONS	Controls redo/archive log reading options
LOGALLSUPCOLS	Logs supplemental columns
UPDATERECORDFORMAT COMPACT	Reduces update record size

15. What are common Replicat parameters?

```
REPLICAT REP1  
USERIDALIAS ogg_tgt  
MAP HR.*, TARGET HR.*;
```

Parameter	Purpose
REPLICAT	Defines Replicat group
USERIDALIAS	Uses credential store alias
MAP	Maps source objects
TARGET	Defines target objects
HANDLECOLLISIONS	Temporarily handles duplicate/missing row conflicts during load
REPERROR	Controls error handling
ASSUMETARGETDEFS	Used when source and target definitions are same
SOURCEDEFS	Used when source and target definitions differ

4. Supplemental Logging Questions

16. Why is supplemental logging required?

GoldenGate needs enough column information to uniquely identify changed rows on the target. Supplemental logging captures key columns and other required columns so that updates and deletes can be applied correctly.

17. What commands are used to enable supplemental logging?

```
ALTER DATABASE ADD SUPPLEMENTAL LOG DATA;  
  
DBLOGIN USERIDALIAS ogg_src  
ADD SCHEMATRANDATA HR  
ADD TRANDATA HR.EMPLOYEES  
INFO TRANDATA HR.EMPLOYEES
```

18. What is the difference between ADD TRANDATA and ADD SCHEMATRANDATA?

ADD TRANDATA	ADD SCHEMATRANDATA
Adds logging for one table	Adds logging for all tables in a schema
Table-level command	Schema-level command
More manual	Easier for schema replication

5. Checkpoint Questions

19. What is a checkpoint in GoldenGate?

A checkpoint records the current read or apply position. It allows Extract and Replicat to restart from the correct position after failure.

20. Why is a checkpoint table required?

A checkpoint table stores Replicat checkpoint details in the target database. It improves recovery and consistency.

```
ADD CHECKPOINTTABLE GGADMIN.CHKPT
```

21. What happens if Replicat abends and is restarted?

Replicat reads its checkpoint and resumes from the last committed transaction. If checkpoint information is consistent, already committed transactions are not reapplied.

6. Trail File and Lag Questions

22. How do you check GoldenGate lag?

```
LAG EXTRACT EXT1
LAG REPLICAT REP1
INFO ALL
SEND EXTRACT EXT1, STATUS
SEND REPLICAT REP1, STATUS
```

In Microservices, use Admin Server UI, Performance Metrics Server, REST API, or AdminClient.

23. What is the difference between checkpoint lag and process lag?

Type	Meaning
Checkpoint lag	Difference between checkpoint position and current processing time
Process lag	How far the process is behind in capture or apply

24. Where are trail files stored?

Trail files are usually stored under the GoldenGate dirdat directory.

```
$OGG_HOME/dirdat
./dirdat/aa000001
./dirdat/aa000002
```

25. How do you view trail file contents?

Use Logdump.

```
logdump
OPEN ./dirdat/aa000001
GHDR ON
DETAIL ON
NEXT
```


7. Initial Load Questions

26. What are common initial load methods?

Common methods include Oracle Data Pump export/import, RMAN duplicate, CTAS over database link, transportable tablespace, GoldenGate direct load, and Data Pump or RMAN plus GoldenGate CDC. In production, Data Pump/RMAN plus GoldenGate CDC is common.

27. How do you perform zero-downtime migration using GoldenGate?

1. Configure source and target databases.
2. Enable archive log mode and supplemental logging.
3. Create GoldenGate users.
4. Add Extract from source.
5. Add Pump and trail files.
6. Start Extract to capture ongoing changes.
7. Perform initial load using Data Pump or RMAN.
8. Start Replicat from the correct SCN/CSN.
9. Monitor lag.
10. Stop application briefly.
11. Let Replicat catch up.
12. Switch application to target.

28. What is the role of SCN in initial load?

SCN is used to synchronize the initial load with ongoing CDC. For example, start Extract at SCN 1000, export with FLASHBACK_SCN 1000, import to target, and start Replicat from the matching point. This prevents missing or duplicate transactions.

8. Conflict Detection and Resolution Questions

29. What is conflict detection in GoldenGate?

Conflict detection identifies data conflicts in active-active replication, such as same-row updates on two systems, delete/update conflicts, or duplicate insert conflicts.

