Implementing Integrated Processes

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Introduction to Oracle Data Guard
In this lecture, we are going to talk about the basic concepts of Oracle Data Guard

Objectives

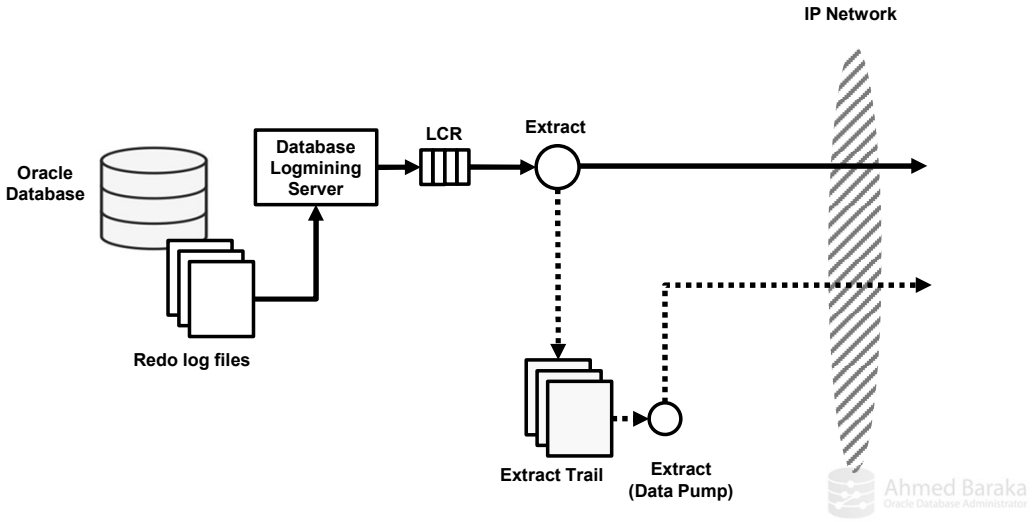
By the end of this lecture, you should be able to:

- Understand the advantages of using the integrated mode
- Understand the options to implement an integrated Extract
- Create an integrated Extract and Replicat
- Switch a GoldenGate process from classic mode to integrated mode
- Monitor an integrated Extract or Replicat

About Integrated Capture Mode

- Extract may run in Classic or Integrated modes
- Extract interacts directly with a database logmining server
- Integrated mode requirements:
  - It is configurable only with Oracle databases
  - It is supported in Oracle 11.2.0.3 or higher

Integrated Capture Architecture



Integrated Mode Advantages and Disadvantages

- Pros:
  - More efficient
  - More Oracle data types supported than classic mode
  - It supports a multitenant container database containing multiple pluggable databases
  - No more configuration needed for Oracle RAC, ASM and TDE
- Cons:
  - Supported only in Oracle databases
  - Consumes more resources from the server
  - Sometimes it is not stable

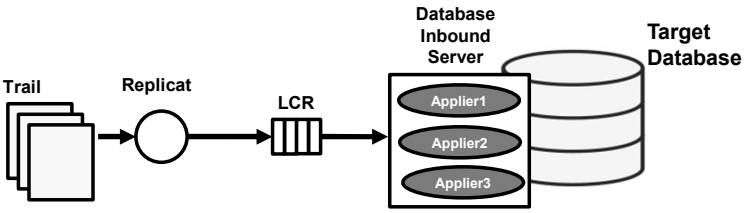
Integrated Capture Deployment Options

- **Local deployment**
  - The source database and the mining database are the same
  - It takes its processing from the source server resources
- **Downstream deployment**
  - The source and mining databases are different databases
  - Offloads the capture overhead from the production server

About Integrated Apply Mode

- Replicate process works in either nonintegrated mode or in integrated mode
- Oracle internal apply process is used by the Replicat
- LCR for the DML change
- Advantages:
  - Replicat *apply server* runs in parallel
  - Higher throughput than nonintegrated mode
  - It supports multitenant environment