30. What is CDR?

CDR means Conflict Detection and Resolution. It is commonly used in bidirectional or active-active replication. Common resolution methods include latest timestamp wins, site priority wins, ignore duplicate, overwrite, or discard conflict.

31. What is loop detection?

Loop detection prevents replicated transactions from being captured again and sent back to the original database. A common method is excluding the GoldenGate Replicat user from capture.

```
TRANLOGOPTIONS EXCLUDEUSER ogg_user
```

9. Error Handling Questions

32. What is a discard file?

A discard file stores records that Replicat could not apply.

```
DISCARDFILE ./dirrpt/rep1.dsc, APPEND, MEGABYTES 100
```

33. What is REPERROR?

REPERROR controls how Replicat handles errors.

```
REPERROR DEFAULT, ABEND  
REPERROR 1403, DISCARD  
REPERROR 1, DISCARD
```

Error	Meaning
ORA-00001	Unique constraint violation
ORA-01403	No data found
ORA-02291	Parent key not found
ORA-02292	Child record found
ORA-01400	Cannot insert NULL

34. What is HANDLECOLLISIONS?

HANDLECOLLISIONS is used during initial load when Replicat may encounter duplicate inserts or missing updates/deletes. It should be removed after initial synchronization.

35. Replicat abended with ORA-00001. What will you do?

Possible causes include duplicate insert, initial load overlap, target table already containing the row, bidirectional loop, or sequence mismatch. Check the report, target row, discard file, and source/target synchronization.

```
VIEW REPORT REP1  
INFO REP1, DETAIL  
SEND REP1, STATUS
```

Possible fixes include temporary HANDLECOLLISIONS, deleting the duplicate row after approval, skipping transaction after approval, fixing sequences, checking loop prevention, or reinitializing the affected table.

10. Performance Tuning Questions

36. How do you improve Extract performance?

Use Integrated Extract, tune redo/archive availability, avoid unnecessary table capture, place trail files on fast storage, use proper supplemental logging, and avoid capturing unsupported or unnecessary objects.

37. How do you improve Replicat performance?

Use Integrated Replicat or Parallel Replicat, increase apply parallelism, split Replicat by schema/table group, tune target database performance, avoid unnecessary target triggers, and ensure target indexes are appropriate.

38. What causes Replicat lag?

Common causes are long transactions, target database slowness, missing target indexes, locks, constraint errors, network slowness, slow storage, large batch jobs, and undersized Replicat configuration.

39. What will you check when Replicat lag is high?

```
INFO ALL
LAG REPLICAT REP1
SEND REPLICAT REP1, STATUS
VIEW REPORT REP1
STATS REPLICAT REP1
```

Also check target blocking sessions, CPU, I/O, wait events, discard files, trail backlog, and target SQL performance.

11. Scenario-Based GoldenGate Interview Questions

Scenario 1. Extract is abended. How will you troubleshoot?

Check process status, Extract report, GoldenGate event log, database connectivity, archive log availability, supplemental logging, permissions, trail disk space, and unsupported operations.

```
INFO ALL
VIEW REPORT EXT1
VIEW GGSEVT
SEND EXTRACT EXT1, STATUS
```

If an archive log is missing, restore it. If restoration is impossible, reposition Extract only after business approval because transactions may be missed.

Scenario 2. Replicat is abended with ORA-01403. What does it mean?

ORA-01403 usually means Replicat tried to update or delete a row that does not exist on the target. Causes include incomplete initial load, manual target delete, skipped insert, source/target out-of-sync, or HANDLECOLLISIONS removed too early. Fix by comparing source and target, inserting missing row after approval, resyncing the table, or temporarily discarding only if business accepts the impact.

Scenario 3. Replicat lag keeps increasing. What will you do?

Identify whether the problem is source, network, or target. Check Extract, Pump, and Replicat lag separately. Check Replicat status and statistics. On the target database, check blocking sessions, wait events, CPU, I/O, and slow SQL. Then tune Replicat parallelism, split workloads, resolve locks, add needed indexes, or increase resources.

Scenario 4. Network between source and target is down. What happens?

If Data Pump is configured, primary Extract continues writing to local trail and Pump waits or retries. When the network returns, Pump sends pending data to target. Without Data Pump, Extract may be affected earlier if it writes directly to remote trail.

Scenario 5. Trail file filesystem is full. What will you do?

Check checkpoint positions before deleting anything. Purge only trail files that have been processed.

```
INFO EXTRACT EXT1, DETAIL
INFO REPLICAT REP1, DETAIL
PURGE EXTTRAIL ./dirdat/aa, USECHECKPOINTS
PURGEOLDEXTRACTS ./dirdat/*, USECHECKPOINTS, MINKEEPDAYS 3
```

Do not blindly delete trail files at OS level.

Scenario 6. Source and target table structures are different. Can GoldenGate replicate?

Yes. Use COLMAP and SOURCEDEFS when structures differ.

```
MAP HR.EMP, TARGET HR.EMP_TARGET,
COLMAP (
  EMP_ID = EMP_ID,
```

```

EMP_NAME = EMP_NAME,
SALARY = SAL
);
SOURCEDEFS ./dirdef/source.def

```

Generate definitions using DEFGEN when required.

Scenario 7. Table has no primary key. Can GoldenGate replicate it?

Yes, but it is not recommended. GoldenGate may use all columns to identify rows, which can cause poor performance and incorrect updates/deletes if duplicate rows exist. Best practice is to add a primary key or unique key, or define KEYCOLS.

```

MAP HR.EMP, TARGET HR.EMP, KEYCOLS (EMP_ID);

```

Scenario 8. DML is replicating but DDL is not. What will you check?

Check DDL replication parameters, Extract and Replicat configuration, object filters, user privileges, database support, recycle bin behavior, and report files.

```

DDL INCLUDE MAPPED
DDLOPTIONS REPORT
VIEW REPORT EXT1
VIEW REPORT REP1

```

Scenario 9. Initial load completed but Replicat has duplicate errors. Why?

Possible causes include wrong FLASHBACK_SCN, Replicat started from wrong position, CDC overlap with initial load, pre-existing target data, or unsynchronized sequences. Verify the SCN, initial load method, Replicat start point, and sequence values.

Scenario 10. Archive log required by Extract is deleted. What will you do?

Restore the missing archive log from backup. If it cannot be restored, reposition Extract only with business approval and resync affected tables if data loss is possible.

```

VIEW REPORT EXT1
INFO EXTRACT EXT1, DETAIL
ALTER EXTRACT EXT1, SCN <new_scn>

```

Scenario 11. Bidirectional replication causes duplicate data. What could be wrong?

Common causes are missing loop prevention, same sequence ranges on both sides, application writes to both databases, missing conflict detection, or incorrect EXCLUDEUSER/IGNOREAPPLOPS settings. Fix with loop prevention, odd/even or range-based sequences, CDR, site-specific keys, and proper filters.

Scenario 12. Replicat is slow after adding indexes. Why?

Indexes help queries but slow DML because every insert, update, and delete must maintain indexes. Drop or disable unnecessary indexes during large loads, rebuild after load, and use Integrated/Parallel Replicat for higher throughput.

Scenario 13. Manager process is down. What happens?

Existing Extract and Replicat processes may continue running, but starting/stopping processes and Collector management can be affected. Monitoring may also fail.

```
START MANAGER
INFO MANAGER
VIEW REPORT MGR
```

Scenario 14. Pump Extract is abended but Primary Extract is running. Is data safe?

Usually yes, if primary Extract writes to local trail. Primary Extract continues capturing changes. Pump can send the accumulated data after it is fixed.

```
INFO EXTRACT EXT1, DETAIL
INFO EXTRACT PMP1, DETAIL
VIEW REPORT PMP1
```

Scenario 15. Should triggers be enabled on the target database?

Usually no, unless specifically required. Target triggers can duplicate business logic, insert extra rows, slow Replicat, or cause data divergence.

12. GoldenGate 19c Microservices Scenario Questions

Scenario 16. How do you troubleshoot Extract in GoldenGate 19c Microservices?

Use Admin Server web UI, AdminClient, report files, logs, and REST API.

```
CONNECT http://host:port AS oggadmin PASSWORD password
INFO EXTRACT EXT1
VIEW REPORT EXT1
SEND EXTRACT EXT1 STATUS
```

Scenario 17. Distribution Server is not sending trail files. What will you check?

Check distribution path status, Receiver Server availability, network/firewall, SSL/certificates, credentials, source trail availability, disk space, and path errors.

Scenario 18. Receiver Server is running but files are not received. What will you check?