Integrated Apply Architecture



Creating a Local Integrated Capture

- Use the INTEGRATED TRANLOG option

```
ADD EXTRACT EHR1 INTEGRATED TRANLOG, BEGIN NOW
```

- In the Extract Parameter file:

```
LOGALLSUPCOLS
UPDATERECORDFORMAT COMPACT
TRANLOGOPTIONS INTEGRATEDPARAMS (max_sga_size 250,
parallelism 2)
# if you use pluggable database:
SOURCECATALOG pdb1
```

Parameters used in Local Integrated Capture

Parameter/Option	Description	Default
LOGALLSUPCOLS	Write the supplementally logged columns	
UPDATERECORDFORMAT COMPACT	Generates one trail record that contains the before and after images	COMPACT
MAX_SGA_SIZE (TRANLOGOPTIONS, INTEGRATEDPARAMS)	The amount of SGA memory that is used by the database logmining server	1 GB or 75% of streams pool
PARALLELISM	The number of processes supporting the database logmining server	2

Creating Integrated Capture in a Downstream Database

- Use the MININGUSERALIAS option to specify the alias of the Extract user for the downstream mining database

```
TRANLOGOPTIONS MININGUSERALIAS tiger2
TRANLOGOPTIONS INTEGRATEDPARAMS (MAX_SGA_SIZE 250,
DOWNSTREAM_REAL_TIME_MINE y)
LOGALLSUPCOLS
UPDATERECORDFORMAT COMPACT
```

Creating Integrated Apply

- Use the INTEGRATED option

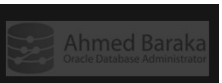
```
ADD REPLICAT rhr1 INTEGRATED EXTTRAIL ...
```

- In the Replicat parameter file:

```
DBOPTIONS INTEGRATEDPARAMS (parallelism 4)
```

- In the Extract parameter file:

```
LOGALLSUPCOLS
UPDATERECORDFORMAT COMPACT
```



Switching Extract from Classic Mode to Integrated Mode

1. Stop the Extract and register it with the database

```
STOP EXTRACT EHR1
REGISTER EXTRACT EHR1 DATABASE
```

2. Make sure the Extract is ready for an upgrade

```
INFO EHR1 UPGRADE
```

3. Upgrade the Extract and start it


```
ALTER EXTRACT EHR1, UPGRADE INTEGRATED TRANLOG
START EXTRACT EHR1
```

Switching Replicat from Nonintegrated Mode to Integrated Mode

1. Stop the Extract and Replicat (after all data is processed)
2. Alter Replicat to integrated mode

```
DBLogin UserIDAlias oggdb2
ALTER REPLICAT RHR1, INTEGRATED
```

3. Start the Extract then the Replicat

Monitoring Integrated Capture

View	Description
DBA_CAPTURE	Information about the capture processes: status, SCN, errors, start time.. etc.
V$GOLDENGATE_CAPTURE	More details about the GoldenGate capture process: state, statistics about the process operation… etc.
V$GOLDENGATE_TRANSACTION	Information about transactions that are being processed by Oracle GoldenGate capture processes, outbound servers, and inbound servers.
V$LOGMNR_SESSION V$LOGMNR_STATS	Information about active LogMiner sessions and statistics about their operations.

Monitoring Integrated Replicat

View	Description
DBA_GOLDENGATE_INBOUND	Information about the GoldenGate inbound servers
DBA_APPLY	Information about the apply processes
V$GG_APPLY_COORDINATOR	Information about each GoldenGate apply process coordinator. An apply process coordinator is a subcomponent of an apply process used by Oracle GoldenGate Integrated Replicat.
V$GG_APPLY_READER	Information about each GoldenGate apply reader.

Summary

In this lecture, you should have learnt the following:

- Understand the advantages of using the integrated mode
- Understand the options to implement an integrated Extract
- Create an integrated Extract and Replicat
- Switch a GoldenGate process from classic mode to integrated mode
- Monitor an integrated Extract or Replicat