Check Receiver path configuration, port/firewall, Distribution Server path, authentication, target deployment trail directory, file permissions, and certificate issues.

Scenario 19. Admin Server is not accessible. What will you check?

Check Service Manager, Admin Server process, port conflict, firewall, deployment status, SSL/certificate issue, user account/password, and logs.

Scenario 20. GoldenGate 19c deployment is not starting. What will you check?

Check Service Manager logs, deployment configuration, port availability, disk space, permissions, environment variables, credential store, and wallet issues.

13. Commands Frequently Asked in Interviews

GGSCI Commands

```
INFO ALL
INFO EXTRACT EXT1, DETAIL
INFO REPLICAT REP1, DETAIL
LAG EXTRACT EXT1
LAG REPLICAT REP1
STATS EXTRACT EXT1
STATS REPLICAT REP1
VIEW REPORT EXT1
VIEW REPORT REP1
VIEW GGSEVT
SEND EXTRACT EXT1, STATUS
SEND REPLICAT REP1, STATUS
START EXTRACT EXT1
STOP EXTRACT EXT1
START REPLICAT REP1
STOP REPLICAT REP1
```

Add Extract

```
ADD EXTRACT EXT1, INTEGRATED TRANLOG, BEGIN NOW
ADD EXTTRAIL ./dirdat/lt, EXTRACT EXT1
```

Add Pump

```
ADD EXTRACT PMP1, EXTTRAILSOURCE ./dirdat/lt
ADD RMTTRAIL ./dirdat/rt, EXTRACT PMP1
```

Add Replicat

```
ADD REPLICAT REP1, INTEGRATED, EXTTRAIL ./dirdat/rt
```

Register and Unregister Extract

```
DBLOGIN USERIDALIAS ogg_src
REGISTER EXTRACT EXT1 DATABASE
UNREGISTER EXTRACT EXT1 DATABASE
```

14. Real-Time Production Support Questions

40. How do you check whether GoldenGate is healthy?

```
INFO ALL
LAG *
VIEW GGSEVT
```

Verify that Manager, Extract, Pump, and Replicat are running; no process is ABENDED; lag is within SLA; discard files are not growing; trail filesystem has space; archive logs are available; and checkpoints are moving.

41. What files/directories are important in GoldenGate?

Directory/File	Purpose
dirprm	Parameter files
dirrpt	Report files
dirdat	Trail files
dirchk	Checkpoint files
dirpcs	Process status files
dirdef	Definition files
dirsql	SQL files
ggserr.log	GoldenGate error log

42. What is PASSTHRU?

PASSTHRU is used in Pump Extract when no database lookup or transformation is required. It improves performance because Pump does not connect to the database.

```
EXTRACT PMP1
PASSTHRU
RMTHOST target_host, MGRPORT 7809
RMTTRAIL ./dirdat/rt
TABLE HR.*;
```

43. What is SQLEXEC?

SQLEXEC allows GoldenGate to execute SQL statements during replication, such as lookups, audit inserts, validation, or stored procedure calls. It should be used carefully because it can affect performance.

44. What is FILTER?

FILTER is used to replicate only selected rows.

```
TABLE HR.EMPLOYEES, FILTER (SALARY > 5000);
```

45. What is COLMAP?

COLMAP maps source columns to target columns.

```
MAP HR.EMP, TARGET HR.EMP_TARGET,
COLMAP (
  USEDEFAULTS,
  TARGET_SALARY = SOURCE_SALARY
);
```


15. Advanced Scenario Questions

Scenario 21. Only one table is out of sync. What will you do?

Stop Replicat or exclude the table if needed. Compare source and target data. Identify missing or different rows. Resync only that table using Data Pump table export/import, CTAS over database link, manual correction, Veridata, or checksum-based scripts. Then restart Replicat and validate row counts/checksums.

Scenario 22. Replicat fails due to missing column on target. What will you do?

This usually means DDL was not applied on target or source structure changed. Stop Replicat, apply missing DDL on target, verify structure, use SOURCEDEFS if structures intentionally differ, and restart Replicat.

Scenario 23. Source table has heavy updates and trail size increases. Why?

Heavy updates generate more redo and trail data. Causes include no primary key, large columns, full supplemental logging, LOGALLSUPCOLS, and before images. Add keys, avoid unnecessary supplemental logging, exclude unnecessary columns where safe, and tune Extract/Pump.

Scenario 24. How do you skip a bad transaction?

Only skip after approval and impact analysis.

```
START REPLICAT REP1, SKIPTRANSACTION  
ALTER REPLICAT REP1, EXTSEQNO <seq>, EXTRBA <rba>
```

Before skipping, identify the transaction, save evidence from report/discard files, document approval, and plan data correction.

Scenario 25. Replicat is stuck on a large transaction. What will you do?

Check whether Replicat is actively applying, target wait events, undo/temp/tablespace usage, and blocking sessions. If it is applying normally, wait. If target resources are constrained, tune resources or resolve locks. Avoid killing unless necessary.

```
SEND REPLICAT REP1, STATUS  
INFO REPLICAT REP1, DETAIL  
VIEW REPORT REP1
```

16. Best Practices

GoldenGate Best Practices

- Use Integrated Extract for Oracle source databases.
- Use Integrated Replicat or Parallel Replicat for Oracle targets.
- Always configure Data Pump.
- Enable supplemental logging correctly.
- Use checkpoint tables for Replicat.
- Monitor lag, abends, discard files, and trail filesystem space.
- Keep trail files on a separate filesystem.
- Configure PURGEOLDEXTRACTS with USECHECKPOINTS.
- Use credential store instead of clear-text passwords.
- Avoid target triggers unless required.
- Do not leave HANDLECOLLISIONS enabled permanently.
- Validate data after initial load.
- Document every skip, reposition, and manual correction.
- Test failover and recovery procedures.

17. One-Line Interview Answers

Question	Answer
What is GoldenGate?	Real-time data replication and CDC tool
Main processes?	Manager, Extract, Pump, Replicat, Collector
What is a trail file?	File storing captured transaction records
What is Extract lag?	Delay in capturing source changes
What is Replicat lag?	Delay in applying changes on target
What is a checkpoint?	Saved restart position
What is supplemental logging?	Extra redo information required for row identification
What is Integrated Extract?	Extract using database logmining server
What is Integrated Replicat?	Parallel apply using database inbound server
What is HANDLECOLLISIONS?	Temporary parameter for initial-load collision handling
What is CDR?	Conflict Detection and Resolution
What is DEFGEN?	Tool to generate source definitions
What is PASSTHRU?	Pump mode without database connection
What is LOGDUMP?	Utility to inspect trail files
What is AdminClient?	CLI for GoldenGate Microservices
What is Distribution Server?	Sends trails in Microservices Architecture
What is Receiver Server?	Receives trails in Microservices Architecture

18. High-Value Scenario Questions to Practice

1. Extract abended due to missing archive log. What will you do?
2. Replicat abended with ORA-00001. How do you fix it?
3. Replicat abended with ORA-01403. What is the cause?
4. GoldenGate lag is increasing. How do you troubleshoot?
5. Network between source and target is down. What happens?
6. Trail filesystem is full. How do you safely purge?
7. One table is out of sync. How do you resync?
8. Initial load completed but duplicate errors occur. Why?
9. DDL is not replicating. What do you check?
10. Table has no primary key. How does GoldenGate handle it?
11. Active-active setup has duplicate transactions. What is wrong?
12. Pump is abended but Extract is running. Is data safe?
13. Target trigger caused duplicate rows. How do you resolve?
14. How do you migrate Oracle 12c to 19c using GoldenGate?
15. How do you configure GoldenGate 19c Microservices?

19. Sample 19c Migration Scenario Answer

Question: How will you migrate an Oracle 12c database to Oracle 19c using GoldenGate with minimal downtime?

1. Install GoldenGate 19c compatible software.
2. Prepare source 12c and target 19c databases.
3. Enable archive log mode and supplemental logging on source.
4. Create GoldenGate users on source and target.
5. Configure credential store.
6. Add schema/table supplemental logging.
7. Configure Integrated Extract on source.
8. Configure Pump to send trail files.
9. Configure Replicat on the 19c target.
10. Start Extract and Pump.
11. Take initial load using Data Pump with FLASHBACK_SCN.
12. Import data into the 19c target.
13. Start Replicat from the matching SCN.
14. Monitor Replicat lag until it reaches zero.
15. Stop application on source.
16. Allow Replicat to catch up completely.
17. Validate data.
18. Point application to the 19c target.
19. Keep source available for fallback if required.

Key point: SCN synchronization is the most important part of GoldenGate migration.